A Sheffield Hallam University thesis

'Exploring the Potential of Re-activating Models,

Through Art Practice'

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Declaration

I hereby declare that:

1. I have not been enrolled for another award of the University, or other academic or professional organisation, whilst undertaking my research degree

2. None of the material contained in the thesis has been used in any other submission for an academic award.

3. I am aware of and understand the University's policy on plagiarism and certify that this thesis is my own work. The use of all published or other sources of material consulted have been properly and fully acknowledged. The practice work *A Fabrication* was made in collaboration with Rees Archibald and his part in this project is fully acknowledged in the thesis, along with participants in *A Working Model.*

4. The work undertaken towards the thesis has been conducted in accordance with the SHU Principles of Integrity in Research and the SHU Research Ethics Policy.

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Abstract

Models are utilised across an array of practices as tools of representation that make the inaccessible or absent, tangible. Often speculative in their function, and sometimes regarded as nostalgic, scale models are particularly entwined with the imagining of possible pasts and futures.

This research responds to an ongoing fascination with scale models evident in visual cultures, from enthusiast making practices to advertising and art. In the current climate of uncertainty and in the context of 'Lost Futures' (Fisher, 2014) this research asks what possibilities the scale model might hold for us now. What affordances could arise from a model 'reactivated' (Stoppani, 2014) beyond its original purpose? Art practice is used to appraise how models and the social contexts of their production activate space and time. By articulating the possibilities and limitations of models, the research tests the scope of art practice as a re-activator of models.

Two inter-connected strands of practice led research form the core of this thesis. Firstly, a body of experimental work responds to archive material and primary encounters with models. Secondly, art practice-led field work takes place in the Sheffield Model Railway Enthusiasts Club, and in Christiania, an autonomous community in Denmark, two outwardly contrasting communities each engaged in the production of models. These works are contextualised with existing discourses relating to time and utopias.

Contributing to the field of artistic research, this project makes the claim that emergent and exploratory art practices share attributes of modelling / model-making. Research into specific communities offers unique insights drawn from the intention and process of art making, suggesting a position for art practice-led research as contributing to the fields of Human Geography and Anthropology. Perhaps unlike other forms of research, artistic inquiry is active and reflexive, responding to the field rather than merely observing. An intra-active form of research which works with and responds to the complex network of exchanges arising from relationships between material, space, people and things, this research also contributes to urban planning, where re-activating models can provide a form of critical reflection.

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Glossary

This brief Glossary of terms is intended to aid the reader in navigating a range of inter-connected theories that thread through the thesis. These are revisited and explored in relation to one another throughout the text.

Assemblage

Deleuze and Guattari's 'Assemblage' theory is an ontological framework that posits that the component elements* within any 'body' are unfixed, contingent, in an even shifting set of relations. An Assemblage could be viewed or framed as a 'constellation' when seen in one particular perspective and moment.

Agencement

In the original French, Deleuze and Guattari's Assemblage is expressed as, Agencement. According to Nail (2007) the particular associations of the English word 'assemblage' limit our understanding of Deleuze and Guattari's work. Agencer as a verb means "to arrange, to lay out, to piece together." (Braidotti, R., & Bignall, S., 2018 p. 185) While assemblage in English might suggest a whole-ness, a unity, something that has been assembled (and is now complete), Agencement arguably emphasises fluidity and a continuing condition of new possibilities.

In this thesis, the notion of Assemblage / Agencement are explored in relation to the model as physical entity, and the process of modelling, in which the model (an assemblage of parts that can be encompassed in one view) emerges as a component in the assemblage of the social, spatial and temporal conditions of the process of modelling.

Hauntology

Hauntology comes from Jacques Derrida's Spectres of Marx (1993), a play on its near homonym 'ontology', it refers to the state of the spectre, 'neither present, nor absent, neither dead nor alive'. Hauntology has become a framing through which contemporary cultural theorists have discussed our 'nostalgia for lost futures' (Fisher, 2014). In this thesis, Hauntology is considered as one possible mode of critical nostalgia present in the practice of model-making, particularly in relation to model railway making, in which repetitive embodied gestures and the replay or repetition of past scenarios are entwined in the practice.

Major / Minor

The Minor and Major are concepts drawn from Deleuze and Guattari's' Kafka: Towards a Minor Literature (1975) and A Thousand Plateaus (1980). Minor(ity) and Major (ity) seems to present a straightforward opposition, but is rather a way of drawing distinction between: (in literature), terms which are expressive of a unified idea, rather than being the emergence of an idea, taking us beyond what was previously thinkable.

> The Major is a 'structural tendency', also unfixed but distinct from the Minor in that it responds to a pre-determined value system. Equated with macro-view of events that might tend towards a simpler 'grand narrative', the Major is more readily valued as it is more easily identified, named, and communicated. The minor does not operate parallel to or separate from the major, rather it permeates and is entwined with it, operating from the bottom of power structures, a destabilising force.

> 'A minor literature doesn't come from a minor language; it is, rather that which a minority constructs within a major language.' (Deleuze, G., & Guattari, F., 2009, p. 56)

This thesis also refers to the work of Erin Manning (2016) who explores the Minor in relation to neurodiverse perceptions and practices, and Jill Stoner (2012) who extend these concepts in relation to the spatial and temporal. Their works are pertinent to the social, spatial and material aspects of this study. Erin Manning's Minor Gesture argues for the value of modes of knowledge that come from practice that is speculative, uncertain, that draw on embodied processes and neurodiverse experiences. Manning characterises the Minor Gesture as coming into being through the practice itself, rather than naming its agenda and destination point. Though informing events continually in a pragmatically speculative way, is not so easily name-able as the major. Its lively and problematizing, even wild, characteristic could be, according to Manning, characterized negatively as 'flimsy' or 'un-rigorous', or simply ignored though it is ever present.

> 'this permeability makes it ungraspable, and often unrecognizable. It is no doubt difficult to value that which has little perceptible form, that which has not yet quite been invented, let alone defined. Also the minor gesture often goes by unperceived, its improvisational threads of variability overlooked, despite their being in our midst. There is no question that the minor is precarious.' (Manning, 2016, p. 2)

In this thesis the Minor became a connecting principle in the practice of writing. An important way of discussing modes of research that bring knowledge into being through contingent processes.

Nostalgia

The Greek root of the word, nostos or "return home" and algia "longing". In this thesis I draw on the work of Svetlana Boym whose work excavates in more depth the origins of the concept, coined by Swiss student Johannes Hofer in 1688 who regarded nostalgia as a disease that could be treated and cured. Her own definition

of Nostalgia is 'a longing for a home that no longer exists or has never existed. Nostalgia is a sentiment of loss and displacement, but it is also a romance with one's own fantasy' (Boym, 2007). The 'home' that is longed for, argues Boym, is not a place but a time – 'the time of our childhood, the slower rhythms of our dreams. In a broader sense, nostalgia is a rebellion against the modern idea of time' . This thesis speculates on the possibility of a criticality within the Nostalgic impulse.

Off Modern

Coined by Svetlana Boym, the 'Off Modern' refers to particular kinds of re-evaluative practices that comment on the Modern project critically, but which arise from, and remain entangled with the emotional and cultural legacies of Modernity in ways that are subjective and speculative. The 'Off' in Off Modern indicates oblique tendencies, unexpected 'detours'.

> 'the adverb off confuses our sense of direction; it makes us explore side shadows and back alleys rather than the straight road of progress; it allows us to take a detour from the deterministic narrative of twentieth-century history … a critique of both the modern fascination with newness and no less modern reinvention of tradition. In the off-modern tradition, reflection and longing, estrangement and affection go together.' (Boym, 2008, pp. xvi-xvii)

Utopia

In 1516 Thomas More authored a satirical fiction about an island society 'Utopia' (a pun on the Greek word eu-topos; 'a good place' and ou-topos 'no place'). Utopias in art and literature often comment on the world by imagining and describing an alternative, sometimes as an expression of a better way of life, arising in literature, art and popular culture. Krishnan Kumar has discussed various claims for the 'Ends of Utopia' (Kumar, 2010) though this is in generally discussing Utopia as a fictional

form. More recently, Ruth Levitas has explored Utopia as Method (Levitas, 2013) and Davina Cooper has undertaken studies of lived spaces and practices that could be considered Utopia as method, 'Everyday Utopias' or 'Promising spaces'. (Cooper, 2013). In this thesis discussions around the uses of Utopias arise in relation to the ideological qualities of practices that arise from encounters with models, as well as the possible reflection on Utopia as image or as fiction that might emerge from the representational qualities of models, as well as the Utopian possibilities of the moment in the practice of modelling.

Chapter 1: Introduction

1.1 Introduction

This study is concerned with the possibilities that might be presented through encounters with scale models. These commonplace tools for the formulation of concepts and the communication of information arise in a wide range of industrial, academic, strategic, technical and leisure contexts. In spite of their familiarity they appear to possess a peculiar kind of enchantment, borne out by the wealth of imagery and references to models and miniatures present in art works, cinema, advertising, and the enduring popularity of enthusiast model making.

My fascination with the poetic, practical and political qualities of models has grown accumulatively through my practice as an artist over twenty years.
Issues of scale and mimesis have threaded through the majority of my site responsive work[1]. The language of models provided a rich means of addressing the coalescence of the lived experience of place and the idea(l) or representation, a meeting point of material and spatial process and image-making.
Not consciously identified or navigated towards, rather, models emerged as a constant thread, visible in retrospect.

The act of collecting and curating played an important role too, the temporary constellations and moments of fluid manoeuvring and re-alignment, the process of sensing through the relations of things; formal, contextual, material, became a kind of machine for thinking; the form of the collection always suggestive of further adaptation, addition, subtraction, re-classification, re-animation.

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[1] Some examples of this include *Spoken For* (2012), discussed by Iris Priest in Hollinshead (2012); A *Common Treasury* (2012), *Centre Point* (2002-09) and *Viewing Platforms* (2004).

During the early to mid 2000s residencies and temporary commissions for urban and peri-urban 'gap sites' in UK were a standard part of the landscape. As an emerging artist working in the North East, I saw, in these 'light' interventions, a playfulness that I perhaps naively equated with a kind of freedom or radical use of space – something that did not have to be shackled to use value, work, production, and where I could explore the idea of public sites as something in-common, ludic, or a space for rest. The commissions I made were sometimes quick, temporary interventions. Others we more embedded, with longer, slower and more substantial interaction with places and communities.

I viewed this sort of speculative temporary work (perhaps naïvely, at least over optimistically), as a more 'just' mode of operation than making permanent art works directly for a gallery led market. However, I soon began to understand public realm work as equally entangled with the complexities of the market, and its possible implications even more fraught. I began to question more deeply the potential for complicity in processes that could be critiqued as 'art-washing', gentrification or colonization.

Working in collaboration with other artists and organisations, I developed a more nuanced understanding of the processes and implications of making art in communities and in relation to communal or public spaces.

My questions about the future role and trajectory of my art practice (and art practice more broadly) became more urgent, and my concern with the possibility of models seemed to become ever more relevant in these questions.

Figure 1: Examples of Site responsive works leading to this research (Ray, J 2008-13)

Stand By (2012), A Common Treasury (2012), Spoken For *(2013)*

These two areas of interest intensified, coalesced, crystallised in my doctoral research proposal, seeding around Svetlana Boym's assertion that 'The fantasies of the past, determined by the needs of the present' (Boym, 2001. p. 26), which suggests that what we are able to imagine about the past influences what is to become.

Early in this study I encountered a recorded lecture by Architect and theorist Teresa Stoppani, 'The Model' (Stoppani, 2014) in which she opens out and interrogates the lifecycle of the model. Taking the architect's model as her example, she describes its shifting status as it shifts incrementally towards the production of a final structure.

Ideas are formulated using experimental modelling processes, iteratively tested at a range of scales for different purposes. A model is then used to communicate the proposed final produce to the client. After the production of the structure (the building or the product of the model), the model, according to Stoppani, becomes dormant and this, in her concept, is when the model becomes a miniature – because of its fixity. Crucially, her account goes on to suggests this dormancy is a state of suspension from which the 'live' model can re-emerge, transcending its original purpose and becoming a site for the production of new knowledge.

This study contributes to knowledge by exploring Stoppani's theoretical proposal through practice, asking what might arise when we 're-activate' models, beyond their original or intended purpose (Stoppani, 2014)[2]. By using art practice as the mode of enquiry, the thesis also tests the capacity of art practice to discover and articulate the characteristics of models and the potential of models 're-activated'.

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[2] Teresa Stoppani introduced this idea in her 2014 lecture *The Model* at the Henry Moore Institute, in a series of talks relating to Iain Kaier's *Tooth House*. I will explain this concept in Chapter Two.

1.1.1 Models 'After the Future'

A new enquiry into the possibilities of our preoccupation with models that takes into account contemporary contexts is a timely endeavor. I'm intrigued by the possibility of models as simultaneously 'real' and virtual spaces, which offer an intersection of the imagined, idealized and lived experience, particularly as a means of engaging with our ideas of past, present and future. Models are often used to envisage possibilities, to extrapolate on conditions in order to estimate an outcome.

The ways in which we conceive of 'the Future' are not fixed, but in continual flux, and models are one of the forms through which attitudes about the past and future become tangible. As such, they provide a rich context through which to explore Boym's assertion. At present, the future is perceived as uncertain in the extreme, and this is tangible from the most intimate of scales (our ability to imagine our own personal futures) to the global, with ecological crises threatening the survival of species and the possibility of safety and security of human and non-human life.

Frank 'Bifo' Berardi (2011, p. 25) states that the 20th Century 'Trusted in the Future'. For countries in the 'Global North'[3] this period seemed imbued with a sense that continuous progress through technology and industry was inevitable. As we are now aware of the many complex and problematic legacies of Modernity, and projections of the future seem to have disappeared, what might models mean to us

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[3] This phase is generally used to refer to those nations that have generated wealth from the exploitation of the people and resources of others.

now, and how could different kinds of engagement with them offer something to our current situation?

Some of the most popular and familiar types of scale model are linked firmly with the rapid industrial and technological progress of the late 19th and early 20th Century. Enthusiast models could be seen as a kind of 'fan art' of Modernity. For example, the development of transport infrastructure, the power of the steam engine and the establishment of standard time is celebrated in model railways, and indeed early toy train sets introduced Modernist designs (in the form of 20s and 30s railway architecture) into the homes of many. (Vale & Vale, 2013) Military vehicles and figurines are an equally prevalent enthusiast scene. In other realms, teaching models, engineering models, and even more abstract forms, such as those used in economics (diagrammatic visual models in two or three dimensions that illustrate simply how an underlying system works) are equally fascinating manifestations of the desire to capture what was previously unknowable, and thus to gain control over an unpredictable world. Models from the worlds of architecture and engineering seem to exude a kind of charisma, a confidence that complex problems of a vast scale can be overcome, the simplification of modelling minimizing complexities and mess[4]. Each of these model tropes seems to reflect something of the philosophical underpinnings of Modernity.

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[4] Numerous striking illustrations in Karen Moon's Modeling Messages: The Architect and the Model (2005) demonstrate the seductive and charismatic qualities of models at all stages of the design process. Portraits of (exclusively male) architects posed purposefully (pointing, explaining, or looking deeply thoughtful) with their models feature heavily. The status of the professional model as tool for a masterplan has perhaps been shored up culturally by the production and consumption of such images historically.

Figure 2 :Architects (including Louis Skidmore, (far left) and amusement consultants meet in May 1930 to examine a clay model for the 1933 Chicago World's Fair [Photograph]

The questions of this thesis have grown from a personal fascination with models, and a simultaneous curiosity with why they seem to be such a resonant form. I want to investigate their perception and possibilities in the light of a contemporary lack of certainty about the Future, and critical re-evaluations of the past. I want to find out whether there might be overlooked potential for interactions with models that might offer something new. In short, what could models offer us 'After the Future'?

Because models are capable of communicating fantastic or pragmatic ideals, they can represent both fictional Utopias and attempts towards real world Utopias. In this thesis, The Utopian is not always foregrounded, but is present as a refrain, as the thesis asks questions about modes of imagining possible futures and pasts.

Broadly referring to an imaginary ideal community or world, Utopias can be found across cultures, from versions of heavenly spaces described in religious texts and imagery to ecological and science fiction fantasy tropes in literature and film. Though 'Utopia' was first used by Thomas More in 1516, to name his fictional island society (a pun on the Greek word eu-topos; 'a good place' and ou-topos 'no place')

(Levitas, 2013), examples of these visions are present throughout history in literature and art, sometimes as political projections of a better way of life, or as satire. Utopias comment on the world as it is, by imagining and describing an alternative. The genre has particular iconic examples, which are well known, but extends also into popular culture in countless sci fi novels, TV series and films[5].

In this thesis discussions around the uses of Utopias arise in relation to the ideological qualities of practices that arise from encounters with models, as well as the possible reflection on Utopias that might emerge from the qualities of models themselves; materiality, form and representation.

1.1.2 Attempts to define 'Model'

The word 'model' can refer to an array of forms and processes. Perhaps the most familiar of these are architectural and technical models that deal with an idea in flux, moving towards a new structure or solution. 'After the fact' models also exist in these spheres, as 'copies' of real-world phenomena, models or replicas, which extend into lay practices such as enthusiast modelmaking.

Although models are a popular and recognizable form, sometimes claimed as 'a kind of universal language' (Pran, 2000, cited in Moon, 2005 p. 11) they sometimes elude fixed definitions even in fields where they are ubiquitous. Mark Morris suggests that ''model' is a surprisingly flexible term even for architects' (2006, p. 8).

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[5] Prominent examples include Things to Come (1936) a film written by H.G Wells that conjures visions of impending war and the survival of humanity beyond catastrophe. Scale models and film montages conjure a sense of trust and hope in technology and order as our saviours; Lost Horizon (1937) which depicts an ideal society, in Shangri-La an isolated and, peaceful and beautiful land hidden in the Himalayas, where residents appear to remain youthful. However, science fiction films, books and TV series from my childhood in the 1980s are undoubtedly an underpinning set of references.

The meaning of the word 'model' or 'modelling' is unfixed and context-sensitive, and the etymologies of the word throw up a rich constellation of intersecting ideas that relate both to the fixity of ideas and forms and their improvised generation and malleability, and to the spectrum between. This study continually touches on the layered inter-relations between the possible meanings of 'model' as noun, adjective and verb.

Model as noun can mean 'A three-dimensional representation, esp. on a small scale, of a person or thing or of a projected or existing structure; *esp.* one showing the component parts in accurate proportion and relative disposition.' ('Model', Oxford English Dictionary n.d) 'which accurately resembles or represents something else, esp. on a small scale' a 'likeness of another. This sense stems from the Middle French 'modelle (16c., Modern French modèle) and also the Italian 'modello' meaning "mould". Model can also be traced to the Latin 'modulus' meaning "a small measure, standard," and is also the diminutive of modus which can mean "manner" as well as "measure". ('Model', Online Etymology Dictionary, n.d)

In the 1630s the word began to denote "a standard for imitation or comparison, thing or person that serves or may serve as a pattern or type" such as a particular type of product model, or could be understood as an exemplar form, the observation of which, historically, might inform a representational sculptural work. ('Model', Online Etymology Dictionary, n.d)

A model as 'an object of imitation' could also imply a person or a system which provides an exemplar behaviourally. In biology a model may refer to a species that

is the 'mimic' of another, while mathematical models refer to a particular logic or system 'Model' (Oxford English Dictionary n.d).

As the verb 'model' can correspond to each of these definitions, it can therefore encompass the physical and material process of making, the description of a form or concept, the process of copying or translating, the calculations that inform the anticipation of a possible outcome, or enacting an ideal, and attempting to follow an example. This thesis does not seek a new, more complete or final definition of the model, but acknowledges the intersection of model types and explores the shift from one possible definition to another. The breadth of possible meanings and relations present here between the material and processes of making a model (n) and the layers of intention, speculation, imagination and reflection possible in what it is *to* model (v) will all be relevant to this thesis.

1.1.3   Why this study is needed.

An understanding of the potential of models that adheres to already established functions could be offering a limited or simplified understanding that misses more nuanced, unintended even invisible interactions with models, through which more problematising questions may arise.

Existing literature suggests a distinctive quality in the experience of time as imagined in the space of the miniature, which I will explore in Chapter Two. The distinctive contribution of this art practice-led enquiry is that it offers an embodied mode of enquiry that deals with material and time directly - exploring, through practice, the possibility of diverse experiences of time, outside an ordinary chronological register.

This thesis explores how these different perceptions of time intersect; from the experience of time in the act of making to the simultaneous prospective and retrospective imagining made possible through the model.

The limitations of models are also important to this study. The charm of models provokes suspicion. They are easily dismissed as un-critically nostalgic (the enthusiast model) or seductive (the architect's model) and can over-simplify to the point of dismissing the lived experience. The reflexive interaction with the model offered in this research does not avoid these shortcomings, but embraces them as a possibility for critical thought, asking what these flawed forms might contribute *through* their perceived flaws rather than in spite of them.

1.1.4   Research Aims and Questions

This study aims to present new findings on the implications of the model, and in particular the model reactivated beyond its original purpose. It will do this by examining what arises when existing models are expanded upon or subverted through art practices that might be considered 're-activations'.

To address the potential of models in a contemporary context, particularly reflecting on ways in which it is possible to relate to the past, the future and the present through models, the research aims to contextualise these explorations with existing discourses relating to time and utopias.

The research also aims to articulate what might be distinct about art practice as a tool for critically appraising how models (and social contexts of model production) activate space and time. The scope of art practice as a means of 're-activating' models will be examined through making.

This thesis asks:

- How can an art practice-led research articulate the affordances of models?

- What possibilities are offered by the model 're-activated' beyond its original intended purpose?

- Does articulating the characteristics of models contribute to how we understand the potentials of art practice?

1.2 Thesis Structure and Approach

1.2.2 Structure

Art practice will be used as a critical tool, exploring the possibilities and limitations of models, and how the processes and social contexts of model production activate space and time. In order to contribute to knowledge about models and their affordances, the study initially brings together existing thought on scale models and miniatures, and maps the ways in which contemporary art practices have addressed models through a small sample of works.

The first strand of research focusses on the generation of a collection of open ended and reflexive works responding to archive material and direct encounters with models and sites of model production. These works will explore the sensory, material and intellectual processes afforded by models, including distinct modes of engagement that might be considered 're-activation' from observing to re-making, adapting or re-enacting. In the second strand of research, field work is undertaken in two communities engaged in the production of models; Sheffield Model Railway Enthusiasts Club and Christiania, an autonomous community in Denmark, forming the context for a parallel body of artwork. This research further tests the potentials of the re-activated model.

1.2.3 Research Paradigm

This project expands the idea of the model not as an object but as a network of events, drawing out the qualities of the inter-relations happening in this network, and as such draws on a broad tradition of Assemblage theory that in turn draws on Gilles Deleuze and Félix Guattari's ideas around The Assemblage (Deleuze and Guattari, 2004). This body of thought accumulatively presents a 'rejection of unity in favor of multiplicity, and the rejection of essence in favor of events'. (Nail, 2017, p. 22).

Key thinkers informing the research share a lineage in the work of 20th Century post structural philosophers Gilles Deleuze and psychoanalyst and philosopher Félix Guattari. Their work could be seen as a response to the problems and limitations inherent in Phenomenology and Structuralism, responding to problems in these philosophical movements and re-working in a more radical way for example, the interest in experience beyond the rational, humanist viewpoint expressed in phenomenology. Deleuze and Guattari's work takes the lack of fixed foundation for knowledge as an opportunity to explore becoming through thought, exploring the potential to transform life. The instability of ideas and the generative possibility of writing is present in their work, with terms shifting in relation to the nuances and development of their ideas, resisting a single fixed definition. (Colebrook, 2002)

Deleuze and Guattari's' notion of the 'minor' (Deleuze, 1986; Manning, 2016; Stoner, 2012) provides a framework for the project. Characterized as a language which operates from within that of the 'Major' and from the bottom of power structures

(Stoner, 2012; Manning, 2016), it is 'interlaced' with the Major but does not seek to *master*. The minor includes modes of knowledge production that come through material, sensory encounters, embodiment, and contingent process as valid and valuable. The political potential of the Minor is an underpinning theme throughout this thesis.

Erin Manning is a cultural theorist, philosopher and research creation practitioner, the founder of Senselab, a multi-disciplinary laboratory which 'explores the intersections between art practice and philosophy through the matrix of the sensing body in movement'. Her work 'The Minor Gesture' examines ways of practicing, living, writing that could be regarded as 'minor', acknowledging and valuing ways of moving in the world that are not driven by fixed attainment goals nor reliant on mere chance, but which rather allow for a more delicate sensing a way through through the world, moving and being moved by other actors, environments, atmospheres. Manning proposes the minor as neurodiverse, drawing on qualities (for example) of attention, enthusiasm, sympathy as part of the neurodiverse experience, as opening new possibilities for ways of being in the world, or valuing knowledges that are overlooked.

> the conjunction between the minor gesture and life-living is a political ecology that operates on the level of the in-act, asking at every juncture what else life could be (Manning, 2016, p.8)

The study attends closely to the relational aspects of the model and modelling, acknowledging the entanglement of the human, non-human and more-than human, with Deleuze and Guattari's the notion of Assemblage and Tim Ingold's idea of correspondence as key reference points.

According to Deleuze 'in a multiplicity, what counts are not the terms or the elements, but what is 'between' them, the in-between, a set of relations that are inseparable from each other'. (Deleuze and Parnet, 1987 viii, cited in Nail, 2017,p. 23).

Tim Ingold is a social anthropologist with particular interests in practices of making, creativity and skill (Ingold, 2014, 2013, 2010) set in a context of inter-connectedness between humans, other species, material and environment. His essay Correspondences considers how 'things carry on together' and acknowledges that they 'do not so much interact as correspond'. (Ingold, 2017, p. 13). His notion of correspondence provides a framework drawn from the assemblage that is connected to the material, spatial and embodied and is thus particularly relevant to this study dealing as it does with practices of making.

> Interaction is the dynamic of the assemblage, where things are joined *up*. But correspondence is a joining *with*; it is not additive but contrapuntal, not 'and...and...and' but 'with...with...with'. (Ingold, 2017, p. 13)

These ideas are also reflected in the New Materialist approaches of critical post human scholars such as Karen Barad, Iris Van der Tuin, Rosi Braidotti. Although New Materialist approaches are diverse and come from a range of disciplines, but share an interest in the lively and agential qualities of matter, and destabilising human-centred discourses. (Zanzo, 2018)

The post-qualitative framework that supports thinking as emergent and in the doing, makes possible a new kind of exploration of models, with the aim of articulating something new about the encounters *with* them. By approaching the

study in this way, this thesis has the capacity to contribute to our understanding, not only of what people do with models, but what the model does, *with* us, and will propose that art practice as research begins to explore this 'with'-ness in a way that transcends ordinary language, offering a route into correspondence that is material, embodied and responsive.

The new knowledge this project aims to offer is methodological, with experimental practice-led process at its core. Models are broadly understood culturally as being subject to the will of the maker. This practice considers the model, the referent, the model user / modeler in the space and time of the encounter as 'mutually intra-active agents'. (Barad, 2011). In Intra-actions, agency is regarded as coming from within the relationships between bodies (human, non-human, material or nature) and as co-constituted by all. Approaching such entanglements *through* making, this research aims to articulate something new about our entanglements with models.

1.2.4 Art Practice as Research / Practice Led Research

A responsive art practice is well positioned to articulate experiences with models and the processes of modelling, being distinct but sharing territory as a process of knowledge creation through action and reflection. The possible shared characteristics of art practice and models will be explored through the project. Definitions of Practice Led (and Practice as) Research further demonstrate the relevance of the theoretical framework described in the previous section, as they share an emphasis on embodied knowledges which are highly subjective, embracing complexity.

This emphasis on coming to knowledge through doing, is present in the distinct, related ideas of experiential learning (Dewey, 1934) 'Practical doing thinking' or

'Praxis' (Nelson), what Schön called 'Knowing in Action' (Schön, 1983) or 'Material Thinking' (Carter, 2004), thinking that happens in the making, as well as the reflection that can arise in action (during) and on action, after the event. (Schön, 1983)

In practice led research, An immersion in practice, an 'undergoing' (Dewey, 1934) leads to insights that could not be gained in another way, primary method of inquiry, and practice provides a significant part of the evidence of the research project. Doing is regarded (at least) as extending what theory alone might be able to achieve, but most discussions of practice led research claim a degree of inventiveness possible through doing as thinking. Carter goes further, to discuss a collaborative kind of intelligence that includes human and non-human actors, to their tools and materials, shifting the relevance of the method beyond the individual artist / researcher to the network they are an element of.

Carter calls this 'good techne' the 'craft of shaping or combination – open to criticism and correction' (Carter, 2004, p. xi). As with Ingold, Carter makes use of the languages of tactile material processes to make sense of the ways in which material knowledge arises, speaking of the 'threads' and 'cross weave' of thought.
The role and positioning of practice led research (a relatively new field, emerging from art education in the 1990s) has been much debated, with varying terminologies helping to distinguish the attributes of research though / as / led by practice. Nelson (2013) provides a useful overview of the evolution of studio practice led doctoral studies in the arts in the UK, US and Australia can be found which presents a range of definitions, emphases, voices in favour and sceptical of art practice as research. Gray and Delday (2011) also offer a precis of key ideas in 'A Pedagogy of Poesis'.

Nelson favours 'practice as research' rather than 'practiced led' because for him the latter implies that knowledge come after rather than through the practice. Whilst I agree with Nelson's stance that knowledge arises through, in the midst of the doing. 'knowing-doing is inherent in the practice and practice is at the heart of the enquiry and evidences it, whatever term is used' (Nelson, 2013, p. 10) in this thesis I use 'practice led' because the practice was, and is, also generative of questions, a catalyst. The practice leads the inquiry.

Chapter 2: Context: Powers of Fascination

Introduction – Modes of Interaction-
Peculiar properties of the Miniature - Enthusiast Practices
Miniatures and Models in Contemporary Art –
Summary & implications for this project

2.1 Introduction

This chapter maps literature that illustrates our cultural fascination with models and their possible implications. This includes the use of models in architecture, attempts to define modes of model use in design, and the prominence of models as visual trope and as processual tool contemporary art practice. I also explore recent literature in relation to enthusiast and D.I.Y. practices, which are relevant to the contexts of model production explored in this thesis.

2.2 Modes of interaction

The struggle to survey the vast and varied subject of architectural models, so often temporary in nature, difficult to store and preserve, has been taken on by a number of scholars. Notably, Karen Moon's *Modeling Messages: The Architect and the Model* (Moon, 2005) and Mark Morris's *Models Architecture and the Miniature* (Morris, 2006), provide a full and intensely detailed discussion of the variety of scale, materiality, process and function of models in the fields of architecture and design. These works draw on seldom seen archival images of the production and display of models, historical and contemporary, under-scoring the intertwining of the three-dimensional model with two-dimensional representations, on screen and on paper.

Moon and Morris each articulate in detail the nuanced categories of possible functions of the model. In architecture, Moon explains, the model does not necessarily strive towards a representation of a building. Rather it is a construct that can never wholly communicate a project, but is, rather, a 'series of choices about what to show and how to show it' (Moon, 2005,p. 12). Categorising the uses of the model loosely as 'study and communication', she explores the architect's use of the model as an experimental tool for testing concepts or for technical analysis of structural strength, acoustics or light; as iterative, sacrificial models; and as models solely for communicating or promoting the design to the client.

Morris concedes that there are many possible definitions of 'what counts as a model' and acknowledges not only the works of architects, designers and technicians in those fields, but also amateur model-makers. His work extends to acknowledge the charismatic effect of models in the context of a much broader 'Model Culture', within which he situates construction toys (which he categorises as 'Serious Playthings'), hobbyist model making, collections of souvenirs, and the creation of edible miniatures. This broad view of a 'model culture' helpfully draws connections between the cultural ideas bound up in the professional model and their interpretation through D.I.Y. practices.

Design and pedagogy literature contains a number of notable attempts to systematically represent the functions of models. Joanne Mendel's *Taxonomy of Models* (Mendel, 2012) coalesces around four stages of the design process which she names as: Discover, Reframe, Envision and Create, echoed by Karssen and Otte's conception of the modelling process as '*Conceive, Create and Convince*' (Frame. 2014) Describing these stages in detail, she references Dubberley design office's diagrams to communicate 'models' of process including 'Conversation for Agreement' (Dubberley, 2011) and 'A Model of Play' (Dubberley, 2008) In their article for Interaction Design Dubberley and Everson attempt to visualize the processes entailed in modelling, focusing on the use of the model in 'bridging' the distinct phases of analysis and synthesis. In other words, finding out and expressing *what is*, and discovering and demonstrating what *could be*.
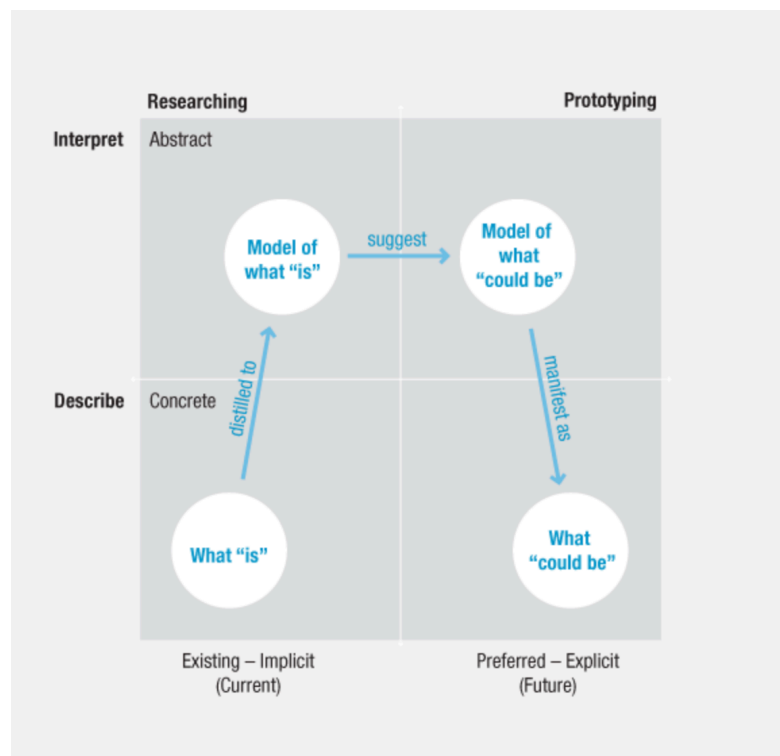
Figure 3 Dubberley, H. (2008). The Analysis-Synthesis Bridge Model

In her lecture 'The Model' at the Henry Moore Institute Teresa Stoppani (2014) explicitly states that the model 'does not act as a model until it starts to activate a set of relations which are outside itself … The 'model-ness' of the model is 'not the object , but what the object does.' This seems to suggest a mutually intra-active exchange between human actors and the objects which asserts itself by inviting a particular kind of response, shifting the question 'what is a model' to 'what is happening to make this a model?' What a model does *with* us is influenced by its physical and aesthetic qualities. Scale is represented throughout literature on models as a particularly pertinent factor in how they are experienced, and in the following section I will introduce existing ideas about the characteristics of the miniature in particular that are pertinent to this enquiry.

2.3 The Peculiar properties of the Miniature

In her work *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* (1993), one of the most cited works on the mechanisms of the miniature, seen as one of the key works on the subject, Susan Stewart begins by asking how the languages we find (or that are available to us) might come to influence the construction of the very thing they are trying to describe.

> How can we describe something? What relation does description bear to ideology and the very invention of that 'something'? (Stewart, 1993, ix)

Her questions introduce us to a mode of thought that is relevant for the enquiry to come. Models are tools for envisioning possibilities, and this thesis will explore how we relate to them, reflecting on their physical, poetic, and pragmatic attributes. Literatures exploring the specific qualities of scale models establish help to establish some key ideas about how they might engage us in particular ways.

Miniatures and models are frequently attributed with holding a very peculiar fascination, with descriptions that verge on suggesting magical power. Harbison (1997, p. 84-85) speaks of the 'miracle of models'.[6] Ashkin and Kamps (2000, p. 6-11) speak of 'compelling simulations', 'magically heightened', 'magnetic pull' and 'potent attraction' of the miniature. Lending & Hvattum (2014, p. 9) describe models as having an 'enduring allure' that provokes 'a curious mix of awe and omnipotence'.The potential for the misuse of the seductive quality of the model is acknowledged time and again. Leon Battista Alberti attributes allure to the craftsman's making: imbuing it with too much skill, making it too impressive and attractive and hoping that it should rather be made 'plain and simple so that they demonstrate the ingenuity of him who conceived the idea, not the skill of the one who fabricated the model' (Alberti, 1988, as cited in Moon 2005, p. 18). Moon attributes an 'intrinsic attraction' to scale and claims that some architects deliberately exploit this potential to persuade, calling it a 'Totem' used to 'woo' clients, allowing the model, with its symbolic intensity, to stand for more than the project could ever possibly deliver.

The 'peculiar properties' of the miniature are summarized by Jack Davy as falling into categories of scale, simplification and mimesis (Davy, 2017). The 'powers of fascination' held by the miniature, according to arguments presented by Davy, suggest that the incorporated aesthetic affordances of the miniature have psychological effects on audiences that might transcend context and, to some extent,

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[6] In reference to the capacity of models to 'put the whole world into a small space, suggested by a watercolour of John Soane's famous collection of models of all his works 'built and unbuilt'. (Harbison, 1997, p. 85)

be intrinsic to the formal qualities of the miniature. (Gell, 1992, as cited in Davy, 2017)

Models that are copies of something that exists in the world can be utilised to aid comprehension. For example, something may exist at a scale that is so minute or vast that it is invisible to the unaided eye. It may be no longer extant, distant in time or contemporary, yet inaccessible because of geographical distance. The sciences offer examples such as the Blaschka Brother's blown glass replicas of Amoeba, invertebrates and plants, models made to assist in the study of living forms before the preservation of specimens was possible.[7] Some of these models could be held in one hand, but are vast magnifications of the actual form. The numerous Orreries housed at the Whipple Museum of the History of Science in Cambridge[8] which have attempted to describe the solar system and its movements by bringing the unimaginable vastness of space and celestial bodies to an oddly domestic scale. However, models that employ mimesis might also include souvenirs of the Eiffel Tower, the Venetian Hotel in Las Vegas, or the new facsimile of the caves at Lascaux, made to save the caves themselves from the environmental stresses of the presence of humans. Hillel Schwartz's *The Culture of the Copy* (1996) provides an in-depth exploration of copies and the impulse to imitate in human culture. Schwartz explores the intensifying effects of the copy and our attitudes towards the copy as a decoy that might be intended to dupe, or which lacks authenticity. This rubs against the idea that the model might be an attempt to present with 'honesty' something as close to (inaccessible) reality as possible.

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7 Examples of the Blaschka's work are held in numerous public collections nationally and internationally. In the UK a notable moment of increased visibility and celebration of their work was *The Glass Aquarium* exhibition, at the Design Museum, London (2002).

8 The Whipple Museum collection contains a representative sample of models for teaching and demonstration.

Karen Moon describes models with great visual similitude being 'mesmerising in their exactness'(Moon, 2005, p. 12). Also intrigued by the psychological effect of the miniature copy, Davy (2017) suggests that the peculiar experience of the mimetic is heightened by the reduction in scale. Citing Ruth Phillips (1998, p. 74), 'the reduced scale of the miniature which reveals the attributes of the object it represents with special clarity' Davy's work perhaps suggests the 'mesmerising' quality of the copy as equivalent to (as well as sometimes entwined with) the magical qualities attributed to the miniature.

In summary, there exists a vast 'Simulocene', a world made by modelling.' says Jeremy Trombley (2016). However, these forms do not exist apart because of their relation to the virtual. They are 'real things that exist and interact with the world' that have implications in the way that they communicate.

2.2.1 Perceived passivity and activity in the Model and Miniature

Questions and speculations about the agency of the model and the human actor are a key focus in this thesis. These relate to the various stages of the lifecycle of the model as well as the influence of material, scale, form and representational aspects of the model in these intra-actions. In some accounts of the experience of the miniature there is a distinct tension between the possibility that the miniature affords an active, imaginative interaction, and the sense that the static 'completion' of the miniature lends itself to a more passive engagement.

Stewart also speaks of the miniature as a complete form, static. However, it is possible that the 'consumption' of the miniature in her writing is not entirely passive. Stewart claims that the miniature offers a distinct and heightened

experience that 'skews the time and space relations of the everyday lifeworld' but her perspective is that the miniature is an 'object consumed' rather than something worked with, co-created and re-invented through the reverie it invites (Stewart, 1993, p. 65). Stewart suggests that visual completeness must equate to a static miniature that may only be consumed, and which separates us temporarily from the flow of everyday life.

> The miniature does not attach itself to lived historical time. Unlike the metonymic world of realism, which attempts to erase the break between the time of everyday life and the time of narrative by mapping one perfectly upon the other, the metaphoric world of the miniature makes everyday life absolutely anterior and exterior to itself… This capacity of the miniature to create an 'other' time a type of transcendent time which negates change and the flux of lived reality…' (Stewart, 1993, p. 65)

On one hand this perceived passivity could be considered as an expression of the limitations of the miniature – perfectly detailed but static and separate from any engagement or influence upon the 'everyday' world. However, Stewart also acknowledges the miniature as a 'stage on which we project', which suggests a more animated engagement is possible. In such an interaction, the dreamer / activator might manipulate the model physically or imaginatively, whilst the miniature, in turn, intensifies their experience. The affordances of something physically small may include the possibility of touch, malleability and perhaps the capacity to apprehend the entire form. But even without the opportunity to directly touch, we might project ourselves into, move around and through the miniature imaginatively.

In her account of the intensity of the transcendent time of the miniature, Stewart conjures the sensation of a lively, heightened state in which the viewer must play an active part even if not physically or observable in activity. She binds these

experiences together with the materiality of the miniature book for example, suggesting the possibility for the weaving together of the experience of the body in the world and the visual experience of the miniature as a tangled set of interactions with things that have 'gem-like properties'[9] (Stewart, 1993, p. 43).

A translation of something to a reduced scale could also be seen as having a fantastical, even 'nonsensical' characteristic. Miniatures and toys for example, as diminutive or absurd, can easily be dismissed as unimportant. But just as Stewart claims that 'a reduction in dimensions does not produce a corresponding reduction in significance' (Stewart 1993, p. 43), Gaston Bachelard (1994) urges us to consider the imaginative potential of the miniature. He describes a form that condenses and intensifies, that stimulates 'profound values'. Presenting examples of the miniature in literature, he reflects on a fragment from Cyrano de Bergerac explored in a paper by Pierre Maxime Schuhl . He uses this fragment as an example of how the imagination becomes particularly powerful through the miniature, allowing us to dream in a kind of sense-making that is not shackled to scientific or pre-existing ideas but allows us to leap and explore the planetary in scale from something the size of an apple seed.

> This apple is a little universe in itself, the seed of which, being hotter than the other parts, gives out the conserving heat of its little globe; and this germ, in my opinion is the little sun of this little world, that warms and feeds the vegetative salt of this little mass. (Bachelard, 1994, p. 151)

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9 The miniature book and micrographia draws this particular association, the reduction in scale intensifying the idea of these formats as containers of 'aphoristic and didactic thought'. (Stewart, 1993, p. 43)

Bachelard (1994, p. 152) interprets this passage as being about imaginary value: 'as soon as the imagination is interested by an image, this increases its value. From the moment when Cyrano imagined the Seed-Sun, he had the conviction that the seed was a source of life and heat…'

The intensity of engagement in the small scale is also conjured by the creation of two-dimensional images which open up an illusory miniature space. Bachelard again asks us to consider that 'mere absurdity can be a source of freedom', relating a Herman Hesse text in which;

> A prisoner paints a landscape on the wall of his cell showing a miniature train entering a tunnel. When his jailers come to get him, he asks them "politely to wait a moment, to allow me to verify something in the little train in my picture. As usual they start to laugh, because they considered me weak minded. I made myself very tiny, entered into my picture and climbed into the little train, which started moving, then disappeared into the darkness of the tunnel…" How many times poet painters, as they painted their dreams, they have they escaped through a crack in the wall! (Bachelard, 1994 p. 150)

The intensification and subsequent 'escape' here is experienced by the maker of this miniature *Trompe-l'œil*, as a kind of virtual space. There is something about the absorption in the act of making at a minute scale which can engage the maker in such a way that perhaps the representational qualities (affording the imaginary journey or leap described by Bachelard) interact with the 'Flow' state of making that may come with the close attention, controlled movement and sensory feedback involved in the making itself.

Does the evidence or the remnants of this making process intensify the experience of viewing the miniature, even without a direct tactile interaction? In her detailed

consideration of Micrographia, Stewart isolates the particular way in which marks or forms that suggest making at a tiny scale evoke an increased sense of respect, curiosity or wonder at the skill involved in the process (perhaps unseen or mysterious). Perhaps in the miniature we are provoked to imagine the act of making more so than if we were presented with the same object at an ordinary scale.

> Minute writing is emblematic of craft and discipline; while the materiality of the product is diminished, the labour involved multiplies, and so does the significance of the total object. (Stewart, 1993, p. 38)

So, as well as the miniature offering a space into which we can imaginatively project ourselves, it also offers a space of absorption into the space of making (or, for the viewer, an *imagined* or *empathised* space of making).

Again drawing our attention to the peculiar experience of imaginatively projecting into a miniature, Stewart (1993, p. 66) recalls a research project in which participants, having been asked to imagine themselves in a series of model rooms (using a doll or 'avatar' in human form to aid this process) and to go about imaginary activities in those spaces. The researchers reported a perception of the passage of time that correlated to the reduced scale of the model ('with 30 minutes experienced in 5 minutes at 1/12 scale, 2.5 at 1/24 and so on'). For Stewart, the miniature 'skews the time and space relations of the everyday lifeworld' and has the ability to 'create an 'other' time - a type of transcendent time which negates change and the flux of lived reality…' (Stewart, 1993, p. 65)

Bachelard's observations on the miniature in literature focus more on the relation between the real world and the intensified experience of the miniature, choosing

examples where the 'real' world is somehow altered by the miniature. Bachelard discusses *The Egg in the Landscape* in which André Pieyre de Mandiargeues, depicts the effect of a bubble in the glass of a window upon the view of the landscape. Bachelard writes, 'From the miniature of the glass cyst, he can call forth an entire world and oblige it to make "the most unwonted contortions" The dreamer sends waves of unreality over what was a formerly the real world.'(Bachelard, 1994, p. 157)

Although Bachelard states that the miniature is 'solely a visual image', the examples he illuminates engage with the body in space. He describes the eye gazing down from a belfry or into the depth of a landscape to see 'miniatures at all points on the horizon' and suggests that there is work to be done to study 'miniatures that appeal to each sense'. His miniature, though contained and intensified, seems to be a state or a lens through which the 'real' world is experienced in new ways, revealing new insights through its strangeness.

Stewart also notes;

> What disappears in writing is the body and what the body knows - the visual, the tactile, and aural knowledge of lived experience. Thus, whenever we speak of the context of reading, we see at work a doubling which undermines the authority of both the reading situation and the situation or locus of the depiction: and the reader is not in either world, but rather moves between partial varieties of transcendent vision. Situation within situation, world within world - there is a vacillation between text as microcosm and the situation of the reader as microcosm. (Stewart, 1993, p. 45)

Whilst offering different views of the miniature, Bachelard and Stewart both orientate their arguments around literary forms. Yet they both point to the possibility of further exploration of these ideas in relation to the physical, three-dimensional miniature itself by conjuring vignettes that engage actively with space,

time, and the body. Claude Lévi-Strauss also identifies miniatures as 'not just projections or passive homologues of the object: they constitute a real experiment with it'. (Lévi-Strauss, 1966 in Davy, 2015 p. 1) The active 'experiment' Lévi-Strauss claims suggests also the possibility of the miniature as a live, 'activated' model in which the human actor is engaged as more than a passive consumer of narrative.

These accounts of the miniature seem contradictory, but perhaps this indicates that we should be considering a *spectrum* of possible activity rather than a single decisive reading of the potential of the miniature.

2.2.2 The Life Cycle of the Model and Miniature as 'Dormant' Model

Teresa Stoppani's articulation of the life cycle of the model (2014) contains a particular definition of the Miniature which differs slightly to the kinds of narrative or pictorial miniatures that Stewart and Bachelard focus on. In her account, the miniature is a useful way of considering a particular phase of the model's existence. After the period of inventive and iterative model production in which ideas are formulated and tested in an experimental mode, the model shifts into a primarily representational mode which is used to communicate to (or persuade) a client. After the completion of 'the structure' (a building or product for example), its intended goal, reached, the model might be considered 'finished' as in, complete and perhaps in some ways 'dead'. However, Stoppani's analysis is distinct as she considers what occurs after this. For her, this stage is not a death but 'mere dormancy': a state of suspension from which the model can be revived with the potential of a different kind of production:

> ...the form of production that occurs here is an understanding, a process of discovery it engages with … something which is already produced as an outcome of the model but this time it produces knowledge. (Stoppani, 2014)

This conception of the re-vivification of the miniature back to model-ness offers a context for investigation through practice-based methods.

2.4 Enthusiast Practices

Enthusiast models become a particular focus in the field work contexts for this study. Literature that directly addresses the contexts of model railway making and Free Town Christiania will be drawn upon in the chapters relating to those settings. Here I will map something of the recent work that explores more broadly the relation between the maker, material and process, and the social aspects of communities of practice.

 2.3.1 Craftivism

Some craft activities have enjoyed a revival in recent years. Many of these have at their core an inherent use-value, for example knitting or carpentry, which often results in usable, wearable, items of utility. Some of these processes and the aesthetics related to 'D.I.Y.' practices have become strongly associated with socially engaged projects or 'craftivism'. This involves using crafts to consciously work for social change, towards a viable and achievable future that is 'better'. Research into making *by* makers (often informed or led by practice) provides a critical discussion around this phenomenon. Fiona Hackney (2013) argues for domestic craft activities, specifically textile processes, as 'Quiet Activism' and cites their marginalized, often hidden nature as one of their strengths as a site of resistance. Hackney refers to De Certeau's '*la perruque*', re-imagining previously undervalued craft activities as a form

of resistance and agency; tactics that might contribute to the re-weaving of a social fabric. Jack Bratich and Heidi Brush (2011) discuss the perceived lack of value in women's domestic crafts (knitting, crochet, scrapbooking, etc.) as a strength. They state that the 'spaces of the amateur' are 'hidden zones' with a potential for generating a different kind of value. (Bratish & Brush, 2011, p. 240)

2.3.2 Enthusiast Making and World-making Communities

Whilst careful to represent hobbyist activities in his survey of models, Morris (2006) acknowledges that these are not represented as significant beyond their own niche cultural 'scenes', bearing out the absence of model-making from the new 'cool' craft resurgence. Pollard and Carver's (2016) autoethnographic 'collective autobiography' discussing the role of amateur model-making practices in their lives suggests that a stigma still exists around the hobby, the fear of which ensures that it remains comparatively hidden to those not already in the 'scene', the demographic of which is generally white and male. Exposing their own experiences, they discuss their motivations, pleasures and concerns as 'sometime' kit-model makers, squeezing the construction of miniature aeroplanes around family life and work, negotiating space, choosing where to hide or reveal their passion. They trace the overlap between D.I.Y. and consumer behaviours as they adapt bought 'kits' and ready-mades and improvise new scratch-built parts, with a spectrum of resourceful, inventive and exploratory modifications between the two. Pollard and Carver also explore how model-making can contribute to well-being, extending from an account of craft as a 'bodily interaction' (Riley, 2011) with materials and the often immersive process of model making articulated here:

> ... the sense of absorption. In a world of build or paint, everything else fades.
> As an individual prone to worry, that is quite an attraction. There is also the

balance of problem solving and creativity. Instructions can be woefully inadequate, and patience is required to understand them. (Pollard and Carver, 2016, p. 172)

Enthusiast model-making may have origins in, and connections to childhood play, acknowledged to be both playful *and* serious in intent. The serious-ness is expressed by characteristics that could be seen in line with Robert Stebbins view of 'serious leisure' (1992). He describes the committed and organised activity of an amateur or hobbyist that is 'highly substantial, interesting, and fulfilling'. Stebbins notes that 'in a typical case, participants find a career in acquiring and expressing a combination of its special skills, knowledge, and experience'. (Stebbins, 1992, p. 3) The word "serious" (commonly used among amateur practitioners) denotes earnestness, sincerity, importance, and carefulness. This adjective, often used as almost a folk term, signals the importance of these three types of activity in the everyday lives of participants, in that pursuing the three eventually engenders deep self-fulfilment.

The value of enthusiast practices has also been explored by Andy Merrifield, who is interested in the radical potential of the expertise of the amateur, combined with the 'alternative sensibility' he sees as a characteristic of the amateur. In Merrifield's view the enthusiast practitioner is far from being a passive consumer, and is instead a source of latent potential in society resisting 'professionalisms and the structures of work…a standard mould'. The enthusiast practitioner pays close attention to the quality with which one engages in any undertaking in order to 'feel more alive'. (Merrifield, 2017) Stephen Knott (2015) considers these 'mercurial' qualities of amateur craft as being 'harnessed' by some contemporary art practitioners.

The practices of communities coalescing in and around online worlds are seen in ethnographic studies of children and adolescents as well as adult online play, for example in Celia Pearce's (2011) ethnography of communities of 'productive play'

and Chris Bailey's (2017) study into the lived experience of a 'Minecraft'[10] afterschool club. This research explores agency, and also the co-creation of narratives and culture within imaginary and physical spaces online and off. Intra-actions in the 'Hybrid' space of on/offline worlds defined by this research are useful when considering the possibility of the hybrid space of the model and the wider spaces in which it is encountered.

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[10] *Minecraft* is a popular creative video game developed by Markus Persson, released in 2011, by Mojang (Sweden). Players occupy a 3d 'world' in which they can build structures using blocks. Though enormously popular as a leisure activity it has also been used in educational contexts and has even been used in urban planning initiatives, by the UN for example in schemes to help involve communities in visualising changes they would like to see where they live. (Senior, 2012)

2.5 Miniatures and Models in contemporary art

Finally, as this PhD project takes a fine art practice-led approach, I will discuss a cross-section of works from this field which engage with models as a subject or which exploit particular aspects of the physical, representational, technical, processual and relational qualities that models offer.

2.4.1 Surveys of model-related works

There is a demonstrable ongoing fascination for play with scale in this field. Speculating on the resurgence of interest in the miniature and model, Marc Valli's introductory essay to *Microworlds* reflects on the shift from the interest in scale associated with modernity and exposure to monumental architectural structures and infrastructure. These at once showed the might of human design and made the human body feel small and out-of-scale 'one felt both god-like and ant-like' (Valli, 2011). He suggests that the scale-play in works by artists in the 20th Century (citing Oldenburg, Christo and Jean-Claude) were also perhaps responses to this. He goes on to suggest that more recent interest in the miniature could be connected to the experience of scale influenced by the internet, relating this to the effects of instantaneous communication on our perception of spatial and temporal scale. The vast complexity, action and possibility of the world contained in the small, handheld screen, rendering the internet 'the greatest microscope of all'.

> We no longer gaped at gigantic structures, but wondered at the infinite possibilities of artificial intelligence, virtual worlds and communication highways. (Valli and Dessanay, 2011, p. 6)

In the exhibition, *Homes for the Soul: Micro-architecture in medieval and contemporary art* (2001) at the Henry Moore Institute, contemporary artists' small-scale

representations of architecture[11] were brought together with medieval reliquaries. The exhibition sought to explore 'ideal and real space, relationships between body and soul, and associations between domestic and ecclesiastical architecture'. The medieval objects can be understood in light of medieval conceptions of the body as an enclosure for the soul. A year earlier, the exhibition *Small World: Dioramas in Contemporary Art* (Museum of Contemporary Art, San Diego) explored the way the diorama addresses the world through model environments; Toby Kamps writes that 'dioramas tell as much about the society that created them as they do about the natural worlds they represent' (Kamps, 2000, cited in Ashkin and Kamps, 2000).

More recently two curated projects devoted to models were exhibited in Manchester, UK. *Model Behaviour* displayed works engaging (through models) with the notion of an 'ideal or model form'. The exhibition explored the model as a space 'more fictive or distorted … that sparks the imagination towards more dramatic readings of objects, things and space … sometimes we need to look towards the model to be able to see the gap between image and existence' (*Model Behaviour*, 2015)[12]. *Miniature Worlds* at Castlefield Gallery (2016) brought together an even more diverse collection of diagrams, models and video works and included fantasy landscaping and figurines all 'acknowledging our relentless pursuit for knowledge, the exhibition considers the potential of things in small scale to help us understand, document and communicate the world in which we find ourselves, ultimately arriving at the joy we find in these modest-sized artefacts in their own right' (*Miniature World*, 2016).

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[11] Featuring the work of Alex Hartley, Mike Kelley, John Miller, Renato Niemis, Manfred Pernice, Donald Rodney, Emma Rushton, and Thomas Schütte
[12] At the Holden Gallery, Manchester Metropolitan University,https://www.holdengallery.mmu.ac.uk/2015/model-behaviour/

Themes reflected in the texts accompanying these projects demonstrate recurring association with 'ideals' (the model as adjective), formal qualities of the smallness and lightness, fictions and therefore a variety of imaginative registers and how they influence our understandings of ourselves and the lived worlds we occupy.

2.4.2 Models for the Lens

Works which explore the model seen through a glass or presented as image, are a particular strand within a broader spectrum of model-related works. Thomas Demand's work for example begins with an archive photographic image. Using this source material, the artist constructs an accurate full-scale replica or 'set' based on the space depicted, using cardboard and paper that has no further embellishment or surface treatment. He then photographs this translated scene with a large format camera using a telescopic lens to gain high resolution and 'heightened verisimilitude'. These works reveal their own construction, but the sense of visual uncertainty, the feeling of unease, remains. The separation from the physical object, the smoothness of surfaces pictured, deny us access to any other viewpoint, and the ability to touch and turn the model. The works 'pull' and 'push' against the eye, keeping us in a state of frustrated fascination. The models have resolutely uniform and inexpressive surfaces, stripped of the detail that may have been there in the original image. The way in which the work critiques the construction of what we perceive as 'true' is bound up in the method of making but also in the choice of the source photograph. For example, 'Buro' (1995) takes as its source a photograph of an office in the Berlin headquarters of the Stasi soon after the Berlin Wall fell. In her essay 'Paper Moon' Roxana Marcoci suggests 'Demand's eradication of all

contextual evidence is clever commentary on the censorship enforced by authoritarian regimes' (Marcoci, 2005, p. 14).

By exploiting the additional uncertainty of the visual experience offered by the translation of the model into the image plane or screen-space, works such as Buro disrupt our perception and destabilise our sense of what can be trusted. Models for the lens in contemporary art (for example in the work of James Casebere, Mariele Neudecker, Lori Nix and Gary Perkins) often share this capacity, or at least the intent, to critique the construction of narratives.

Figure 4. Thomas Demand, Buro (1995)

Figure 5. Stasi central office in Berlin, January 16, 1990, from Der Spiegel

2.4.3 Reference to Enthusiast Modelling

Artists have drawn on the language of enthusiast and hobbyist world-making through the adaptation of mass-produced figurines and bought scenic components of the kind used in architects' models, model railway layouts, as well as military figurines which, like model railways, seem to straddle the worlds of childhood play and adult hobbies. Two notable examples are the recent work by Jimmy Cauty, *Aftermath Dislocation Principle* or *A.D.P*, (2013-16) and by the Chapman Brothers, *Hell* (1998-2000).

Regarded by Cauty as a 'Model Village', and described in the exhibition literature as a 'monumental post-riot landscape in miniature' (Jimmy Cauty's *ADP Riot Tour*, 2016). *Aftermath Dislocation Principle* was originally shown in 2013. It was then developed further throughout 2015 and 2016 (in the run up to and after the EU referendum in the UK) and was toured extensively around the sites of historical and contemporary riots in UK. This dystopian scene is 'set somewhere in Bedfordshire, where only police and media teams remain in an otherwise deserted, wrecked and dislocated land' (Jimmy Cauty's ADP Riot Tour, 2016). Made at 1:87 scale (also known as HO scale, the most popular scale for model railway scenics), this extensive miniature scape populated only by animals and police suggests some huge social unrest and violent crisis. It is a ruinous landscape, with suggestions of rituals unfolding, infrastructure unravelling. Housed in a customised 40ft shipping container the work is viewed through apertures, which, on approach to the piece, gives the impression of a peep show suggesting our complicity in an act of surveillance.

Figure 6. Installation View, *ADP Riot Tour*, Hull 2016.

Figure 7. *ADP* tour literature, 2016

The detail and complexity brought to the work by the languages of traditional

model-making used by Cauty arguably draw people into 'a continual feedback loop

of stories and meanings' (Cauty, 2016). The political discussion Cauty's work hopes to stimulate is perhaps made more obtainable through the use of the model, made familiar by the languages of enthusiast model making. The critical potential of the piece could be argued as stemming from its transitory nature, deliberately disrupting sites of historical protest or social unrest, reminding us of invisible shared histories and forming a transitory opportunity for conversations that could only arise with and through its presence.

Co-opting the language of the scale model in their work *Hell* (1998-2000), the Chapman brothers exploit scale to subvert the kind of heightened moment of the diorama that Cauty's work employs. Whilst the small-ness of the toy figures used in this epic scene draws the eye in, the massive number of figures and deliberate resistance of special focal points, viewpoints or compositional devices to give the slightest coherent narrative leave the viewer lost. 'Hell is riddled with detail, but no one bit is more significant than any other: it's equally horrific.' Buying 60,000 toy soldiers they violently modified and re-cast each one, intentionally using the language of playthings as the 'least appropriate' manner in which to address the horrific magnitude of death on an industrial scale (Chapman, J., as cited in Abbot, 2015).

For the Chapmans, this inversion of the power of the miniature is intentional. The Chapmans employ the initial allure of the miniature world seen from a distance, followed by a sense of voyeurism heightened by the glass vitrine (equivalent to Cauty's spy hole device) but then the initial impact of the first horrific glimpse soon becomes banal and monotonous. The temporal scale of the production process – the two years of work visible in the intense intricacy of the work, and the vast number of

figurines - is integral to the work. Both *Hell* and *ADP* employ the seductive and nostalgic nature of the small scale to subvert or confound expectations attached to the form, but simultaneously take advantage of these same qualities to engage their audiences.

 2.4.4 Modelling Processes

Modelling as a process has more recently come to the fore in artists' moving image, relational works, and performance. In some cases this 'borrowing' of a recognised language works conceptually to critique existing practices. In others the process of modelling is being tested, its limitations and capacities laid bare. The three examples I give here illustrate some of these tendencies and begin to suggest how model-use can be used in an interrogative way.

Though not a pictorial model, Neil Thompson's work Mechanomics (2015) shares some territory with these previous examples, as it seems to contain both homage and critique of the model. This video work chronicles the construction of a homemade hydro-mechanical economic computer, inspired by the MONIAC – a hydraulic economic analogue computer. Made in 1949, now housed at Cambridge University, the MONIAC was designed by Professor A. W. H. Bill Phillips (1914-1975) to simulate the British economy. Each part of the machine represents an aspect of the UK national economy and the flow of money around the economy is illustrated by coloured water. Thompson comes to a closer understanding of the function of the original through the construction of his own similar machine, which also works to critique the political and social implications of placing faith in an economic model. Thompson describes how, the 'models we build are far superior to our singular

capacity for cause and effect' and warns 'of this we should be cautious but instead we are seduced…' (Thompson, 2015). The criticality here again relies on making us aware of our own susceptibility to simplified narratives and the 'magic' of the model – a silver bullet to explain away complexity in times of confusion.
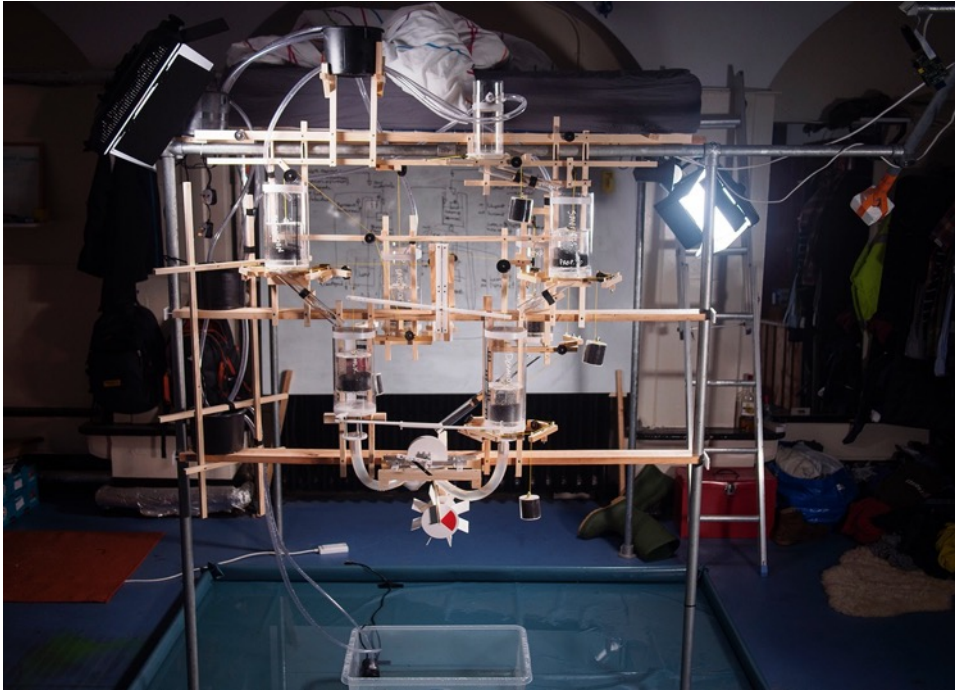
Figure 8. *Mechanomics*, Neil Thompson (2015)
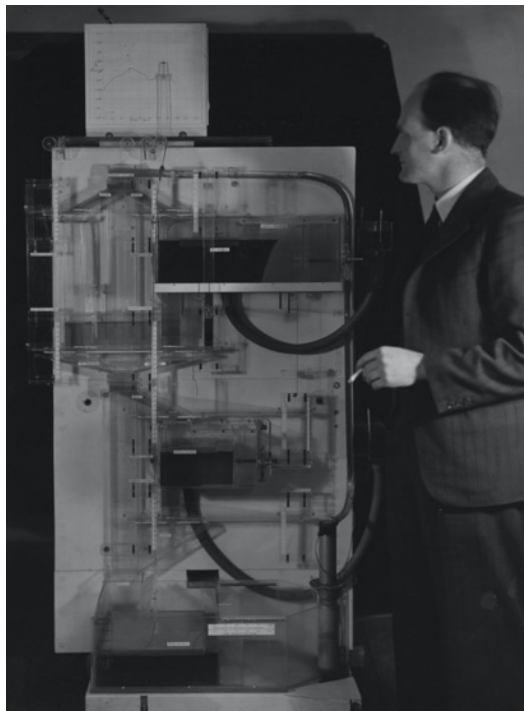
Figure 9. *Bill Phillips and his modelling machine* (no date) [photograph] Science Museum.

Made in collaboration with Choreographer Alexander Whiteley, and filmed over the course of nine days in March 2013 with assembly line workers in a factory in White Horse Electric Factory in Zhongshan, China *75 Watt* (2013)[13] is a film and series of still images resulting from a performative process that was produced by the production of an artefact, designed solely to 'choreograph a dance performed by the labourers manufacturing it'(Cohen-Van Balen, 2013). The artwork opens up questions about the physical and social conditions of the body, the product and the space of production (in this case the factory and the production line). It considers the influences exerted by each agent upon the other(s). The inter-relation of the model as prototype, the 'model' worker and the model of production in this work could be seen as an indication of how art practice is increasingly looking to aspects of the model that run deeper than exploiting the charm of the pictorial miniature or diorama, and instead points towards the potential of process as both analysis and critique.

Figure 10. Cohen Van Balen, *75 Watt*. (2013)

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[13] The title refers to the average output that can be maintained by a worker over the course of an 8-hour shift.

The process of co-constructing a model as a tool of analysis is explored in a different way by Forensic Architecture (FA). Their use of models in the response to analysing 'real world' scenarios can have direct consequences, and have been brought as evidence in criminal cases.

Still in progress at time of writing, the Grenfell Media Archive (launched 21 March 2018) is an ongoing process of data collection, intended to collect evidence about the fire in June 2017 which caused the death of seventy-two people, and the injury and displacement of many more. It began with an open call for images and footage captured by individuals. Each contribution is seen as 'a unique piece of evidence' which together form a '3D video' of the fire, which is meticulously mapped onto a digital architectural model of the tower constructed using the open source modelling software Blender. More than a mere visual representation, the model is intended to be a resource, a repository for any information about the fire that enters the public realm. The online interface allows users to explore the events of the fire (Forensic Architecture, 2018).

In this project the process of 'model-making' is laid bare as a piecing together of fragments, requiring technical skill, persistence, visual research on site and from secondary sources. In an article on the project, the language - 'collect', 'sift', 'painstaking attention' - attests to the dedication and tenacity required for the undertaking which, though held in the digital sphere, is attuned deeply to the spatial and material, characteristic of the forensic turn which Eyal Weizman calls 'an emergent sensibility attuned to material investigation' (Weizman, 2014, p. 10). The critical capacity of the work is perhaps only in part a visual experience. The generation of a process and model that is communal and continuing foregrounds the

relational power of the model as a repository and visual reminder of the multiple perspectives of the event. Through such methods FA hope to invert the 'Forensic Gaze' of the state, using information gathered from the people to call state and corporate powers to account.
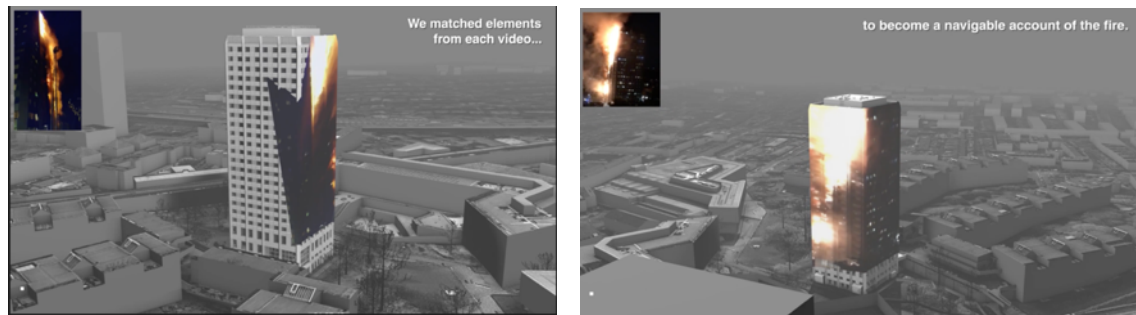
Figure 11. Forensic Architecture (2018) *Grenfell Media Archive*

2.5 Summary and implications for this project

Whilst Design literature focusses on the pragmatic relationship with the model as a tool for iterative process and communication, art practices play with the layers of nostalgia and past futures that are inherent to certain visual languages used in physical scale models, drawing on the strong relationship between models and speculation on the past and future, and therefore utopianism. A relationship that includes visual languages pertaining to an imagined ideal as well as processes that might be considered part of a processual 'Concrete Utopia' (Levitas, 1990) - an always emerging process that might for example seek to enable a greater degree of democracy, agency or enabling un-represented voices to be heard.

In texts from literary criticism and anthropology we have been presented with perspectives on how the representational, formal and material qualities might be considered as working upon us in terms of perception and imagination. Some of

these qualities are more tangible than others and more widely articulated, and in particular the 'intensifying' qualities of the miniature are commonly expressed.

This research will extend these observations by Bachelard and Stewart, and Lévi-Strauss, which are key reference points in much contemporary literature around miniatures. I will respond to Bachelard's invitation to 'appeal to each sense' and to consider how our bodies attune to the different modes and intensities of engagement. I will do this by testing how concrete aspects of the model relate to less tangible aspects of encounters.

Stoppani's notion of the 're-activated model'(2013), supported by Morris's question 'what is happening to make this a model?' (2006) invites a deep investigation into how this works in, and through practice. The idea of the model's latent possibility is key. This enquiry will consider, through practice, what happens if the model is re-activated. Can the model emerge in some other mode, transcending its original purpose?

More specifically, what could be considered a re-activation and what kind of knowledge might these different kinds of re-activation generate? Is there also an implication that things not originally intended as models could transcend their original function and achieve a different kind of 'model-ness'?

<center>**Chapter 3. Method**</center>

Introduction – Minor Methods: Shout Outs –Worrying Materials – Sketch and Note-works –Hanging Out –Mobile and Multi-locational.

3.1 Minor Methods

In this chapter I will introduce approaches that originate in my practice as an artist from which my methods for this study emerge. I use informal terms to name this cluster of methods, in an attempt to articulate them as closely as possible. As mentioned in the introduction, aspects of my practice could be characterized as belonging to the 'Minor'. It is an emergent process that responds to conditions arising from the merging of the practice and its contexts. 'Emergence' as 'the change inherent in embodied experience' (Perry and Medina, 2011) is a *felt* process in action. I seek insights by attempting to embrace the complexity of relationships between humans and other agents. I share Erin Manning's view that defining a rigid research design 'results in stultifying its potential and relegating it to that which already fits within pre-existing schemata of knowledge' (Manning, 2016, p. 29). The path of the study is not plotted firmly at the outset, allowing for the detours and wanderings that come from not-knowing. I argue this as a valid and powerful tactic in art practice led research.

3.1.2 'Shout Outs'

The accumulation of diverse material from a range of sources is a noticeable trait in my practice as an artist. Archive material, text, and imagery are drawn into the research through intuitive processes result in reference points which may seem oblique, surprising or off-kilter. These are embraced as a way of coming to know

through practice. Robin Nelson (2013) argues for syncretism[14] rather than depth-mining as an appropriate model for art practice-led research. Following his logic, the associations that are brought to 'points of visibility' (Harrington, 2015) by this research are accepted as vital to its unfolding.

In this research I will continue to allow fragments to provoke lines of thought, questions, and associations. New insights gained through working in response to found materials carry within them something of the context of their sources, including qualities beyond the linguistic; affective responses to textures scent, form, weight. The associations, sensations, thoughts and feelings that coalesce along the lines connecting these references materials are the place from which new insights emerge and the decision to allow the abundance of these is a decisive stance.

Stephen Shukaitis (2009) discusses the potential of footnotes and references, for example, as 'akin to shout-outs in hip hop'. These are short forms of credit, acknowledgement, celebration or 'nods' to someone or something that has influenced or supported the work. Shukaitis thinks of the notes of a body text, the 'allusions and unmarked references' as a means of exploring ideas in a slightly different register to that of the main text. He describes a 'conduit for microcircuits of feedback and interaction within a text' (Shukaitis, 2009).

This way of thinking about the 'shout out' feels close to what I identify in my processes, though it is sometimes difficult to rationalize why specific reference points are used. Something significant is happening 'under the surface' that I cannot yet quite name, but which I sense to be an important influence.

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[14] A bringing together of diverse knowledges.

In her work *Toward a Minor Architecture*[15] (2012), Jill Stoner states that the sites she cites are her reference points precisely *because* this is *her* library, her experience. In being transparent about the partial and subjective she exposes her viewpoint as both limited *and* specific, focussing on what can be gleaned from this. I take Stoner's view that the 'rightness' of my very peculiar reference points relies on trusting that if I am open to their limitations and dedicated to an awareness of my own positionality, they can assist in a critical stance.

My artistic methods allow me to be drawn to certain materials which, whilst not obviously important as isolated texts, have felt resonant for reasons sometimes unclear at the outset. Articulating vividly the kind of fascination that drives these selections Maggie Maclure writes of 'occasions where something…seems to … to grasp us. These moments confound the industrious, mechanical search for meanings, patterns, codes, or themes; but at the same time, they exert a kind of fascination, and have a capacity to animate further thought' (MacLure, 2013a). She calls this particular intensity a 'glow' (MacLure, 2013b) and speculates on it as a kind of wonder.

I claim chance encounters, oblique connections and errors as part of my research process. Other scholars have also argued for the potential of such sideways moves and intersections. According to Boym's notion of the 'Off Modern'[16] (2008), erring can 'trace unexpected connections between different forms of knowledge…beyond the prescribed interactivities…erring can also make flexible cognitive maps based on

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[15] which expands on Deleuze and Guattari's *What is a minor literature?* (1983)

[16] A concept which I will expand on in Chapter Five, The 'Off Modern' is a phrase used by Boym to discuss the specific characteristics of certain practices that constitute a re-evaluation of the Modern project, which are highly subjective, speculative, and which acknowledge our emotional and cultural entanglements with Modernity at a range of scales.

aesthetic knowledge and ahead of software calculations' (Boym 2017,p. 14). Echoing this, Ingold argues for the value of 'veering off course, in brief encounters with things, artworks and people that trigger reflections' (Ingold, 2017, p. 4) and further underscores the way in which we might 'come to know things' by 'joining with the things themselves, in the very processes of thought'(Ingold, 2017, p. 5).

To summarise, a tendency to accumulate, obliquely connect, and reflect is embraced methodologically, and through the chapters I hope to expose what this can contribute to research.

3.1.3 Worrying Materials

> To worry, to '...feel or cause to feel anxious or troubled about actual or potential problems…worry something out; discover or solve something by persistent thought…annoy or disturb…tear at or pull about with the teeth … pull at or fiddle with repeatedly.' ('Worry' Oxford English Dictionary, n.d)

To *worry at* material can be generative. Activities that cannot be measured or which arise out of pleasure, curiosity, conversation or rest can be a way of holding a space for new ideas, potentials and connections. Stoner discusses escaping the regimented, segmented time of the workplace, the school, the institution, and lists among the possible strategies for liberation; 'tapping, scratching, reading, writing, gazing and pacing' (Stoner, 2012). The exploratory, improvisatory and open-ended tendencies in these ways of relating to matter are inherent to my methods. Conversations with the materials arise by taking part in a new set of relations with them.

I introduce the range of physical and conceptual workings and re-workings that can arise in my practice as 'worrying materials', as they are diverse but connected by the

pained unease combined with a sense of movement, return, repetition, and tactility we sense in the above definition. These worrying materials may include (but are not limited to)

- Photography and Video: The specific nature of the encounter with models that one is unable to touch or handle, the model behind glass or represented through photography or film. I will use photography as a means of documenting these encounters and these materials may be incorporated into new art works. The status of imagery is not simplified as art / document / data, but is under continual question.

- Found / Archive secondary source material 'Minor Models'. I will accumulate a collection of 'Minor Models'. A loose and evolving collection of models and model ness that may include happened-upon items, ephemera – packaging, kits, internet 'finds', archive imagery, advertising, model making literature, videos and manuals.

- My own body and gestures or that of others

The 'Worrying' of materials may include tactile and spatial processes with substances, lens-based practices, enacting or performing, including but are not limited to:

'Shuffling' tableaux of objects and materials

Installations (objects and / or footage)

Curatorial practice

Mapping

Using methods that do not conventionally suit the material

Book maps – spreading out my 'library' on the floor

Keynote as an iterative sketchbook – a 'rough' tool for montage / collage

Performance to camera

Performing in response to footage of interview

Experimental modes of collage using reflection as a form of 'double exposure'

editing, combining, layering, cutting and connecting

(Re)- Placing / re-locating imagery / footage in different contexts

These strategies are not always visible simultaneously, and not always completely distinct from one another as this list might imply.

3.1.4 'Sketch' and 'Note' works

Works which are unresolved and improvisatory form relevant and distinct methods as the structural and formal qualities of the work (as well as their subject / content) explore and analyse the qualities of models. They can be mobile, spatial and material modes of reflection and analysis which I also regard here as a 'Minor' method. The *Map of Works* and book *Working Models*[17], that form part of this submission, as the video showreel of sketch and notes[18] give a visual indication of this aspect of the practice. The Map and the book are arranged to follow the order of works in the thesis.

3.1.5 Hanging out

An attentiveness to space, place and people has been developed through my previous art practice; working on commissions, residencies and self-initiated projects the majority of which were made in response to specific spaces and places from 2004

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[17] See practical submission: 02 *Map of Works*, 01 *Working Models*
[18] See practical submission, 01 Chapter 4 works, 04 *sketch and note showreel*.

to 2014. In these experiences I began noticing a tendency to reference the expertise and languages of other kinds of practitioner, and in particular vernacular languages of signwriting, temporary architecture and model making. In getting to understand places I was invited to respond to, I would undertake forays via the knowledge and understanding of people who actively lived the place, through walking, sharing conversations, collecting. These processes could be seen as something of an ethnographic sensibility, and began increasingly to align with Karen O'Reilly's definition of ethnography as 'Iterative inductive research (that evolves in design through the study) drawing on a family of methods, involving direct and sustained contact with human agents, within the context of their daily lives (and cultures) watching what happens, listening to what is said, asking questions' (O'Reilly 2005, p. 3). That said, the research process remained (and remains) distinctly art practice-led, and rather than resulting in the written account O'Reilly goes on to describe, the outcomes were art works.

In *Doing Sensory Ethnography* (2015) Sarah Pink embraces a move towards art practice as one of the methods through which experience can be interpreted, appropriate in the multiple possibilities it offers. Whilst my methods of capturing footage could be viewed as a pretty conventional set of methods, for ethnography or art practice, the interpretation of these materials is extended through the experimentation and reflection possible in the making of art works during stages of review, editing, montage, and installation.

Materials gleaned from the field – drawing, mapping, making field notes and audio / visual recording are importantly entwined and inseparable from the process of

'Hanging out'[19] with people of different expertise (in relation to models) which will enable me to understand somewhat hidden, unspoken elements of spatial, material and social environments or processes. These models will be reflected upon in relation to one another through their inclusion as material in new art works or art processes. Materials generated through field work will not operate as separate or in support of artistic process, they are integral to it.

3.1.6 Mobile and multi-locational

My method will include the extension of the space in which my practice operates to include communities and spaces in which the models are encountered. In the methodologies for this research processes the 'Lab' (studio) and Field are not always distinctly separate and indeed I challenge that idea that 'The lab decontextualizes; the field contextualizes' (Koskinen, 2011, p. 69). Koskinen claims 'Studying things in a laboratory means that something is taken out from its natural environment and brought into a controlled area where it can be subjected to experimentation.' I would question the idea of the Lab as a controlled space. I would argue that the 'Lab' is a space in which the 'thing' immediately comes into interaction with the languages of the lab, in my case (the studio as 'lab') the remnants of other 'experiments', collections of materials related the study, literature and the stuff of my own day to day. This does not invalidate the re-location but affords a conversation with my positionality and a deeper scrutiny of the spaces I operate in along with the material from those spaces.

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[19] 'Hanging out' is the description given to ethnographic research in which the researcher develops rapport with participants, but is usually seen as a precursor or method for 'Participant Observation'. My research is not participant observation, but I recognise that spending time alongside others can be an important part of my attuning to site.

During the course of this study I work in university art studios, which have their own distinct languages, conventions and associations (European 20th century art pedagogic practices for example), as well as hired studio spaces in the city which are found in old industrial buildings as well as former social housing (Park Hill Flats).[20] My practice will continue in my home, a domestic studio, as well as the Christiania Researcher in Residence House[21], a temporary home. These are not 'controlled' environments but new contexts which speak to and *with* footage gleaned in the field; notes, drawings, sounds, images, objects.

3.2 Field work contexts

Experiences of scale and time are key to the decision about which models and encounters to include in this research. Two specific contexts form the basis for my field work in the second stage of this study, a Model Railway Enthusiasts Club in Sheffield, UK and Christiania, an autonomous community in Denmark founded in the 1970s. This is a self-governing 'Freetown', where the inhabitants have been responsible for creating dwellings and all manner of infrastructure and social governance. These settings may seem initially quite disparate, having markedly

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[20] Park Hill is a famous brutalist housing estate in Sheffield, UK. Built between 1957 - 1961, inspired by Le Corbusier's Unité d'Habitation. he flats were initially a council housing project. The structure was disused for a number of years and is now partly refurbished private housing marketed by developer Urban Splash. S1 Artspace studios are based at Park Hill. During the lifespan of this project, Sheffield 'Tent City' an organised shelter set up by local campaigner Anthony Cunningham for people sleeping rough in the city, was set up just outside the flats.

[21] CRiR is a residency space in Christiania run by a steering group of residents, friends and academics. 'The aim of the Christiania Researcher in Residence project is to involve artists, researchers and academics in an open, critical and reflective dialogue around the free town Christiania in Copenhagen, and to feed new creative and critical thinking into the public realm.' (CRiR, no date)

different scales, aesthetics and apparent difference of agenda. However, there are arguably many shared traits.

These social contexts could be seen as 'model' communities, considering both their relatively intimate scale, and their difference from the mainstream, their capacity to propose something new or different –small-scale version of a possibility of a social practice that could be scaled up. The micro-environments contained within these settings include the home, workplace, club and neighbourhood. These settings could be seen as constituting 'everyday' worlds and therefore have a kind of intimacy that comes from proximity, familiarity and a particular kind of temporality that is different from that of the workplace. Small social structures close interactions play out in these spheres.

Locating the research questions of this research around immediate, lived environments will provide a reference point for relating the tacit knowledge gained through model-use within the 'surrounding world', for example, the 'near' environments of the home, workplace or club.

These communities, the Rail Club and Christiania, originate in the same decade. Though younger people are involved in both communities, their founder members are contemporaries. The artefacts produced by these groups (whether railway models, art works, buildings etc.) often contain formal and representational references that relate to ideas and ideal versions of the past and future. In Christiania for example, there are murals drawing of fairytale and mythological imagery, and architecture that nods to traditional Scandinavian dwellings as well as retro-'futuristic' forms such as a 'U.F.O.' house. At the Rail Club, advertisements and cars from different eras can be seen alongside contemporary ephemera, and scenic

depictions of different years and countries can be seen in close proximity. There is something in both spaces that is aesthetically connected to an idea of nostalgia. There is something to be explored about the role of fantasy and pragmatism or 'realism' in these environments, in relation to Utopian imagery and Utopian process.

Figure 12. Ray, J (2014) Field Note: UFO house Christiania

Whilst, superficially, one community could be seen as looking back, nostalgically, and the other as looking forward to new models for ways of being, it is inevitable that these visions draw on each participant's personal and social history, which has in turn shaped their view of what a preferable past or future might look like. The two contexts have in common a high degree of autonomy and commitment to a practice that involves the envisioning and co-creating of alternative worlds. Cultures of 'D.I.Y.' activity and improvisation prevail, along with informal economies such as skills sharing, and mutual care. Whilst these practices may share much technical and procedural territory with any other kind of modelling, the autonomous nature of these spaces offer a very distinct context in which to consider the model.

3.3 Ethical considerations

In all details of the research method, I aim to operate according to a principle of situated ethics 'local and specific to particular practices' (Simons & Usher, 2012p.) However , the adoption of an emergent art practice as research method may present some ethical challenges, particularly around informed consent. I will address the flexibility (and therefore potential unpredictability) of specific activities by making a very clear statement In the participant information sheet details about the use of data. This will outline my approach in general, giving examples of possible outputs, making clear that material gathered may be used in new art works. This will be accompanied by open discussion with participants.

I will show and discuss examples of past works and working processes. This will firstly demonstrate how data gathered on site might be used, with the support of visual examples. Secondly, the works and the conversations ensuing from it will give participants insight into my life and concerns; a way of being in a reciprocal conversation in which I also offer something of myself.

Participants will be able to express preference as to how and if our discussions are recorded and whether that data could be used in the creation of new art works. I also intent to make opportunities for participants to review the footage and ask permission for these to be components of new art works.
Clear options will be shown on the consent forms and revisited regularly with verbal reminders. I will reiterate my activities and seek verbal consent at the start of each recording and remind participants of recordings taking place to avoid any unintentional covert recording. The project consent forms clearly states that

participants can opt for total anonymity in the thesis or practical submission (art works).

3.4 Summary

I characterize this network of methods that inter-relate and flow from one to the other as 'Minor'. They form part of an emergent, non-linear methodology that is highly reflexive and embraces complexity. Embodied in my practice-based methods are aspects of 'Reflection in action' (Schön, 1983), 'doing-knowing' (Nelson, 2013) as well as not-knowing (Fisher & Fortnum, 2013). Intuition is not limited to the manipulation of physical materials in a studio, but is active in the selection of 'glowing' materials, phrases, images, encounters and micro-events (MacLure, 2013). Making, feeling and thinking are entwined in these processes to generate new insight. Dealing with space, representation and embodied processes, these methods are at once separate and distinct from, yet related to the conditions of model making, and thus an apt range of tools for analysis of this form. They enable an indirect approach to the questions of the study, allowing space for sideways, oblique connections for speculation.

Chapter 4: Grasping Things

Introduction - Conversation to Correspondence – A Working Model of A
Submarine Made from an Eggshell - A Fabrication -
Chapter Summary: An Assemblage of Correspondences

4.1 Introduction

The titles of Chapters Four and Five, 'Grasping Things' and 'Missing Things' refer to models as 'things'[22] that can be used to make something tangible or understandable (i.e.: things for *grasping with)* or might be used to re-consider something that is absent and perhaps longed for (in this regard, models could be considered companionable things for *missing with).*

In her introduction to Paul Valéry's *Sea Shells* (1998) Mary Oliver calls the text a meditation on 'how the object in the hand creates the question in the mind'. This quality of agitation Oliver ascribes to human enquiry feels akin to the 'worrying' material I refer to in the Chapter Three, in regard to art practice as research. This chapter, 'Grasping Things' reflects on the early stages of my practice-led research, a body of experimental works arising from site visits, archival research, meetings with model-makers and encounters with text, imagery and other material pertaining to

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[22] 'Thing' is used in this thesis in line with Ingold's differentiation "The object stands before us as a fait accompli, presenting its congealed outer surfaces to our inspection …. The thing, by contrast, is a 'going on', or … a place where several goings on become entwined. To observe a thing is not to be locked out but to be invited in to the gathering ... the thing has the character not of an externally bounded entity … but of a knot whose constituent threads, far from being contained within it, trail beyond, only to become caught with other threads in other knots. Or in a word, things leak, forever discharging through the surfaces that form temporarily around them.' (Ingold, 2010).

models. [23] These works explore the experiences of models and their definitions, reflecting on their material, representational and conceptual qualities.

The modes of activation present in the 'life cycle' of the model are investigated. Processes of emulation, improvisation, fabrication and display are analysed as potential types of 're-activation', and their affordances are explored. Insights generated through reflection on these works lead to the establishment of particular themes for later chapters. [24]

4.2 Conversation to Correspondence

4.2.1 'Untitled: Conversation' ; A model, an architectural technologist, the Heliodome, and an artist.

Hoping to become familiar with a workshop for architectural students in a university, scoping out new technologies for the production of models, I was introduced to a piece of apparatus for modelling light penetration into buildings. The Heliodome is a tool which can simulate the position of the sun in relation to a building at any point on the earth at any time of day, on any specific date throughout the year. It consists of a base for the model that can be tilted and a lamp that can

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[23] In the first year of research I had conversations about modelling practices with an Architectural Technology academic, model railway makers, an ethnographer studying Minecraft communities, a self-taught programmer and 3d modeler, an industrial designer and a resident of Walter's Way- a street of thirteen houses in Lewisham, UK, built using the Segal method, under the guidance of Walter Segal and Jon Broome, as part of Lewisham Council's self-build scheme. The homes are adaptable, and this is a process that is actively undertaken by the residents themselves. By getting close to the lived experience of model-users I hoped to better understand their methods and motivations. Other work, as a participant and observer, comprised documenting a collaborative spatial planning process by a group of art students at Hull School of Art and Design, and taking part in artist Anton Burdakov's participatory work *Assembly* at the Yorkshire Sculpture Park. The latter involved in a negotiative model-making process between selected participants and the artist, taking the question 'How do we want to live?' as a departure point. I also undertook visits to the Whipple Museum in Cambridge, the Museum of Science and Industry in Manchester, and the Artemis collection in Leeds.

[24] Whilst key works are explored in this chapter, these emerged from a body of exploratory practice, which I have sought to represent in the accompanying book *Working Models* (see Practical submission)

travel up and down a vertical frame. The wooden structure and visible metal components for adjustment give the apparatus a particular atmosphere, perhaps reminiscent of something from a school lab or gymnasium. The Heliodome also has a simulated sky - a square space lined with mirrors – an 'infinity room'[25]with a diffuse light source from above. This particular infinity space is functional – an analogue model – a 'virtual space' that mimics a daylight situation, light from the sky. I asked the researcher to explain his model (the plastic dome) and what research he was undertaking in light penetration, and in particular why his use of a physical model was still important to him.

When I arrived the equipment was being set up for an experiment by an architectural technology lecturer who agreed to meet with me the following week to speak about his work in this space, and to be recorded. This encounter, and the audio and visual footage made during it, became the basis of a series of experimental sketches which eventually coalesced into an artwork, *Untitled: Conversation* (2015)[26].

During our conversation, the researcher explained that digital programs exist which can generate data from mathematically modelling light scenarios, which meant his model was not strictly 'necessary'. However, he preferred to work with a physical model, as it helped him not only to measure the data he needed but to sense the effect of light in a structure as a lived experience. A technical account of the iterative design of the model arose, alongside more personal recollections about its fabrication, in particular the importance of working closely with, and respecting the expertise of technicians. The presence of the model became a prompt for discussion

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[25] Infinity spaces – do not offer infinite possibility – just the same image again and again. They open up a visual space but feel claustrophobic as the figure 'copies' your movement closely 'ad infinitum' and 'ad nauseum'. There is something terrible about being mimicked so closely to infinity. It is relentless. There are numerous infinity spaces as art installation for example Yayoi Kusama, *Infinity Mirrored Room, Filled with the Brilliance of Life* (2011).

[26] See practical submission Chapter 4 works: 01 Untitled Conversation (2015)
or view with link https://vimeo.com/194028800

and collaboration, in this way, the model aided its own creation by inviting inter-actions.

As we talked, a parallel correspondence arose. I became entranced by the aesthetic qualities of the encounter even as it unfolded. I attended to associations and poetic qualities thrown up by the words as well as the dancing gestures of the researcher's hands, reflections, and the image generated on the tiny display screen of the camera.

The Heliodome, albeit slightly outmoded in this field, remained a day-to-day work environment for the researcher. For me it appeared as something quite spectacular. The mirrors presented our bodies as partial, fragmented and repeated. We were replicated and, with each reflection, reduced in scale until we became miniatures, then disappeared. This was a distractingly kaleidoscopic visual experience that called to mind the spiralling sets and dance sequences of Busby Berkeley films, which were laden with the influence the urban architecture of the 1920s and 30s, and the geometric patterns and curves of Modernity.

The researcher's expressive hand gestures as he related the design of the model and its purposes became, in the mirrored room, an animated multitude, like a choreographed dance troupe. In such sequences a seemingly infinite number of female dancers are each dressed to mimic a 'lead' female. The mass represents this single 'ideal' female character. The repeated forms suggested something of a mechanically reproduced ideal or exemplar.

Reminiscent of the peculiar abstracting effect of these films, where a recognizable single body slips into an abstract pattern in the space of a few seconds, or a chorus line disappears into a perspective point.

Figure 13 (top left) Author's screenshot. Busby Berkeley motion picture *Dames* (1934)
Figure 14. (top right) Ray, J. Heliodome, sky simulator.
Figure 15. (below) Author's screenshots; stills from 'I only have eyes for you' number, from *Dames* (1934)

the form of the dome, which called to mind 1970s sci-fi films from my childhood:

Logan's Run (1976) - featuring a domed city where the inhabitants are, by law, only

allowed to live until they are thirty years old, and *Silent Runnings* (1972) which ends

with the vision of an orphan forest contained in a dome, drifting in space, in which,

as a child, I read the end bleakly as a never-to-be-found message in a bottle, rather

than as a floating spore with potential for a future.

Figure 16. Theatrical release posters for *Silent Running* (1972) and *Logan's Run* (1976)

In the kernel of these dystopian fantasies of perilous futures, technologies are often simultaneously a threat and a possible sanctuary, conjuring ideas of building or changing a world.

Figure 18. Douglas Trumbull's 'agridome' from *Silent Running* (1972) featured at Into the Unknown exhibition at the Barbican Centre (June 2017).

Figure 17. Ray, J. (2014) The architectural researcher's model.

This un-spoken correspondence taking place between the architecture of the space, the model, and the embodied gestures of the conversation generated particular conglomerations of association. These obliquely raised, in particular, two kinds of futuristic vision: the Modern metropolis as expressed in Busby Berkeley sets and choreography (which imbricates the body and gestures in architecture), and the

Dome, which in the speculative genre of science fiction is often a mode of protection for and / or control of humans inhabiting it sometime after a catastrophe or in a future in which the earth has become uninhabitable.

The future imaginaries of these two eras were not anticipated as a theme for this interaction, which was approached with curiosity and open-ness to what might arise. But in activating all the materials – from the social interaction to the space, the model and the video and audio footage – the correspondence allows these themes to emerge. The idea of the model as a way of thinking through missing futures is brought tenuously into focus.

4.2.1.1   A different time and space

Working at home the next morning with bright sunlight falling into an otherwise shaded space, I reviewed images gathered earlier in the day. As I clicked though the images, I slipped into perceiving the reflection of my workspace in the glass of the monitor and the space in the image as a single, hybrid space.

I improvised to make a record of this moment – using a piece of Blu Tack stuck to the screen as a point on which to focus the lens. This image repeatedly returned to my attention – the combination of the blurred space in the reflection, the crisp screen space and the slightly uneasy, greasy lump of Blu Tack imprinted by my finger and pressed onto the pristine glass of the monitor, like the visual disruption of finger marks on a mirror. This moment began to 'glow' (MacLure, 2013) inviting a closer questioning of the sense of feeling accessible through the fingers and the imagined sense of touching aided by the visual. The Model-ness of art practice is revealed here as ad hoc, tactile. The material calls itself to attention and brings about new actions

4.2.1.2   Coming to know about model-ness from the inside.
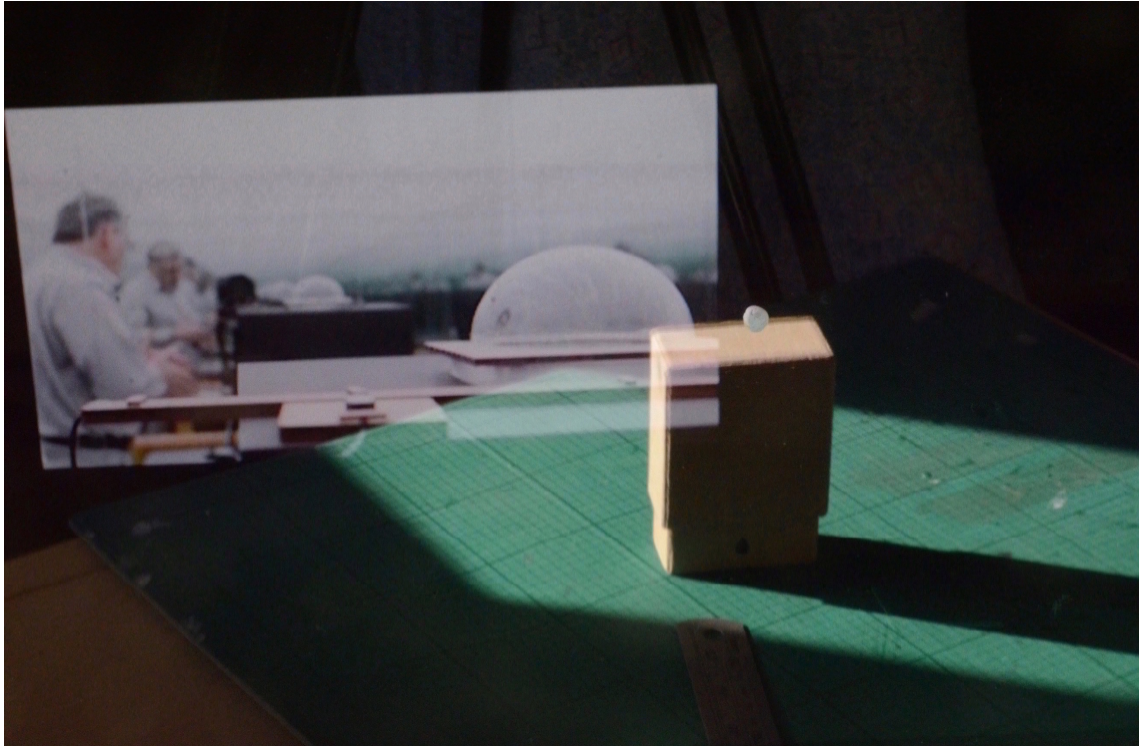
Figure 19. Ray, J. Visual 'note' from work in progress, the Blu-tack that 'glowed'.

I prolonged and intensified the encounter with the imagery on screen, deliberately setting up the conditions to heighten the experience, and made numerous performances to camera, using at first the shard of sunlight each morning, and then, as the winter set in and the opportunities became brief and changeable, setting up an Anglepoise lamp and working at night.

To develop a 'dance' for my own hands to speak back to the researcher's, I had to decide what gestures to make. What would my hands 'say'? At an intimate scale the work could be seen as asking, how do we begin to know what to do or say? What knowledge do we have that is worthy of contribution?

At this time, I was reading broadly about the use of models in contemporary and historical practices, especially in architecture. Amongst these papers was a discussion about Brunelleschi and how he reportedly carved models from wax, clay

and turnips to communicate details about the brickwork structure of his dome in Florence to the craftsmen who built it (Payne, 2009). The researcher expressed the importance of working with technicians. He described them as doing the 'hands on' work and also as informing the design of the model in the informal exchanges that took place in the shared space of the workshop and this thread connected with Brunelleschi.

The model as a means of communication and as a space of translation and inter-relation between the architect and the maker is brought to the fore. The anecdote about Brunelleschi that lodged in my mind and was surfaced by the dome, and through the conversation with materials and with myself,

I enjoyed the idea that the complex and sophisticated structure of the Cathedral dome relied on such a humble method and wanted to dwell in this idea *with* the materials. I bought a ten kilogram bag of turnips and began to figure out a technique for carving an approximate dome shape, which would also echo the researcher's light dome. I also felt a strong desire to revisit the cutting sensation and the smell of carving turnips remembered from childhood. And, importantly, I could do this directly, domestically, discreetly, without having to negotiate any workshop space or ask any technician for help. As I undertook my own making and reflection on the recording, I revisited and recognised parities in other practices and noted my own desire for physical discovery at the same time.

4.2.1.3 Performance to camera: Footage, screen, turnip, hands, blade, mat, lamp, &
    remembered anecdote about Brunelleschi's Dome.

Performing to camera via the glass - the reflective surface of the screen became a
'meeting place' between two times and spaces.

In this work, a conversation is implied by the framing and composition of these two
sets of hands in relation to one another. Very occasionally they appear to fall into a
position that suggests they are communicating one to another. The two sets of

Figure 20. Ray.J, Still from *Untitled: Conversation* (2015)

gestures give the impression of having been forced into the same space while speaking slightly different languages or not listening to one another.

My notes on reviewing this work describe my performance as 'A pointless activity, but one through which my hands appeared to be doing dexterous and meaningful things. They have apparent intent and purpose, but the action is somewhat absurd.' I thought of this performance to camera as a way of expressing the frustration of wishing to do *something*, but being unsure of what should be done.

It is a performance that simultaneously suggests a certain degree of skill and knowledge whilst generating something that could appear almost comically useless.

Through the repeated practice, the significance of the action became greater. I began to acknowledge that there was a 'rightness' to the form and movement that I was striving for (in part, for the camera) and that in fact I was becoming more skilled in achieving that rightness.

This 'correspondence'(Ingold, 2017) between light, a reflective screen, cutting mat, blade, turnip and some images, also became a correspondence between Home and Institution, also with (though spatially and temporally apart from) the researcher. It became rich in terms of considering my position as artist-researcher, as female researcher, and as a maker, how I regard other people's skill in making, as well as my own. Questions arise from the correspondence about how skill and knowledge arises, where it resides, and how it is transmitted. The process of voluntarily becoming a 'bad imitation' / pale reflection, reveals what otherwise we could not have seen - we are made visible to ourselves, along with the structures that surround us.

4.2.1.4 Summary

The method and content of this work are totally intertwined. Making *about* making, that analyses the affordances of the model at each stage.

The model in this work shifts status from an experimental model (its original purpose) to something like a conventional research 'probe' (an initial 're-activation'). According to Jason De Leon and Jeffrey Cohen (2005, p.200) 'Probes help motivate informants, facilitate the flow of an interview, and elicit information, but not necessarily in the form of a question.'

In the meeting with the researcher, his narrative about the purpose of the model reflected how he valued the embodied experience of the making as a way of coming to know explored by Richard Sennet (2009) and Juhani Pallasmaa (2009), both of whom argue for the inherent value of knowledge reached through physical interaction with materials. Sennet invokes the 'sensation' of problem-solving through practice (the critical pursuit of quality particular to the craftsman) and applies it to activities which do not involve 'hand crafting' (coding for example), adding to the argument for a kind of 'traction' to making that may often be discussed in terms of the hand, but that is actually about 'feeling' something about making.

These arguments put making by hand to the fore, and the ideas crystallize around very tangible, manual craft skills which again often have a clear use-value, and which are attached to archetypal ideas about who a crafts(man) might be. However, given Deleuze and Guattari's idea of materials and forces, we might well extend these ideas beyond the made 'thing'. Sennett's *The Craftsman* (2008), Pallasmaa's *The Thinking Hand*(2009), and Ingold's *The Textility of Making* (2009), each support the inherent value of knowing through doing. Professor Francis Evans argues that we

have the capacity to imagine what can be sensed by the hand. ''We already have the phrase "To see with the mind's eye." We need another one: "To feel with the mind's hand.'''[27] (Evans, 2008, pp. 309-337)

The discussion in the Heliodome also included reminiscences about the important relations between his ideas, the technicians and the act of physically negotiating and making a model. Here the model was arguably working as a probe of sorts. 'Object interviews' have been explored by Sophie Woodward (2015) as acknowledging the importance of materiality in our construction of meaning, 'Materials, things and people are enmeshed and through mixed methods and a dialogue between methods we can start to keep these entanglements intact, rather than separate out 'the material' or 'the social'.' (Woodward 2016, p. 372).

Susan Nordstrom (2013, p. 238) argues the object interview as a 'Deleuzian Space' where the object and subject are enmeshed in the co-creation of new knowledge.

The words spoken by the researcher were inseparable from the environment in which we met (a model simulating the sky, embedded in the university, the institutional colour and texture of the carpet jarring oddly with the intense 'magic show' visual experience of the Heliodome) and the practical materiality of model he was using to carry out his tests.

The second and more complex stage of re-activation was the correspondence that continued away from the Heliodome, without the academic's physical presence but

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[27] Francis Evans was formerly Professor in Engineering at Sheffield Hallam University. His teaching models demonstrated the invisible physical forces present in arches (developed particularly in order that students could learn *through touch* the nature of the forces they were trying to conceptualise). His models are now included in many museum and teaching collections in the UK. Selected models were exhibited in my curatorial project 'What's to Hand'. An Open University resource featuring Professor Evans using the models is available at http://www.open.edu/openlearn/science-maths-technology/mathematics-and-statistics/the-arch-never-sleeps?track=4

in response to his recorded voice and actions. Here, my improvisation with materials became another stage of the correspondence. My own reference points became present and via an extended process of 'worrying' materials, became activated in a new way that entwined with the original conversation with researcher and his model.

Something of the speculative nature of modelling – asking 'What if?' connects the model in the workshop and its original purpose, with the exploratory, improvised turnip-dome. The improvisatory nature of the model was discussed in words during the conversation with the researcher. However, this quality is articulated in a new way through the practice in the 'light-ness' and mobility of the working process, which is fluid, sketch-like, perhaps *model-like*, more open than conventional language. The materials - a fleshy pale turnip being sliced with a scalpel, light on a surface, an un-edited section of footage - are contingent, malleable, sometimes fragile and invite this mode of practice.

The work was not a conceptual conceit arrived at as a whole, but something that was drifted towards, through a series of small and uncertain decisions, guided by a combination of opportunities and intuitive reactions to the materials which converged with the ideas from the site visit and the footage. The associations with architectural space and cinematic representations of modernity and imagined futures thrown up by the Heliodome draw threads to speculative forms of the architectural model where it crosses with fictions and past imaginaries of worlds to come. What emerges as an art work to be 'audienced' may not always reveal these associations to a viewer but could not happen without the materials and the making process. They accumulate. They do not make an easy sense at first but over time, 'worrying' through the making process, comparing and connecting, they help me come to a new

understanding of a phenomenon in relation to its surroundings, and my own position in relation to it. Correspondences between human and non-human actors are articulated as a process through which thought is happening, *with* materials, forms and gestures.

4.1.2 A Working Model of a Submarine Made from an Eggshell
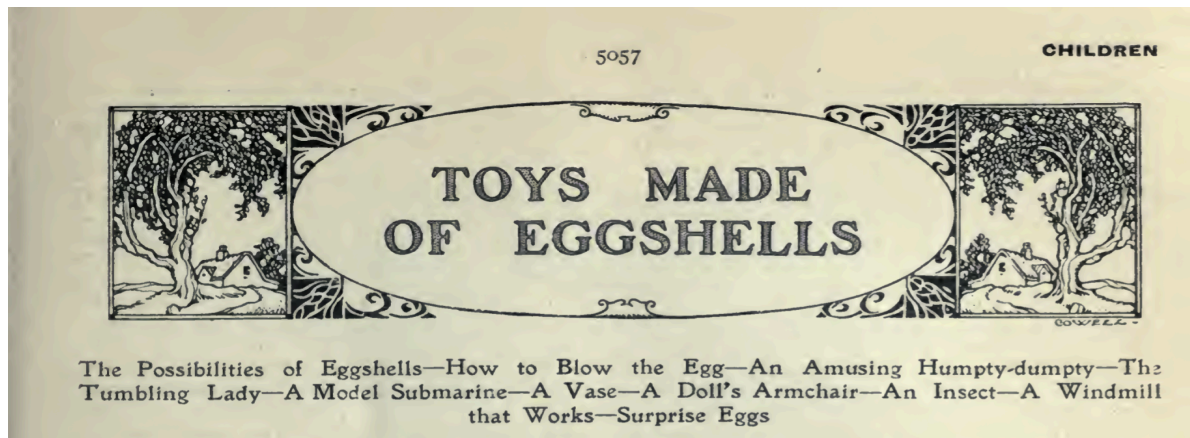
Figure 21. Decorative title: 'Toys Made of Eggshells', from *Everywoman's Encyclopaedia*, Vol VII (1910)

In the early stages of the project, I was enthralled at the array of possible model types, processes and technologies open to me as I embarked on this research in the context of a well-equipped university with engineering, architecture, design labs and workshop facilities. However, this array overwhelmed me to the point of inertia. In the studio I turned to domestic materials and craft activities as a way of speaking 'to' this feeling. In my image archive I re-discovered a sliver of information saved that gave me a 'hook' from which to make some kind of move or gesture.

Whilst researching the design of early submarines during a residency in Barrow-in-Furness, I came across an article from *Every Woman's Encyclopaedia* (1910) called 'Toys Made of Eggshells' which included instructions for a working model of a submarine. I had saved this material, feeling that it was special, or even 'glowing'. (Maclure, 2013) It now came to my rescue, and I attempted to make this small project to the best of my abilities.

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marble inside, and place the second round of silk on the remaining edge of shell, having previously sewn two pieces of narrow ribbon about two inches long, half an inch on either side of the centre, to form the legs. One end will form the body, while the opposite end will be the lady's cap. Take a piece of narrow ribbon, place it over the join of the cap, and tie it in a bow.

For the skirt, cut a circle about two and a quarter inches in diameter, make a hole in the centre only just large enough for the egg to slip into, and put it on to the shell just above the edge of the body material. Gum the pieces of ribbon on either side, tie the ends of ribbon of both the legs and arms with a small piece of cotton, half an inch from the ends, to form the feet and hands; draw a face on the shell, and the lady is ready to perform.

Seat her on the top of an inclined board, and she will go head over heels the whole way down. The pace will be regulated by the angle of the board; the sharper the angle,

on to the tube in the centre. Place the submarine in a basin of water, blow into the tube, and she will sink; when the air is released, she will rise to the surface. A little slip of wood can be fastened on either side of the base, if desired, to enable her to stand upright when out of the water.

A pretty little flower vase, and one that is easy to make, can be made by breaking off the top of an egg, and gumming three large beads or marbles on to the base. This can also be used as a fairy lamp, or, if filled with bran, and the top covered with a pretty piece of silk, a dainty pincushion is the result.

Another simple article to manufacture is an armchair. Cut off the top of an egg; then very gently cut away a piece in the front until the egg looks like a chair.

Cut a piece of cardboard or stiff paper to fit the inside; cover it with some material, gum the edge, and slip it inside the egg for the seat. Gently tap at the base until it cracks enough to make the chair stand firmly.

A working model of a submarine, made of an eggshell, matches, and a piece of bicycle-valve tubing

Figure 22. A Working Model of a Submarine, Toys Made of Eggshells, Everywoman's Encyclopaedia Vol VII (1910)

Figure 23. Ray, J.Attempts to build 'A Working Model of A Submarine' (2015)

An invitation was sent to a small group of people, selected because of their relationship to me. I regarded each person invited as being a 'model' person, as a carrier of knowledge I desired. Each person had, at some point, tried to share their knowledge with me. These included my mother, a tutor (now also a friend) from my undergraduate programme, a research peer, an ethnographer, my father, an artist and engineer couple, and a science historian. Over about a month I received updates from some participants excited to share their progress and findings, and visited each one in their home or arranged for them to come to my studio, where I made footage of them explaining their process, how they had interpreted the instructions, made amendments, improvised or substituted materials and how they had chosen to embellish their egg submarines.

As each submarine model was completed, I invited the participants individually to my studio where we tested the models for function and I asked them to explain to me (with the model as a guide) how they had solved the problems they met in its making, how they had interpreted the instructions. The video is shown alongside the model submarines and the original instructions. The audio was removed to heighten the role of the gesture in the final work[28].

[28] See practical submission – Chapter 4 works 02 *A Working Model,* or extract at link
https://vimeo.com/195098213
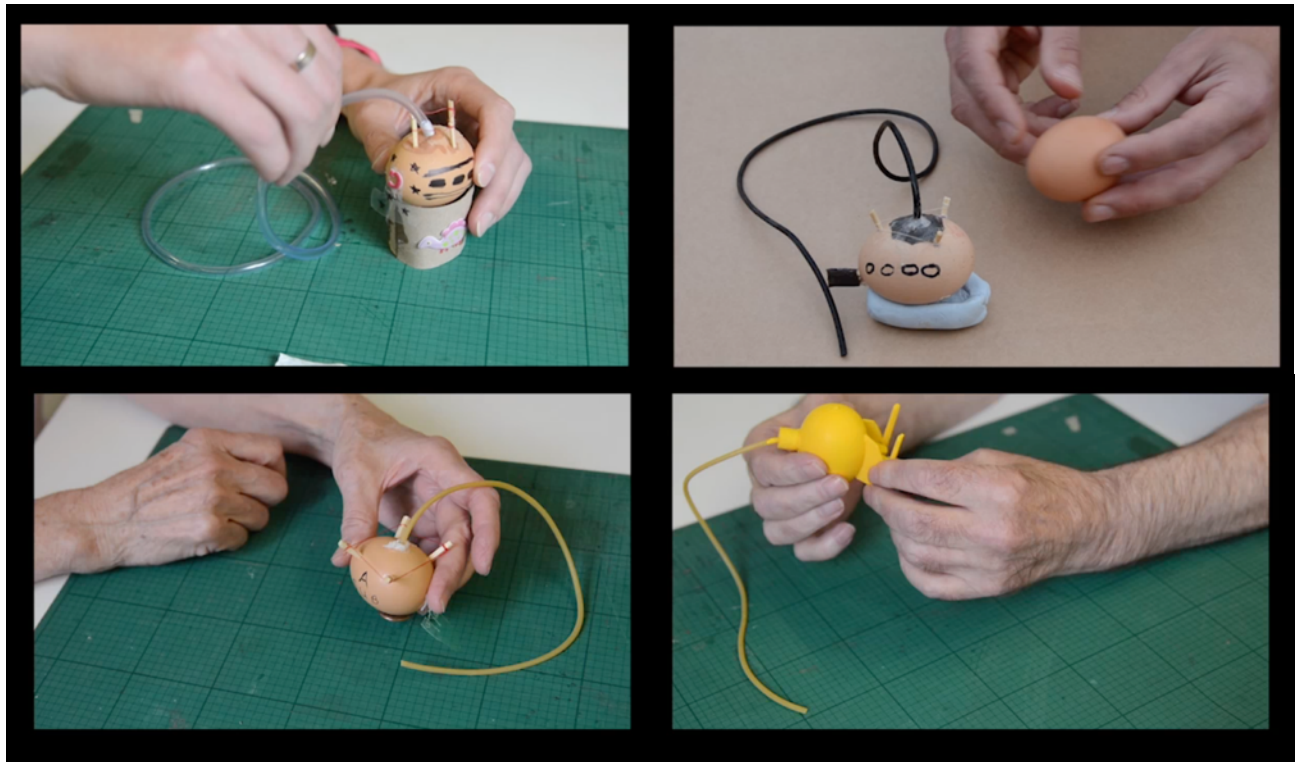
Figure 24. Ray, J. Stills from *A Working Model* (2015) Installation; Digital Video, model submarines made of Eggshells and mixed media, digital print. Collaborators: Chris Bailey, Clare Charnley, Rob Kirk, Ruth Levene & Aldous Everard, Emma O'Connor, Rob Pilling, Anna Ray, Derek Ray.

In many cases, the model brought about reflection on the person's wider world, their own histories, biographies, in a playful (but seriously engaged) way. Problem-finding and problem-solving (Sennet, 2008) combined with some humour and 'lightness' brought by the strange visual qualities and curious origin of the task made it possible to consider the experience as a space of pleasure and play.

> What might 'caementicium' be and where might we get it? Or is there a modern alternative?...Gummed lead shot...? Where would we get lead shot? Maybe fishing weights would do? … Gummed with what? ... How does one bore a hole in an egg without shattering it? Tips? This implies extracting the eggy insides, yes? … How big might the holes be do you reckon … I didn't really understand the insert paper tube thingy ... through to linen instructions.
> (Kirk, R, personal communication, 8 July 2015)

One of the participants, Dr Rob Kirk, sent a message to me during the process, reflecting on the opportunity afforded to be in his father's shed using tools that had belonged to his father. The practical aspects of the problem solving of this task brought him into imaginary and empathetic space with the technical and pragmatic skills of his father, an electrician by trade. He sensed and communicated his pleasure
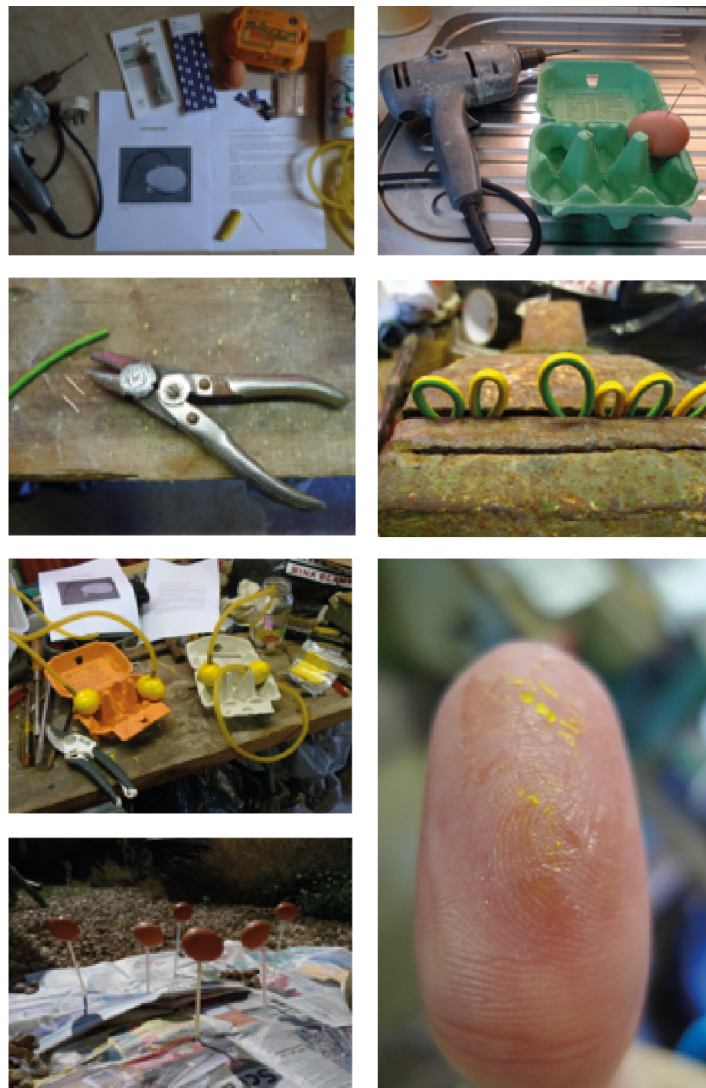
Figure 25. Kirk, R, Documentation of an 'egg submarine' in progress, (2015)

in the activity, and reported his joy in feeling capable. At the same time as affording a moment of feeling aligned to the role of his parent, he also reflected on the opportunity to see 'more as a child sees the world'. (Kirk, R, personal communication, 8 July 2015).

This simultaneous sense of yearning for a kind of anticipated version of adulthood with one's parents as 'model' and a looking back with curiosity about the kind of skills present in childhood creativity, demonstrate the possibility of model making to address very personal as well as collective pasts and futures.

My parents worked separately on their submarines, but communicated throughout – collaborating and competing, also playing – extending the brief, sending update images and calling me to report progress. The ethnographer worked with his two-year-old daughter's craft supplies, decorating his egg profusely, getting carried away, 'riffing' and expressing his pleasure in doing so.

The format of the *Encyclopaedia* itself is an idealistic attempt at an exhaustive model for instruction on the everyday. It provides a resonant context for the source material of this piece, which in contrast explores flaws in written language as a means of communication.

The video work captures some of the gestures and non-verbal language deployed by participants in trying to communicate something, which cannot be wholly represented in words, and became a new set of 'instructions', albeit incomplete, fragmentary and unstable in interpretation. It wouldn't be possible to follow these instructions to make an egg submarine, but they communicate something important, nonetheless, about care, attention, and a desire to both understand and explain. The common thread was the desire to help and to share what had been understood. The hand gestures in the video are not gestures of making a model but communicate something of the care and time and process of sharing, explaining, making clear, demonstrating. The company of my co-makers working becomes a kind of multi-faceted folk-encyclopaedia.
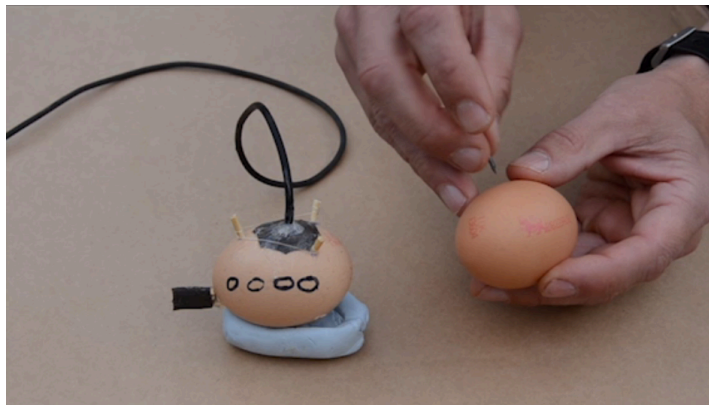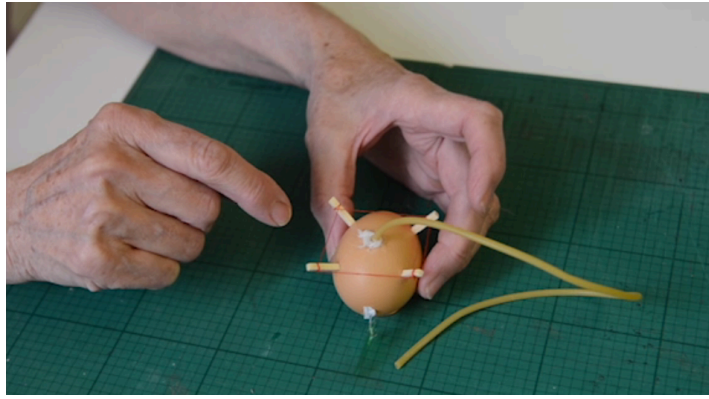
Figure 26. Ray, J. Stills from *A Working Model* (2015)

4.1.2.1 Multiple Reactivations

This work was process-driven, but resulted in an installation of objects, video and text (the instruction text). This collection could be seen in simple terms as a categorisable model-type or intersections of multiple model-types:

- An exemplar to follow or imitate (the original Instructions, and / or the participants and their version of the instructions)

- a system or procedure (the art work structure)

- a small-scale representation (a miniature / toy / working submarine.)

However, as with the previous work, the re-activation of the model brings more complex possibilities, that arise in stages.

The instruction from *A Womans Own Encylopaedia* (1910) can be taken as the original model (a pattern or exemplar). The enabling constraint of the interpretation of these instructions, in a new time period and social context (seen through a lens as a slightly strange historical artefact perhaps) is the first re-activation. This provokes an imaginary connection to the era the instructions originate from, through physical and material process. Distance is felt in the slight peculiarity of differences in language, tone, and sensing an out-of-step quality in the materials listed for example. There is intense speculation and problem solving. Some makers strive for an aesthetic that is authentic to the era and close to the text. Others take joy in extending the brief to satisfy their own fantasies and pleasures in making. The affect of making infuses collaborations between family members. There is reminiscence of past experiences of making or of people who might have been looked to for help.

The re-telling of the making, with the model to hand, becomes the second re-activation. The remnants of thought processes are revisited. Care and attention are

shown, for the delicate model, for the researcher, and for those who collaborated or worked alongside; there is care taken to recognise skill and invention.

The model as an object through which to tell its own making becomes something more than a probe. I would go as far as to suggest that the piece raises the idea of the re-making of a model give us access to a question that we may no longer have access to - a question in the mind of a maker long absent, or in a moment now faded from memory. Models become the remnants of thought processes. Skins shed through ideas shifting and growing beyond the material and conceptual vocabulary that once helped them find form. The model can thus be understood as speculative and retro-speculative.

In the previous section, *Untitled: conversation* (2015) demonstrated the potential of re-activating the model as a way of generating rich associations and enfolding the subjectivities of the 're-activator' with the source model and its maker.

A Working Model (2015) takes this further. A range of participants, re-activating the same model, make their own experiences manifest in material, surface and form, through their own re-activation. Some of these are spoken in the interviews or in emails volunteered by participants, but this research argues primarily for the presence of these subjectivities in the processes and artefacts resulting.

4.1.3 The Shuffle of things

4.1.3.1 What's To Hand: Curatorial process as research method

Towards the end of the first year of research I initiated a curatorial project at Sheffield Institute of the Arts Gallery[29]. Framed as a work in progress, an attempt to map 'model-ness' I selected a range of models that could be considered dioramas, sets, prototypes, models made for the purposes of art, design, education, and pleasure, models that were also art works, and art works about models.

The rationale for this project was to use a physical, spatial method to explore types of models, the inter-relations of different models and modes of engagement with them. My initial proposal to the gallery suggested an evolving 'taxonomy' of models.

Figure 27. Ray, J. Publicity image for *What's to Hand* (August 2015)

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[29] See appendices for the guide text accompanying the exhibition. Documentation of the project can also be found in the book *Working Models*; See practical submission.

4.1.3.2 Selection

Exhibits for the project were identified through a range of encounters with models and model makers in places of production, collections and sites of storage or display. This became a generative process that became a kind of practice-led, and object-based 'literature' review[30]. The process of selection, contrary to my initial intentions, emerged as idiosyncratic rather than systematic. I allowed myself to be led by surges of interest in particular models, influenced by the flow of conversations with artists and researchers interested in models and scale, and followed tangential threads of research into specific models or makers I had developed a kind of 'crush'[31] on. Unable to state exactly what I was looking for, I relied on visual access to potential exhibits in visits to collections and studios, as well as loans, which were possible within the economic constraints of the project.

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[30] This included process models, social structures, teaching models, dioramas, model rail layouts, construction toys, 3d printed models, geological models, patterns and instructions.

[31] A brief but intense infatuation (OED), for example George Sopwith's geological models, which spurred my research trip to the Whipple Museum, Cambridge, and the works of Jack Needham, a renowned maker of ships in bottles whose work was apparently exhibited as part of the Sheffield *'City on the Move'* show at the Royal Exchange London in 1971. I have been unable to find visual evidence of this report found on a website about folk art , but the incongruity of these pieces to the theme of the exhibition is intriguing.
https://www.folkartinbottles.com/artists/artists-i-r/41-jack-needham
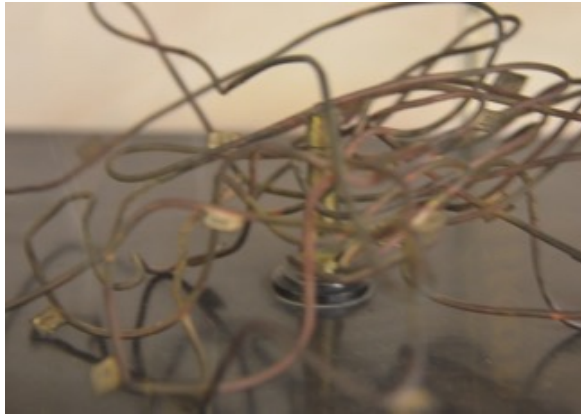
Figure 28. Seikei, S. (circa 1887). *Model of the motion of a particle during an earthquake.* [wire model]. Cambridge: The Whipple Museum.

Figure 29. Ray, J (2015) Field Note. Artemis collection, Leeds, bottom left – the visual experience of the search for exhibits. Bottom right – discovering Francis Evans's arch model at the Artemis Collection.

The 'correct' exhibits for inclusion felt immediately recognisable once found, but the search was not efficient. The exhibition catalogue text discusses searching particularly in relation to wandering in the warehouse storage of the Artemis collection, a learning resource collection in Leeds, UK.

> I was allowed access to the collection, license to wander and follow hunches in the selection of exhibits. The potential of this kind of intuitive response to objects that can be handled and pondered is part of the method at play in the project as a whole, an attempt to diagnose or hone a direction of inquiry through the shuffle of things (Ray, J., 2015).

List of Exhibits

Exhibit	Maker	Description
Sculpture Park (2010) Cardboard, mount board, model makers' materials, toy car (Subaru Imprezza 1/35th scale) oil paint	Paul Collinson	an 'enclosed' model' designed for the camera lens. Images from the model became a source for paintings. The models represen a stage in the making of the artwork (the final painting)
1 Slater Street (2006) Painted Watercolour paper	Bryan Eccleshall	Made during a site-specific residency in Barrow in Furness. A model of a building that had undergone numerous physical adaptations. The water colour painting was bought at a local charity shop.
Model Arches Wood, rubber cord.	Prof. Francis Evans on loan from the Artemis collection in Leeds.	a series of models for teaching, which demonstrate the hidden structural? forces at play in arches. Based on H.C.Fleming Jenkin' s work in *Encyclopaedia Britannica*, 9th edition, 4,1876: article 'Bridges'
Model based on Finsterlin's playforms (2014) cork, lead tape, plasticine, wire and 3D print	Cath Keay	Based on an unrealised design by the expressionist architect Hermann Finsterlin. 'The mixed model was scanned and then test printed in various plastics and resolutions. I made the model with whatever was at hand, knowing that it would be scanned and transformed into a uniform and stable material by the printer. I really wanted to capture the errors, the scaffolding, flashing and stratification inherent in the process, but it is hard to see these things at such a small scale. This is a

		test piece or sample rather than a presentation model.' Cath Keay
Model for Kennedy Gardens beehive (2012) Balsa wood	Cath Keay	A competition model (1:10) One of a series of four beehives based on iconic Modernist and Brutalist buildings around Teesside (Middlesbrough Modern Beehives).
Exploring an escape boat... *'Precious Cargo'* (1967 to 2035*) *from birth to retirement Plastics (kits), plaster, sculpting tools, card.	Heath Reed	'A long-standing interest in boats, boating culture, form and internal space led to an exploration of my perfect 'escape boat'. Very much a work in progress (due for completion in 2032!) and acting as an enjoyable release from making (for others) at work ' Reed (2015)
Investigating tactile simulation (2014-15) electrical actuators, computer aided design and 3D printed plastics.	Heath Reed and Andrew Stanton	'The model was used to explore the possibilities, what could we simulate? How could we simulate? How can we ergonomically integrate? It's only once we have integrated many aspects, reliably, that the final model becomes a usable tool to explore the field itself.' Reed (2015)
Pictorial House Modelling, after E. W. Hobbs (2015) Digital Video	Jo Ray	Video work reflecting on the model, drawing on languages of instruction and demonstration to explore emulation and improvisation. In response to E.W. Hobb's instructional manuals of the early 20th Century.
After Jack Needham Digital Print, dimensions variable	Jo Ray	A digital print of a miniature 'carpet shape' vastly increased in scale, from an instructional book by the renowned Sheffield born ship in bottle builder, whose works were reportedly shown at the 'Sheffield, City on the Move' exhibition in London, 1971.
A Working Model Egg Shells, mixed media, digital print, video	Jo Ray	Participatory artwork in which individuals were invited to follow original instructions for building a toy submarine, sourced from *Everywoman's Encyclopaedia* (1910)

Model for Unit 119 (2010-2014) Wood, card and filler Separate parts of a stop-frame animation set.	Joe Sheehan	
Jackson Bridge (2013-)	a collaborative work by SMRE members Nick Gurney, Richard Smith, David Walker and Brian Wheeliker	Model Railway Layout 'Though named after a real West Yorkshire town, Jackson Bridge is an amalgamation, based on a range of locations. An attempt to distil something of a particular time and place.' 'Described as a 'what if?' layout, Jackson Bridge speculates on what would have been if the kind of branch-lines that existed in valleys just to the north of here (Sheffield?) also extended into this valley. '
Fylingdales in Winter, (2012) wood, plastic, ceramic, glass, paper, eggs, milk, domestic lamp	Isabella Streffen	Artwork. 'The Model, built between 2009-11 was abandoned as simply an occasion for viewing, an invitation to look' and continually revisited over time, It seemed that relegated to the discarded pile, the repudiated model finally developed an identity and a purpose, surrendering its sculptural concerns, and revealing itself as an engine for thinking.' Isabella Streffen
Archimedes Apples (c. 1922) Wood, Metal, Cardboard. On loan from the Artemis Collection.	Hugo Jung On loan from the Artemis collection, Leeds	This model was developed in the 20s by Hugo Jung, as a means of teaching fractions.
Untitled (Conversation), 2015 Digital Video	Jo Ray	A performance to camera, in response to video footage of a conversation about a model for light penetration.

4.1.3.3 Shuffle

I initially planned to use an enabling constraint to aid the process of making a taxonomy. Based on themes that had begun to arise from studio works early in the research, I envisaged a grid and axes along which to explore, for example, spectrums of permanence / impermanence and speculation / retrospection in the exhibits. However, although these themes remained of interest, the exhibits (and I) resisted this rational structure.

Particular objects suggested an alignment to others, and conversations that arose between the materials and the formal and poetic elements of each piece led to a gradual spatial 'shuffle of things' (my own body and eye , sensing the exhibits differently as they changed in proximity to one another, were included in this spatial re-arrangement). This was not achieved by mapping and planning but by physical and spatial trial and error. The space became a set of relations, an assemblage containing numerous smaller assemblages.

The kind of spatial 'thinking through doing' that I was practicing has been an integral part of my artistic practice for many years. As such, it was almost invisible to me as a method at this juncture. Many of the decisions took place in the evenings when, once the gallery technicians had left for the day, I felt more at ease in being playful with the positioning and re-positioning of works – I brought in friends and colleagues to help me move the space around during these 'out of hours' moments. This physical 'shuffle of things' in the space took place over five days.

Figure 30. Ray, J. Documentation of curatorial process, the 'shuffle of things', in progress (2015)

An initial intention to generate taxonomy quickly evolved into something more like a 'landscape' of models. Attending to the shared and contrasting qualities of the models (or works about models) enabled a consideration of their original intended functions and contexts, their interim or 'dormant' states (for some) and their current 're-activation' via the curatorial project. Firmly assigning model types became impossible as the multiple possibilities of each exhibit multiplied in the reflective and reflexive conditions created by the space and time of the curation process.

9
Sheffield Model Rail Enthusiasts
Jackson Bridge (2013)
Timber, 00 Model Railway and
stock, modelling foam, card,
plastic, plaster, paint, various
domestic materials.

10
Cath Keay
Model for Kennedy Gardens
beehive (2012) Balsa wood
Competition model

11
Cath Keay
Model based on Finsterlin's
playforms (2014)
cork, lead tape, plasticine, wire &
3D printed element

12
Isabella Streffen
Fylingdales in Winter, (2012)
wood, plastic, ceramic, glass,
paper, eggs, milk, domestic lamp

13
Hugo Jung
(on loan from The Artemis
Collection)
Archimedes Apples ca 1930A
Working Model (2015)
Digital Video, participant's model
submarines - egg shells + various
materials.

14
Jo Ray
Untitled (2015)
Digital video

15
Jo Ray
A Working Model (2015)
Digital Video, participant's model
submarines - egg shells + various
materials.

1
Heath Reed
Exploring an escape boat....
'Precious Cargo' (1967 to 2035*)
*from birth to retirement
Plastics (kits), plaster, sculpting
tools, card.

2
Heath Reed and Andrew Stanton
Investigating tactile simulation
(2014-15)
electrical actuators, computer
aided design and 3D printed
plastics.

3
Joe Sheehan
Model for Unit 119 (2010 - 2014)
Wood, card and filler
Separate parts of a stop-frame
animation set.

4
Bryan Eccleshall
1 Slater St (2006)
Painted Watercolour paper

5
Jo Ray
After Jack Needham (2015)
Digital print on paper

6
Jo Ray
Pictorial House Modelling (after
E. W. Hobbs
and Miss Joyce Inall) 2015
Digital video

7
Professor Francis Evans
(on loan from the Artemis
collection)
Arch Models (year?)
(for teaching and demonstration

8
Paul Collinson
Sculpture Park (2010)
Card board, mount board,
model making materials, toy car
(Subaru Imprezza 1/35th scale),
oil paint

What's
to
Hand

Figure 31. Floor plan of 'What's to Hand'

4.1.3.4   Attempts at analysis: 'Feeling through' a reflective processes

Multitudes of shifting interactions between exhibits took place, both in the curatorial process and in the exhibition, once finished and open to an audience. It became apparent that combining different forms of model / making or activation generated narratives, qualities and effects that cast new light on the individual models, and generated new themes or questions. However, moving my own body around the space became another means of analysis: visual re-constitutions could change with the placement of one's body and the direction and duration of a gaze or glance. Each visitor to the space was potentially a new, mobile and unpredictable element in the assemblage.

Reflective methods included

- Spending time in intense visual and physical engagement with the space.
  Placing my eye so that one model could 'meet' another in a 'scene'.
  Physically moving one model in proximity with another to allow a different conversation to take place between them.
  Image making related to the above

- Making notes directly onto the Floorplan map

- An experimental text responding to the 'Topography' of the space

- Reviewing images that constructed certain relations between works, playing with scale and composition

- Making PowerPoint slides to capture reflections about the status of models in the show

- Organising a discussion event that took place inside the show, with a number of model-makers who contributed to the show
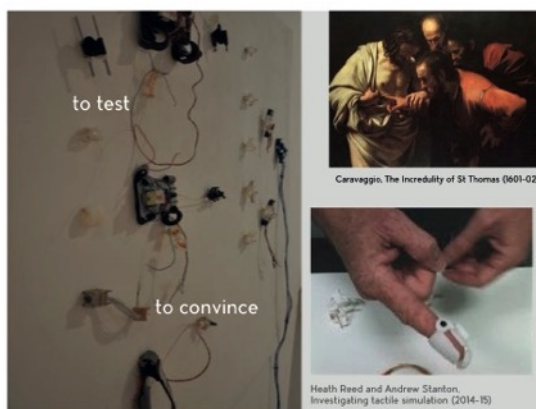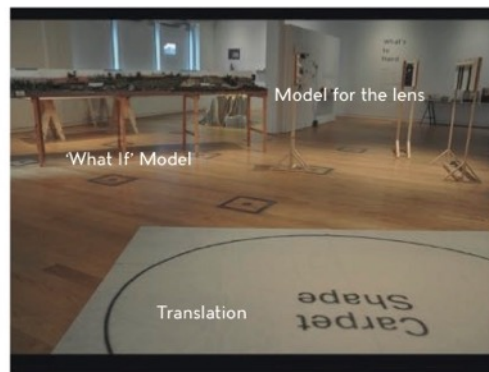
Figure 32. Ray,J. Images from the exhibition as a mode of reflection, revisiting an attempt to articulate modes of activation and different status of models in the show.

The perishable components of Isabella Streffen's artwork *Fylingdales in Winter* needed to be renewed every few days. This involved a process early in the morning of boiling fresh eggs and replacing the rancid milk with fresh. I had begun to note the prevalence of elliptical forms in the space and found myself using one of the Fylingdale 'domes' as practical way of mediating on this, a means of reflecting through practice.

Figure 33. Ray, J. Field Note: Survey of forms with an egg, 2015

A 'survey' emerged – a comparison of the shapes of egg-like and un-egg-like forms. The recurrence of egg-like forms (actual eggs, ellipses, templates, a white oval form being whittled slowly into existence from an ovoid turnip, embryonic shapes) called attention to a beginning of forms, or Morphogenesis (from the Greek *morphê*, shape and genesis creation, literally, 'beginning of the shape')

4.1.3.5.   Themes emerging from 'What's to Hand'

The exhibition had a particular quality that emerged from the conglomeration of components, a distillation of a lengthy accumulation and selection process, stretching beyond the formal boundaries of the first year of research, drawing on some long-standing fascinations and latent connections. What was this particular quality? What elements had influenced my decisions that something was 'right' as a component for the project? The process and outcomes of the project helped me to understand, retrospectively.

A notable number of pieces selected for the exhibition, demonstrated the inventive use of the close-at-hand, familiar world of the maker to create a translation of the world, a sort of parallel version of their reality. The use of materials readily available in one's immediate environment also plays an important part, for example, in *Jackson Bridge*[32], the railway layout loaned by Sheffield Model Rail Enthusiasts club. This exemplifies the inventive use of unconventional craft materials gleaned from the domestic sphere; for example: 'The irregular stones are … grit taken from bins for use on the road in winter … Ground cover is a mixture of teddy bear fur, hanging basket liner and old-style carpet underlay. Trees are heather twigs ... The brambles are from horsehair.' (Sheffield Model Railway Enthusiasts, as cited in Ray, J., *What's to Hand*, 2015, p. 12-13)

The Model Unit 119 (2010-2014) by Joe Sheehan is a model made for a stop-frame animation (its status is not, says Sheehan, an art work in itself). It fastidiously re-creates the location of its own production; the artist's studio on an industrial estate

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[32] This layout is a collaborative work by members Nick Gurney, Richard Smith, David Walker and Brian Wheeliker (with additional input from fellow club members Albert, Matt, Alex, Graham and Bill.)

in Hull. Generating another kind of inter-relation between the everyday and the modeled, a stipulation of Streffen's *Fylingdales in Winter* is that the furniture belonging to institution in which it is to be exhibited should form the supporting structure for the piece.

The role of the tactile and haptic also recurs. Francis Evans's model arches, a learning tool developed during his time as a professor at Sheffield Hallam (found by chance during my foray into the Artemis collection), were selected because of their incredible form and surface qualities. These wooden blocks conjure something of childhood play, whilst their peculiarly serious, matte grey finish suggests an architect's block model or a modernist art work. Evans was fascinated by the role of tactility in learning, and describes distinctive experience of an arch exerting itself against him physically:

> When I made this, I was playing with it and one day I lifted one end and I could actually feel it pushing. And this time I knew it in a completely different sort of way, not as words that I'd been told, but this time I'd learned it with my hands and I think that way it gets into your understanding in a very, very different way. (Evans, 2010)

The exhibition enabled me to identify the enthusiast model as a key context of model production of interest to this study. At this stage, I began to refer to the 'unasked for model', as, in this exhibition, enthusiast practice was evident not just in the model railway layout, but in the slightly excessive nature of models made in more professionalized realms. Most of the models present were inspired by the maker's curiosity and personal motivations rather than at the request of a client, autotelic practices arising at the outside edges (or slightly beyond) what is deemed 'necessary'. These findings arose directly from the accumulation process. I then

sought to use the spatial arrangement of the models to draw out connections and relations between them.

4.1.4 Conclusion

The stages of this curatorial project, from accumulation to arrangement and re-arrangement (as 'reactivation') could be seen as a large-scale version of the spatial interplay of materials in my studio processes. The associations and re-readings made possible by the interplay of pieces in the exhibition space offered similar opportunities to the methods used in the making of works discussed earlier in this chapter, but on a larger scale in terms of elements and therefore possible complexity. On one hand, this could be viewed as simply a material and practice-led equivalent to a literature review which serves to indicate the terrain / topography of an area of knowledge before intervening in it. However, through the three stages of this process – accumulation, spatial arrangement and re-activation through movement in / with / through the space and the exhibits, I argue this method as an active form of enquiry. I identified the particular tropes of model around which this project would coalesce, enthusiast or 'un-asked for' models. However, rather than producing an even survey of model types, the project made possible a web of lateral connections between aspects of process and representation in exhibits. I consider the 'shuffle of things' a process of 'Cartography Rather Than Classification' (Van der Tuin & Dolphijn, 2010). Looking to the inter-relations between the components of the project to enrich the understanding of the different works as well as to grow larger themes for exploration. I see this process as a kind of 'Topographical analysis', a term used by Patti Lather (2016, p. 127) to discuss how some texts use 'bits and pieces of theory to listen to the dynamics attuned to 'figural densities' of texts set alongside one another'.

4.5 *A Fabrication;* Correspondence with paper, audio, blade, tape & artists

'Form is the end, death…Form-giving is life'
(Klee, 1973, p. 269, in Ingold, 2007)

The emphasis on hands in communication emerging from the early works, led me to consider more the gesture *as* model. I returned to a long-standing fascination with the imagery made by Frank and Lillian Gilbreth; early 20th Century industrial engineers and management consultants who researched efficiency in labour during the early twentieth century. Their time and motion studies sought to capture and represent in isolation the single best way of doing any given task. This model as exemplar had the aim of advancing productivity by standardizing and removing idiosyncrasies in the act of making. This could be argued as an editing of the 'conversation' that might arise between a maker and their material, and indeed there was resistance to the Gilbreths' challenge to the autonomy of the individual, yet the Gilbreths seemed to be looking precisely for the kind of skill we might associate with the craftsman. 'The expert uses the motion model for learning the existing motion path and the possible lines for improvement. An efficient and skill-full motion has smoothness, grace, strong marks of habit, decision, lack of hesitation and is not fatiguing.' (Gilbreth, L. & F., 1917, p. 127) Their own research process, the production of the photographs, imagery and physical models, is also full of inventiveness and makerly skill and is somewhat seductive, so much so that the image of the work has been argued as being more successful than its application. (Price, 1989)

The Gilbreths' 'Chronocyclographs', which track the movements of workers into glowing lines of light through use of lamps and long exposure photography, became a point of departure for a collaborative work *A Fabrication*[33] made with artist Rees Archibald. Whilst the Gilbreths' aim was to identify a prescribed method of working to attain a predictable outcome time and again, the concern of our collaboration was to draw out the peculiar qualities of the making process when one is uncertain of an outcome, to try to feel the spectrum between following an exemplar and improvising.
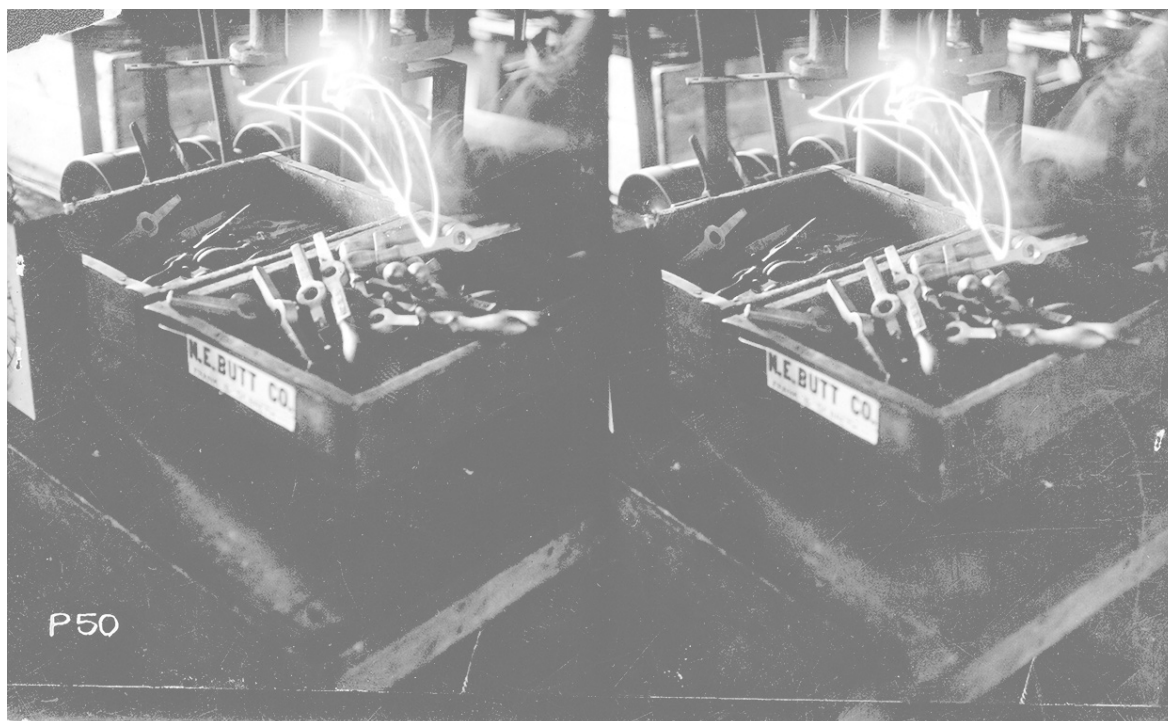
Figure 34. Kheel Centre. (c. 1915-17). *2 cycles on drill press showing 'HABIT' positioning after transporting. Note the 'hesitation' before 'grasping'*. [stereoscopic photographs]. Frank B. Gilbreth Motion Study Photograph. Retrieved from
https://www.flickr.com/photos/kheelcenter/5279841396

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[33] See practical submission: Chapter 4 works 03 *A Fabrication*
or link https://vimeo.com/194975968/f58b854bd5

Installation view : See practical submission: Chapter 4 works 03a
https://vimeo.com/194970813/e549c2349d

The images acted as a navigational point from which we plotted a work, which would use contact microphones for capturing sound as a means of transmitting the making process as a kind of pattern or score to follow. Our method would (we imagined) result in unpredictable outcomes. Together we developed an idea for a playful 'enabling constraint'[34]. We would each make a small paper model and record the sound of this process. We would then attempt to re-create the model made by the other, by listening closely to the audio, decoding and interpreting its construction. This would be done remotely, as we would be located in different countries at the time of production. The curiosity and inefficiency in this undertaking was in stark contrast to the Gilbreths' aims. We attempted to discover something about how we might experience an object at the stages of making, imagining, and translation, using an inefficient method that would not be our usual 'default option' as artists. Play was an important component, and failure seemed inevitable. However, the attempt to learn *through doing*, and the close attention to some kind of trace left by the actions of another, connected our endeavour to the Gilbreths' imagery and interest in the pursuit of skill, acknowledging the body in the process of making.

I had anticipated the dialogue integral to this work to be a fairly straightforward comparison between the experiences of making of one person who makes visual work and one who is more attuned to working with sound. Indeed, this comparison has yielded some insights, but other unexpected things have also been revealed which will inform the next stages of my research, and which may inform a new understanding of my methodology. Each aspect of the project could be understood

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[34] This term is used across artistic practices and art pedagogy to describe a structure or 'rule' which encourages experimentation by setting a frame of limitation as firm standing place from which to leap into more uncertain processes of improvisation.

as a dialogue of sorts; from the process of making the recordings to installing the work; from the encounter with the work in the exhibition to the symposium, and of course the conversations between myself and Rees. Here I will attempt an account of some of the learning that has arisen through the different stages the project. Our initial plan was to each record the fabrication of an original object and a 'response', however, we quickly fell into the roles we were most familiar with.

Having agreed to make the first object, I quickly became pre-occupied with what its form should be, and eventually decided to follow a template from a *Boys Book of Model Boats*.[35] I unexpectedly found myself re-making and re-making, *rehearsing*, a paper model boat hull six times in total, while documenting each attempt on video and audio recorder.
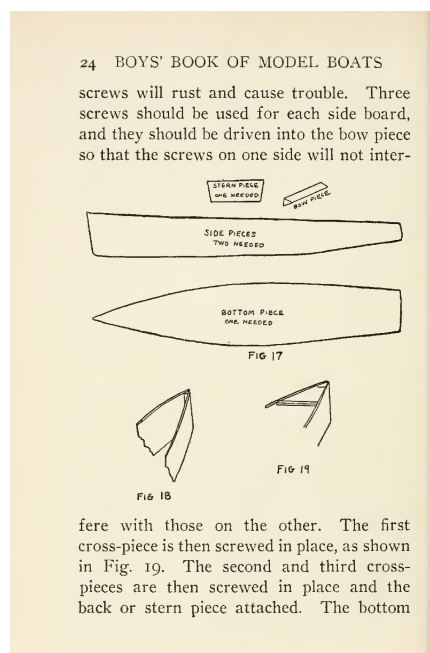
Figure 35. Yates, R. F. (1920) *Boy's Book of Model Boats*. New York: The Century Co.

[35] Raymond Francis Yates *Boy's Book of Model Boats* (New York: The Century Co., 1920), <https://ia802307.us.archive.org/9/items/boysbookofmodelb00yate2/boysbookofmodelb00yate2.pdf> [accessed 20 July 2016].
This choice of source material aligns with that used in past works. I often select material originating in the early twentieth century. Although not key to the function of the processes in this work, the material nevertheless has significance in the broader project. Nostalgia is important in my line of enquiry, and the social and political connotations of these source materials are a means to begin questioning what different languages of model-use imply, and what their status might be.

Figure 36. Ray, J. Work in progress, *A Fabrication* (2016)

When the making was complete, the audio file alone was sent from Copenhagen to Vilnius. Rees then listened closely and made an object by following the actions suggested by the sounds he heard, the audible parts of my cutting, folding and manipulating paper. One way to understand Rees's activity at this juncture is as a 're-playing' of a 'score' created by the making of the first model. He recorded this process with a contact microphone[36]. When we spoke via Skype a few weeks later we tried to put into words our experiences of making.

> RA: So I might have been cutting or sticking and another sound came in and I, I would finish it quickly ...but I wouldn't interrupt it in mid flow.
>
> JR: And it sort of explains...some of your movements started off ...while your movements always seemed very confident even though umm...you were trying to follow something that was potentially quite difficult, it never felt like your movements were really tremulous or unsure or anything like that...
>
> RA: Yeah, no, I tried to make it a definite decision whatever it was and do it and then also not to, you know, plan it too much but at the same time.... yeah I don't know how to say

Archibald, R. and Ray, J., personal correspondance: Screen shot of transcript from Skype conversation (2016)

We had not anticipated the urge to repeat or the need to practice, but each of us did. I attempted to differentiate:

> JR:: practice, not rehearse, so like. its practicing to get yourself into a state rather than practicing to...get exactly the same lines time and again whereas I suppose...I was copying an 'image' so I did...

Archibald, R. and Ray, J., personal correspondence: transcript from Skype conversation (2016)

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[36] As the name suggests, this picks up vibrations through contact with objects and surfaces rather than sounds transmitted through the air. My contact microphone was damaged in transit (I was in Copenhagen at the time, Rees in Vilnius), so for my part of the work, a standard microphone was used. Ultimately the use of two different recording methods seemed to suit the structure of the piece.

4.5.1 Rehearsing vs Practising

The work begins to address the performance of making, and what it is to 'practise'. The definition of rehearsal given by the Oxford dictionary is 'To practise (a play, piece of music, or other work) for later public performance'[37], whereas practice is 'Repeated exercise in or performance of an activity or skill so as to acquire or maintain proficiency in it.'[8] So, whilst *rehearsal* implies performing to an audience, *practice* focuses on the act itself, the concentration and precision arrived at through repetition. So one could rehearse a known movement with the eye of the audience in mind, but in practising, the skills required to improvise a skilled action are most important and the act may be performed with or without an anticipated audience.

My own activity in making and re-making the paper model drifted between these two states. I certainly anticipated and made decisions about the visual appearance of our work as I reviewed the footage, tweaked the lighting, adjusted the framing of the shot, or re-positioned my hands in order to allow the camera as much access as possible to the action of my fingers on the paper. But the repetition inevitably also led to a greater fluidity and confidence. Rehearsal became practice, which allowed a genuine absorption in the task.

Erin Manning explores the idea of rehearsal as related to 'Study' and reminds us of a conversation between Fred Moten, Stefano Harney and Stevphen Shukaitis.

> Moten: When I think about the way we use the term 'study', I think we are committed to the idea that study is what you do with other people, working,

37 Oxford Dictionaries online <https://en.oxforddictionaries.com/definition/practise> [accessed 17th September 2016].

dancing, suffering, some irreducible convergence of all three, held under the name of speculative practice. The notion of a rehearsal – being in a kind of workshop, playing in a band, in a jam session or old men sitting on a porch, or people working together in a factory – these are various modes of activity, The point of calling it study is to mark that the incessant and irreversible intellectuality of these activities is already present. These activities aren't ennobled by the fact that we now say, 'if you did these things in a certain way, you could be said to have been studying'. To do these things is to be involved in a kind of common intellectual practice. What's important is to recognize that that has been the case – because that recognition allows you to access a whole, varied, alternative history of thought (Moten and Harney, 2013: 109-110, as cited in Manning, 2016, pp. 11-12)

The state of absorption that I experienced as growing out of my rehearsal-towards-practice aligns with what Mihaly Csikszentmihalyi (2007) calls 'Flow'. He reports 'the merging of action and awareness', 'a sense of control', and 'an altered sense of time' as features of this experience. (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005: 600-602). Sennet discusses a similar sense of satisfaction originating in process of metamorphosis: the transformation of a material from one state to another (Sennett, 2008: p. 120-29)

Ingold takes this *feeling making* further in 'The Textility of Making' (2009) where he goes against a dominant assumption in the arts and technology, that making means imposing a pre-determined form upon matter (a 'hylomorphic model of creation'). He unravels this notion that form must be arrived at through the conscious and deliberate efforts of the agent, imposed upon 'passive and inert' matter and re-examines the process of making as one of flow, an 'itinerant, improvisatory and rhythmic' process in which material is transformed, and in turn influences and transforms the practitioner who must interact with the flows and 'life' of the

substance itself, follow the materials (Ingold, 2010, p. 314) which he views as affirming Deleuze and Guattari's stance that *materials* and *forces* (rather than the more complete / inert forms and matter) are inter-relating in the world (Deleuze and Guattari, 2004, p. 377)

Thinking about the model in relation to Ingold's argument, we are presented with a form that one could argue has been used to instil the 'hylomorphic' in processes such as architecture (where, Ingold states, whereas the architect once worked on site, able to improvise and work with the materials, site and craftsmen (without a final plan) they now create models and plans which are pre-determined). However, the (hand-made) model, more than the plan, is also *making*, also a conversation with space, hand and materials and may offer some of the improvisatory quality that Ingold argues for. (Ingold, 2010).

The characteristics of 'Flow' have long been an important reference point in Rees's work. Our conversations prior to this collaborations often engaged with this, as well as with Ingold's ideas of 'textility' in making. Through my own practice, I have some experience of such sensations in the act of making, but the source of it is not easily represented, and I am aware that I can sometimes romanticise makerly practices in which the combination of the intellect and the hand is apparent. Visual cues related to work that is done for its own sake, particularly enthusiast or amateur practices, recur throughout my research. In this respect, *A Fabrication* continues to inform a discussion of the qualities which set such activity apart from other kinds of labour, where and how those qualities might be found and why they matter.

The being 'in the moment' suggested by 'flow', the possibility of transcendence through absorption in a task called to mind the twentieth century German Philosopher Ernst Bloch's ideas about the unrealised possibilities for the future, as well as the knowledge of the past, that exist in *the moment*. In making this connection, I began to understand the method used in *A Fabrication* as a practical means of working through Bloch's thoughts. Ruth Levitas supports Bloch's suggestion that Utopia can be found in diffuse actions and processes throughout human culture, that 'Utopia does not require the imaginative construction of whole other worlds.' (Levitas, 2013, p. 5) Indeed she goes on to state that 'it is evident that contemporary culture is saturated with utopianism, even (or especially) where there is no figurative representation of an alternative world'. (Levitas, 2013, p. 5) I see the action that occurs in *A Fabrication* as resonant with this idea. The first stage (performed by my hands) takes a pattern with a known, knowable outcome; the second action is a feat of disciplined attention, acute listening and an attempt to attain and maintain a state of 'flow'.

Although the materiality of sound was a key component in the work, in visual and tactile terms there is a dematerialisation of the act of making and its product. The temporary removal of visual information during the making process, and the restraining of the physicality of the work through the decision to install as a projection rather than to perform live, begins to suggest a deliberate fragmentation and diffusion of a narrative about making.

A resolved art installation work with visual, audio, temporal, material and spatial elements emerged. In this work[38] the act of making appears in a staged setting,

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[38] Shown as part of a group exhibition about the role of experimentation in Art practice-led research, *Testing, Testing* at Sheffield Institute of the Arts Gallery, Sheffield Hallam University in 2016.

projected onto shot-blast acrylic. There is a suggestion of trickery and magic in the appearance of the hands on the screen. The hands glow, they resemble theatrical spectres offering a highly aestheticized and appealing representation of a certain kind of haptic experience in craft making. The plywood surface on which the screens are mounted is suggestive of a studio workbench, perhaps an appeal to the viewer to believe a 'genuine' (sincere, authentic) process of making happened. The mediation of the act perhaps even heightens the vicarious pleasure derived from watching, and it is possible that the skill suggested through dexterity and commitment of movement is much more convincing on screen.

4.5.2 A Hidden Re-activation; the verbal conversation and the transcription

The work tends towards the immaterial in both process and outcome. The haptic experience, whilst 'live' in the moment of making for Rees and myself, become the imaginary haptic for both of us once we review the audio files, and for the viewer in the complete work. Another somewhat immaterial aspect of the work, was the conversation with another. I have been trying to make sense of the role of discussions with other makers as part of the 'hanging out' strand of my methodology. As with *A Working Model* (2015) and *Untitled: Conversation* (2015), this work reiterated a reconsideration of the verbal conversation as another kind of material interaction. On an abstract level, in the intimacy of a conversation, we attend to atmospheres, gestures, and sound in an attempt to generate a shared understanding of some kind. In a more literal sense, in this context, I am once again trying to understand another person's methods, trying to find possible templates for living to model myself upon. The actions we carried out in *A Fabrication* unexpectedly brought the act of transcription to the forefront. The translation from

audio recording into a physical object, caused me to draw a parallel to the transcription I had made earlier in the year which revealed to me the multiple levels on which this process can operate.

When I make a transcription, I am revisiting a conversation. I can recall an impression of the meeting, and of the quality of the interaction, but often will have forgotten much of the detail of actual content, or have an abbreviated set of ideas about what was said. As I listen to the recording, my expectations and my memory of the event are challenged. I hear the event not as it happened, but in fragments of between two and ten seconds, replaying full sentences, phrases or single words once (if they flow in a predictable way and my brain manages to translate what I am hearing to accurate key strokes first time) or up to six times if I misinterpret a syllable, forget a longer phrase, or mistype. I take short cuts by guessing, filling in what I imagine might come next or what I thought I heard, but always return to correct my mistakes. I am often surprised to hear a quite different conversation to the one I imagined was had.

I hear my own voice, air-conducted from a recording, rather than vibrating through my bones as I usually hear it, and experience the usual discomfort that brings. I cringe at how audible my thoughts and attitudes are even if not overtly discussed. I hear my interviewees voice and feel excited at how much they appear to reveal, I feel affection, curiosity and frustration. Listening repeatedly feels like uncovering something that lies beneath the apparent. I sometimes use video software to listen, 'scrubbing' back and forth through the timeline of the conversation. The incremental, acute focussing of attention as I repeatedly replay, retype, annotate and re-interpret, feels like slowly cutting a groove into material with increasing pressure. Noticing

thematic threads, making connections through annotation and interpretation in turn generates new understanding of the original material. That this act should feel like making, surprised me. That I should find myself in the absorption of something like 'flow' when re-viewing small audio clips repeatedly, experiencing a fragmented version of an interaction that originally flowed, was an interesting revelation and will require further attention as I try to understand it as an integral part of my method.

4.5.3 Summary

Ingold (2009, p. 1) draws out the argument for understanding creativity as a process which progresses forwards as the practitioner senses their way through the material, improvising and responding to its particular qualities, as opposed to a 'hylomorphic' view of making in which we assume making is 'the imposition of form upon the material world, by an agent with a design in mind'.

At the outset, there was no intention for the work to illustrate or demonstrate these ideas, but an enabling constraint that allowed a conversation with thought through materials. Through the re-activation of a template, pattern or 'master', *A Fabrication* allowed us to sense our way through the 'hylomorphic' and the more improvisational interplay with materials that Ingold calls 'Textility'.

The reactivated source 'model' was once again an early 20th Century instruction text for the making of a model (a physical scale model of a boat). However, the 'ghost' of the model worker and a model for efficient production present in our rumination on the work of the Gilbreths is also present and a second re-activated model in this

piece, the deliberate framing of the video element of the piece, the gridded cutting mat recalling the Gilbreth's imagery. In this way, the work can be understood as working in similar ways to previous pieces, with shout-outs and generating associations and a reading of the work that speaks about past, present and future in an historical sense.

However, this work moves beyond the visual language of the physical scale-model and the image as exemplar. Primacy of the image begins to give way to a tendency towards dematerialisation. This brings to mind Stoner's thoughts on Minor Architectures and the kinds of re-appropriation, re-activation and deconstruction, of the built environment which could be seen as challenging the power structures and the myths inherent in architecture and society. In exploring how we might begin to identify Minor Architectures, she notes 'They are intentionally improvised, fractional, stripped of decoration and even of grammar […] form will tend to dissipate to give way to the immaterial' (Stoner, 2012, p. 2).

The work opens up the possibilities of loosening the 'textile' of someone else's process or experience – the knowledge they have made – in order to weave into it, through emulation, in order to try to come to our own, new understanding of their experience, distinct from but connected to our own.

The removal of the visual source became a way of testing the audio as 'Master' or 'Model'. The image as a dominant form arguably offers a firm exemplar, whereas sound, felt through our bones and flesh, offers a more sensory notion of a model that allows for a different kind of re-activation, less tied to conventional language or meaning making.

4.6 Chapter Summary : An Assemblage of Correspondences

In this initial practice section, re-activations have included spoken and gestured conversations with and through the model, physical translations of the models - correspondences with materials, representations, human and non-human agents.

This section aimed to explore model types and modes of activation and re-activation. These emerged through an exploratory process of making, which made tangible and communicable not only the original affordances of the model, but the possibilities opened up by artistic engagement.

Re-activations that are an iterative 'worrying' without a specific aim, emerge as something kindred to what Karen Barad (2014) calls 're-turning', the turning over of the stuff of research in 'a multiplicity of processes, such as the kinds earthworms revel in while helping to make compost or otherwise being busy at work and at play: turning the soil over and over – ingesting and excreting it, tunneling through it, burrowing, all means of aerating the soil, allowing oxygen in, opening it up and breathing new life into it' (Barad, 2014, p. 168).

This responsive art practice demonstrates traits that might be expressed as 'model-like' or, perhaps more accurately, akin to *modelling*; they are relational, speculative, improvisatory and tactile processes. Works are constituted of multiple components, stages of process, and are spatially and temporally complex. They share with models the ongoing possibility of reconfiguration, laying out, and as such might be considered as assemblages.

Each of these 'correspondences' could be regarded as an example of *exaptation*, 'the process by which features acquire functions for which they were not originally adapted or selected' (OED, 2019). The practice-led re-engagement with models beyond their original intended purpose has begun, in this chapter, to bring embodied substance to Stoppani's argument that the miniature revived from dormancy could become a site for the generation of new knowledge. (Stoppani, 2014)

Chapter 5: Missing Things: Re-activated Models as 'Off Modern'

Pictorial House Modelling: After Miss Joyce Inall. Re-enactment as
Re-activation – The Model Railway Enthusiasts Club - Christiania

Exaptation is discussed by Boym (2008) as one particular trait of the 'Off Modern', a phrase she coined to articulate particular kinds of re-evaluative practices that comment on the Modern project critically, whilst embracing our material and emotional entanglement with it. In this section, the 'Off Modern', provides a particular point of orientation for considering the possible critical potential of the model re-activated beyond its original use.

The chapter begins with reflection and analysis of a studio-based artwork *Pictorial House Modelling, After Miss Joyce Inall* (2015)[39]. This work emerged as a distillation of the methodologies shared by the works in Chapter Four, and brought the experience of time and the issues of nostalgia to the fore.

This work opens up the relation between the model and model making and the notion of missing / absent times, places or possibilities. It prompts questions about how models might afford a 'sideways' evaluation of what *is*, through what is absent.

The following sections explore these ideas through art practice responding to field work in two specific communities where models, modelling and model-making are of particular interest, a model railway enthusiasts club in Sheffield UK, and Christiania, an autonomous self-organised community in Copenhagen, Denmark. The conclusion of this section discusses the affordances of models re-activated in these contexts.

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[39] See practical submission: Chapter 5 works 05 *Pictorial House Modelling, After Miss Joyce Inall*

5.1 *Pictorial House Modelling (After Miss Joyce Inall)*

Introduction – A Re-enactment – Analysis: Emulation and Imagined touch - Absence
as invitation to Re-activation - Re-activations as 'Off Modern' practice
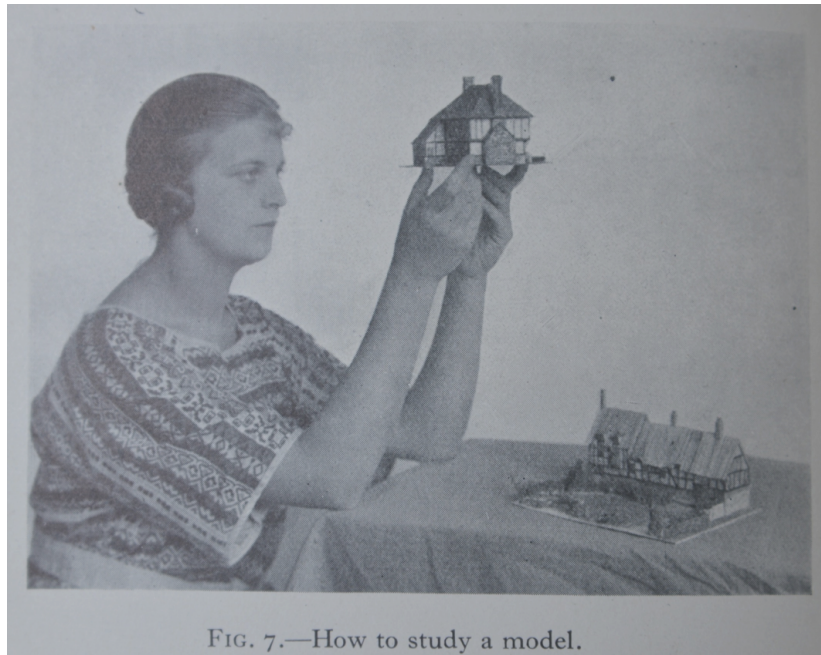
Figure 37. Illustration from E.W. Hobbs *Pictorial House Modelling* (1928)

In the 1920s and 30s, an engineer called Edward Walter Hobbs published a
miscellany of instructional books, with subjects ranging from *How to Make Model
Clipper Ships* (1927) to *Concrete for Amateurs* (1929). The connecting principle between
these works is the development of skill in changing one's environment, via practice
at a domestic and even miniature scale. Hobb's *Pictorial House Modelling* (1928)
features carefully choreographed illustrations demonstrating each stage of the
crafting process. Hands posed mid-action suggest the movement of tools against
planes of material, and the joining of sections, the painting of delicate surface
features. This is a model for the making of models. Miss Joyce Inall is cited by Hobbs
as having prepared the models for the illustrations, and I imagine the hands in the
photographs to be hers.

Figure 38. Ray, J. Work in progress images (2015)

5.1.3 A Re-enactment

After constructing a digital show-reel of the plates from the book, I set up my camera opposite the computer screen on which they appeared. I made a performance to camera. As Joyce Inall's hands appeared and disappeared – reflected in the glass of the screen, I mimicked as closely as possible the postures in the still images used to illustrate the book. My own hands intersected with hers, in a small-scale version of 'pepper's ghost'.[40]
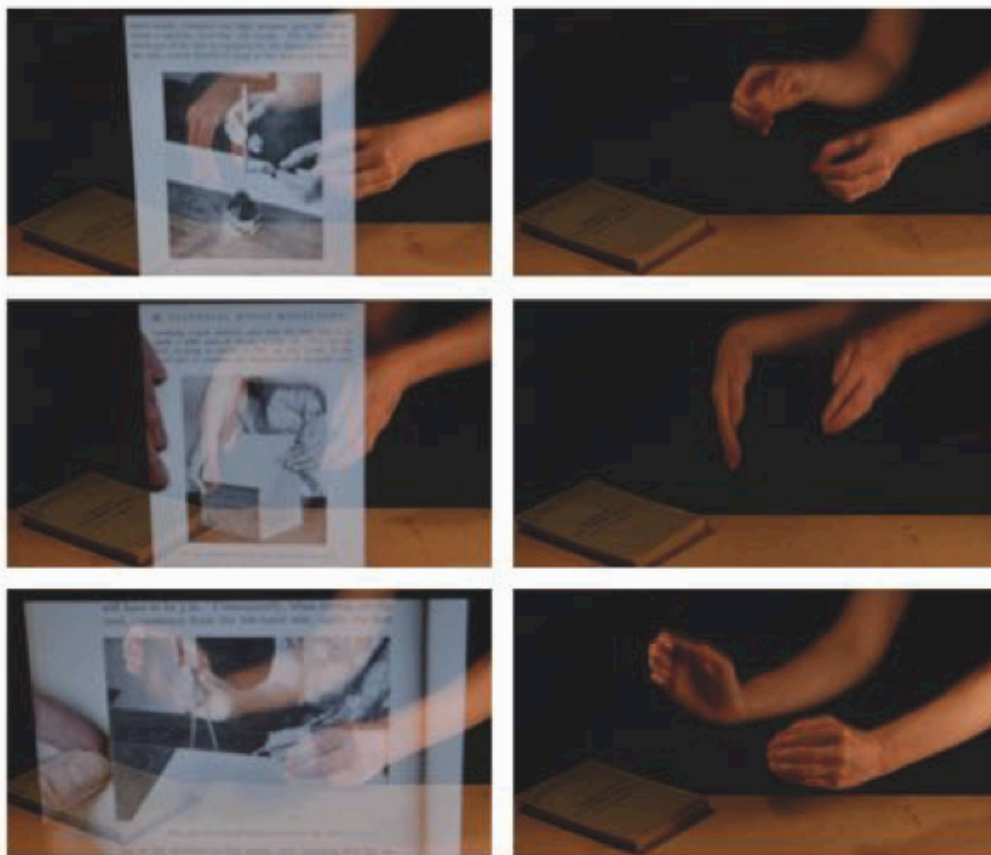
Figure 39 Stills from *Pictorial House Modelling (After Miss Joyce Inall)* 2015

[40] A well-known optical illusion technique used in theatre, especially well known since the late 1800s and associated with Victorian 'phantasmagoria.

Versions of the technique were developed by Engineer Henry Dircks (who used a sheet of glass and carefully positioned lighting to project an actor into the space of the stage) and English scientist John Henry Pepper (1821–1900) who successfully improved and deployed the effect in a stage production of Charles Dicken's *The Haunted Man*. Earlier versions are described by Giambattista della Porta in his work *Magia Naturalis* (1584) in which he describes "How we may see in a Chamber things that are not".

5.1.2 Analysis: Emulation and Imagined touch

When projected, my hands appear gigantic. Having no physical traction against an object, but striving to describe the shapes being held by Joyce in 1928, they visibly tremble. Effort is discernible, but there is no physical product. The gestures and framing calls to mind a magic trick, a *tableau vivant*, or a pseudoscientific instruction. The warm lighting lends a nostalgic ambience and the imperfect work surface suggests that some kind of manual work has been undertaken.

The images presented by Hobbs are not postures of making but of display that denote making. In copying these hand gestures, I did not learn how to achieve a pictorial model of a house, but my arms rehearsed and memorised the poses that made up the re-enactment of the model-making process depicted. The final work places us at several removes from the original process (making, poses to demonstrate making, photographs in book, PowerPoint slides of book pages, performance reflected in screen monitor and recorded by video, projection of video) and is a reflection on the model as a site of nostalgia, memory, emulation, learning, of information and mis-information. This suggests an attempt, through appropriation and emulation, to find a way of exposing what the true conditions of a context or situation are.

Emulation is suggested as a form of modelling – modelling one's self on another with the body. This becomes a way of gauging my relationship to another time / place / person. Similarities and differences are exposed. This work addresses a possibility present in viewing the model; that through imagining ourselves 'in to' the space depicted by the model, and / or the actions required by its manufacture, we place ourselves temporarily into the time and space of another being , whilst still in

our own present. In *Modelling in Human Experience* James Roy King says, 'When we observe such models, we can sometimes know vicariously the interplay of minds and feelings, inner and outer worlds, that modelers experience.' (King, 1996, p. 74) The gestures themselves appear 'empty' but are full of embodied sensations. Nigel Thrift's comments on dance seem relevant here, as a practice that,

> engages the whole of the senses in bending time and space into new kinaesthetic shapes, taps into the long and variegated history of the unleashing of performance, leads us to understand movement as a potential, challenges the privileging of meaning…gives weight to intuition as thinking-in-movement, foregrounds the 'underlanguage' of gesture (Thrift, 2008, p. 14)

Though representational models make tangible something we want to make present, when we view them, we grasp at that which is just out of reach - the knowledge carried by another body. In their discussion of imitation and emulation in children and chimpanzees, Andrew Whiten *et al* (2009) differentiate between imitation, in which actions are learned, and emulation, in which we might discover how movements and gestures are *relevant to the environment*. What tools might be used, what works in this setting. There is something here about trying to understand the social and spatial 'rules of the game'. (Bourdieu & Wacquant, 1992)

The piece is not a mimicry as satirical critique. It is perhaps a 'Mirror Tool', an 'implement[s] that invit[e] us to think about ourselves' (Sennet, 2008). Sennet ponders the inadequacy of language as a 'mirror tool' for the physical movements of the human body, stating that it 'struggles with depicting physical action, and nowhere is this struggle more evident than in language that tells us what to do', (p. 179) and explains how the encyclopaedia was a means of trying to address this struggle. 'The many plates, by many hands, that richly furnish the encyclopaedia

made this assist for workers unable to explain themselves in words…' (Sennet, 2008, p. 95)

Reflection on the gesture *as* model present in this work develops on from *A Fabrication* which made conceptual reference to the Gilbreths' early 20th Century 'time and motion' studies whilst deliberately exploring improvisation rather than strict adherence to a score.

Pallasmaa's invocation of the connection between hand and mind suggests how the image of the model and the re-enactments of making (by Inall in 1928 and by me in 2015) interconnect through the work as imagined touch:

> In our imagination, the object is simultaneously held in the hand and inside the head, and the imagined and projected physical image is modelled by our embodied imagination. We are inside and outside of the conceived object at the same time. (Pallasmaa, 2012)

In the video footage it is evident that the owner of the hands is imagining their fingers grasping material that is 'missing'. This in turn has the capacity to provoke a sympathetic response, in which the viewer might imagine this set of sensations. The frustration of *not* touching. The idea of being able to 'feel with the mind's hand' (Evans, 2008) recurs, but this time it is more specific. Feeling the absence. Reaching for an imagined past, a particular situation which is now held in relation to the present and the body of the performer through gestures.

Models often depict something absent, out of reach or missing. In my work around models, the unattainable 'thing' is perhaps the skill of another, or knowing what to do next. Through this work, I am able to sense in a new way what Braidotti calls 'the

embodiment of the brain and the embrainment of the body' (Braidotti, 2017, p. 33). Rather than simply revealing something about what it feels like to make, this encounter reveals something about a confounded desire, reticence, uncertainty in the performer.

After making the performance, I researched Hobb's work as an engineer. By searching patents records, I found examples of prosthetic hands developed for people injured during the First World War.

Figure 40. Left: Hobb's interchangeable prosthetic hands. The Engineer, October 2015
Figure 41. Right: Hobb's prosthetic hand, patented in 1918. Science Museum London

This find, though tenuously connected to the art work, enabled me to see further associations, that felt deeply resonant. The hand touches, weighs, investigates, makes and, according to Pallasmaa (2009), it thinks. The prosthetic hand as a stand in for a missing part of body conjures imagined tactility, as do Miss Joyce's absent hands.

5.1.4 Absence as invitation to Re-activation

In this work the ghost-like qualities of the imagery, and the means of producing the image have a direct relationship to Victorian phantasmagoria. According to Iwan Rhys Morus, Pepper's ghost and illusions like it were in part intended to challenge the audience by making apparent the mechanisms of its making and of the eye. Their aim was not deception even though there was still a spectacle. It was legible and became a way of 'interrogating the role of the eye as an instrument for the making of knowledge' (Morus, 2012, p. 48) Optical shows offered the potential of critiquing vision.

A.D. 1870. RAISING A GHOST BY THE MAGIC LANTERN.—See page 94.
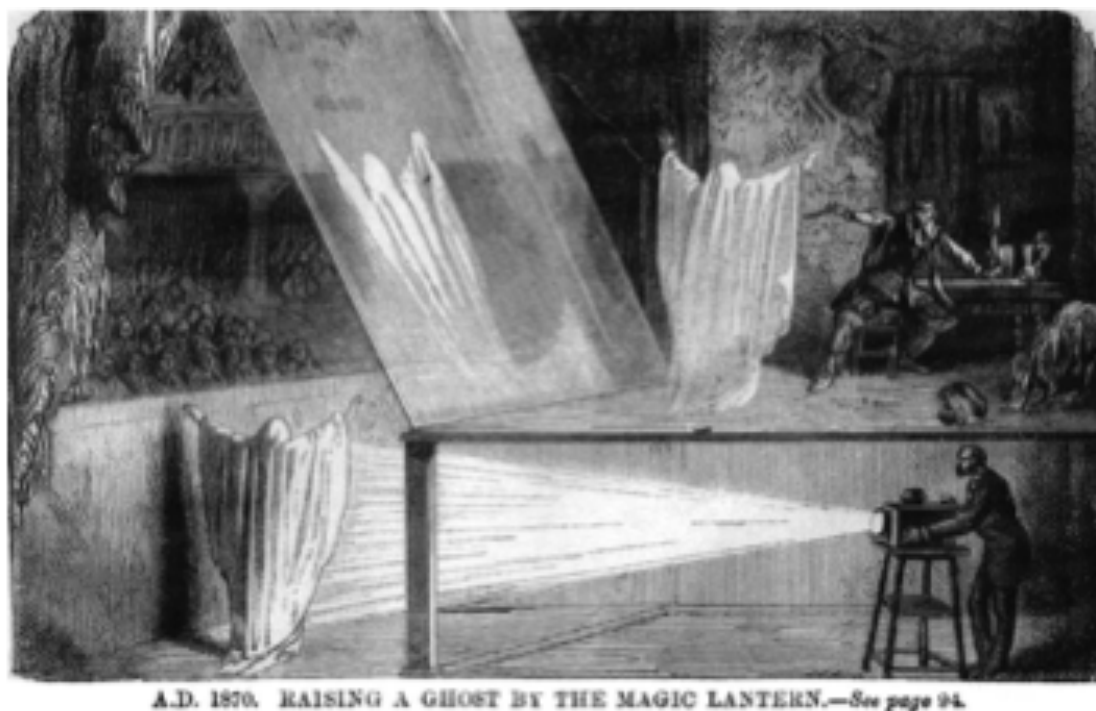
Figure 42. Pepper's ghost (*A Mere Phantom* 1876, frontispiece), in Morus (2012)

As with the works of Thomas Demand mentioned in the literature review, the absence of the original and the legibility of the 'trick' by which it is conjured is intentional and forms a means of critique that is not separated or lessened by the

thrill of the visual illusion, but is rather amplified by the strangeness of the slight dislocation in the experience. *Pictorial House Modelling* similarly invites an interrogation of the visual construction of a 'correct' model, acknowledging the nostalgia present in attitudes towards certain kinds of craftmanship, and of the miniature 'ideal' presented by the house model.

The lighting, the colours and staging combined with the faded black and white source imagery imbue the work title with a sense of looking backwards, and veer towards a reading of sentimentality. Although we never see it completely in this work, the model being constructed is a Tudor Revival suburban house, another nested iteration of yearning for an imagined past.

Fredric Jameson has pointed out (with reference to the earlier work of Walter Benjamin on allegory and ruin), that looking back to a past because it appears to be better than the problems of the present is not necessarily regressive, especially if it can be used to change the future. He writes: 'But if nostalgia as a political motivation is most frequently associated with Fascism, there is no reason why a nostalgia conscious of itself, a lucid and remorseless dissatisfaction with the present on the grounds of some remembered plenitude, cannot furnish as adequate a revolutionary stimulus as any other....' (Jameson, 1971, as cited in Levitas, 2013. p. 82)

In this work the *absence* of the original model drove the re-activation. What arises through that re-activation depends on the 'missing' model and the attempt to conjure it through gesture.

Reference material from the 1930s and 1970s recur throughout the studio sketches in the early stages of the study as well as the curatorial project *What's to Hand*. I am reminded that Mark Fisher and Franco Berardi trace the 'slow cancellation of the future' to the late 70s and early 80s (a little after the founding of the two communities my research is based around).

Throughout the thesis archive texts and images from early modernity and the early 1970s recur. I'm interested in how we conceive of the kind of technological and social thinking in these periods of time in particular. The potential to romanticise modes of production and consumption clings to these works. They surface nostalgia as something to be looked at and questioned.

5.1.5 Re-activations as 'Off Modern' practice

This work demonstrates how the model re-activated can be re-read, mis-read and re-invented. Findings may be retrieved or re-interpreted. The process allows us to look backwards, unpick, splice; to draw upon the past in order to help envisage an alternative future. In this way Anthony Dunne and Fiona Raby (2013) offer Speculative Design as a means of asking 'What if' about possible futures. Perhaps the enthusiast model could be seen as providing a tool for a 'What If' that is independent of the professional sphere and its requirements for productivity.

Possible

Plausible

Preferable

Probable

Present

Possibility cone from Dunne & Raby
(2013) Speculative Everything
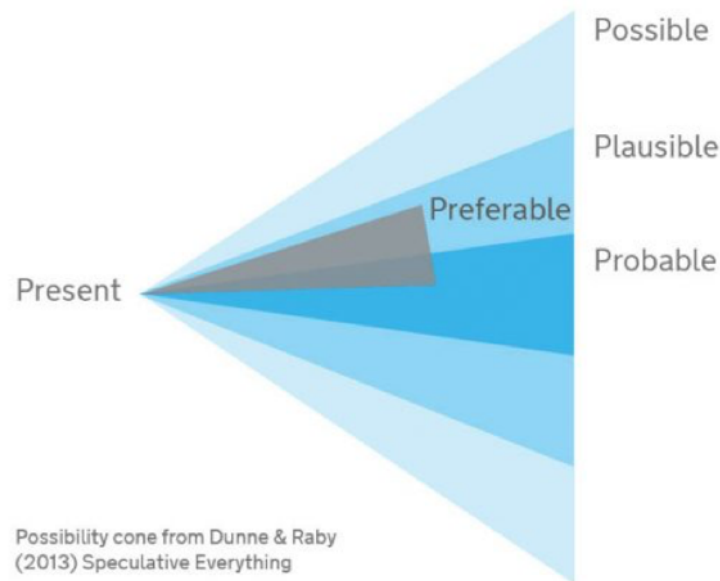
Figure 43. Dunne & Raby, *Possibility Cone* or *'PPPP'* from *Speculative Everything* (2013)

What is particular about the re-activated model is that the imagination can travel and loop unpredictably through times and spaces. Combining Dunne and Raby's PPPP (plausible possible probable preferable futures) diagram with Stoppani's idea of the re-activated model provides us with a messily rich way of thinking about how we might experience imagining possibilities over time, in a non-chronological, non-linear way.
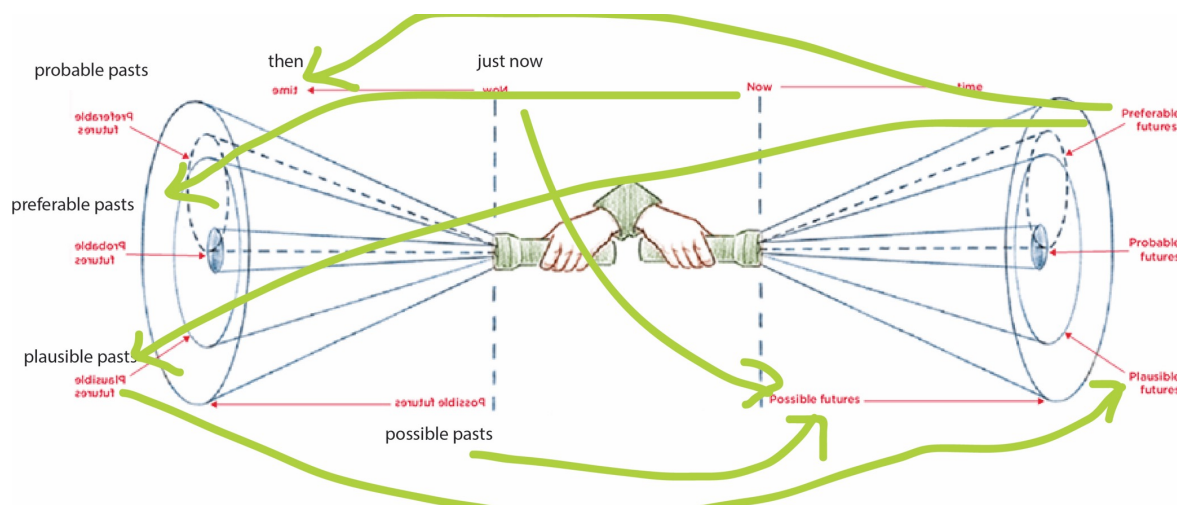
Figure 44. Ray, J. (2016) PPPP adapted (after Dunne + Raby, 2013)
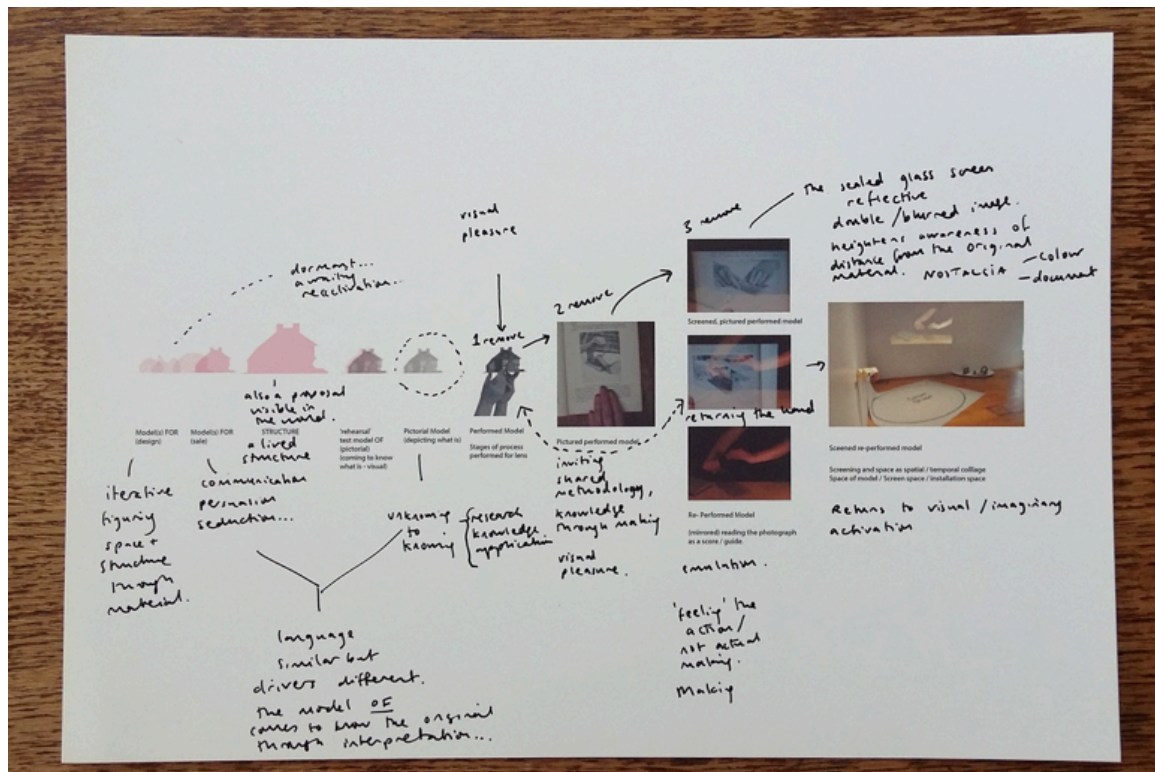
Figure 45. Ray, J. Diagrammatic analysis of *Pictorial House Modelling, After Miss Joyce Inall.*

A diagrammatic exploration of the layered times and spaces present in process and the final work of *Pictorial House Modelling(After Miss Joyce Inall)* digs back into the origin of the model in Hobb's manual. This is based on a structure that will have had its own originating model(s) in the 1920s / 30s – already a 'reactivation' which re-imagines the first. The stages of demonstration and image making, reproduction and re-enactment present in my working practice revisit both of these histories, combined with my own fantasies about craft skill, and notions of 'home' tied up with my cultural history. The diagram begins to hint at the looping nature of the experience of time in the piece, but fails to capture sufficiently what is an elusive sensation.

Boym coined the phrase 'The Off Modern' to describe ways of engaging in re-evaluations of the Modern project that encompass unexpected, sideways moves,

detours. The qualities of the Off-Modern she names resonate with the methods of re-activation employed in this work.

'explores the hybrids of past and present'

'aside' and 'offstage'

'extending and branching out from'

'somewhat crazy and eccentric' (off kilter)

'off key'

'offbeat'

(Boym, 2008, pp. 16-17)

The question 'What if?' is key to the 'Off Modern'. The re-activated model is a powerful practical means of exploring this question. In Boym's own words, 'the adverb off confuses our sense of direction; it makes us explore side shadows and back alleys rather than the straight road of progress; it allows us to take a detour from the deterministic narrative of twentieth-century history … a critique of both the modern fascination with newness and no less modern reinvention of tradition. In the off-modern tradition, reflection and longing, estrangement and affection go together.' (Boym, 2008, pp. xvi-xvii) Boym argues nostalgia as having a critical capacity. A state of mind that makes us conscious of what is missing or missed does not have to dwell in sentimentality or remain unquestioning.

In *Pictorial House Modelling (After Miss Joyce Inall)* the new experiences arising for the performer in their 're-enactment' emerge from a starting point in the past. The source material is a depiction that carries in its material form and pictorial content, histories and politics which are re-animated for the performer – albeit briefly – through this concentrated and intimate engagement.

The model is 'reactivated' as a set of gestures through which I come to know something of myself, and something of the person I emulate. Through making, and through *depicting* making, I feel with my mind and body something of the disparities and similarities of my experience. To re-activate by re-enactment can function to draw out behaviours and structures that already exist, rather than to create entirely new or alternatives ones. This presents a possibility for critique that emerges through and is informed by languages that are beyond the oral or textual. To reactivate by imagined touch could make an absence tangible in a different way.

The re-activations could be argued as Off Modern because of their indirectness, unplanned-ness and uncertainty about what might arise. If the re-activation of the model could be claimed as an Off Modern practice, then the model is a latent critical space. Boym places 'art that is not marketable' in the category of Off Modern suggesting it still may have a role that is 'absent or away from work or duty'. (Boym, 2008) These qualities sound very much like amateur making and the enthusiast model. The next section will consider how enthusiast model making might offer a potential Off-Modern practice.

5.2 The Model Railway Enthusiasts Club

Introduction – Being 'With' Through Art Practice – The Status of Material in This Chapter - Railway Modelling & Sheffield Model Railway Enthusiasts Club – The Layout –Nostalgic Re-Activation: Mourning &Haunting - *Is That Good Enough*?' Utopian Image & Method - Appraising The Role of Art Practice - Summary

5.2.1 Introduction

In the previous section, I began to identify possible affordances of re-activating models through art processes, and suggested this as an Off Modern practice. The re-activated model was proposed as a site in which pasts, presents and futures entwine, enabling a reconsideration of positive *and* problematic possibilities, without seeking a single simplified narrative.

In this section, I explore the idea of the re-activated model in the context of Sheffield Model Railway Enthusiasts Club, through reflections afforded by the making of a body of imagery and audio footage, and the subsequent artistic reworking or 'worrying' of these materials. Using a site-responsive artistic approach, my aim in this stage of the research was to attune to the processes and interactions of railway modelling before, during and after exhibition. The purpose of this approach was to try to understand how intra-actions arising from the intimate scale models might work with the modellers and intersect with worlds beyond the layout.

5.2.3 Being 'with' through Art Practice

Aiming to access aspects of model-making that were more perhaps elusive and difficult to express and not represented in literature, I considered the possibility of taking up the position of 'ethnographer as apprentice' (Pink, 2015) as an approach, affording experience from the position of model-maker. I also attempted some semi-structured interviews with the model-makers, with the intention that these could be components of art works. However, I quickly found these interactions yielded narrative accounts of motivations and interests in model making, which although fascinating were already represented in existing literature.

Slowly, I evolved instead a kind of purposeful participation in the time and space of the club that allowed me to be 'with'[41] the people, stuff, and atmospheres of the club. I attended club night for around three hours each week over four months and made audio and visual recordings of model-making processes, with the intention of making art works in response to this experience. The accumulative experiences of the attempt to record the temporal, spatial and relational aspects of model production in the club, combined with the resulting body of material, form the basis of my reflections in this chapter.

5.2.4 The status of material in this chapter.

The art practice I reflect upon in this chapter is constituted by a collection of sketches and works in progress. All of these components were made through art practice. More than raw footage or documentation, each fragment was made with the

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[41] Here I refer again to Ingold's 'Correspondences', the contrapuntal 'with…with…with'. (Ingold, 2017)

intention, and therefore the *close attention*, of art making. Selected elements were worked with through editing processes, spatial experimentation, and presentation but remained in flux. Some works were more resolved, specifically a series of multi-screen video works shown as part of an installation at Sheffield Model Rail Enthusiasts annual exhibition 2016, elements of which have also been screened at conferences and lectures.

At the time of making images, notes, and audio recordings in the field, I did not know which components might go on to demand further 'worrying' as material in an artistic process. In this chapter, the images used to illustrate the text vary in status, and I will differentiate in the image caption[42]. Whilst some insights can be attributed to a specific work, most reflections resulted from a specific *method* or mode of working, or the accumulated entire body of work and iterative reflective processes. In some cases a particular set of images or works have worked as a 'glowing' example around which ideas have crystallised. I will indicate where this is the case.

5.2.4 Railway modelling, and Sheffield Model Railway Enthusiasts Club

Railway modelling is an intense engagement with representations of an iconic aspect of modernity, the railway infrastructure. It includes depictions of landscapes, industry, and social worlds. Railway toys of various kinds were emerging from the 1860s onwards across Europe, and the pastime emerged significantly in the 1930s. What had been a niche activity available only to the more affluent, became even

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[42] More resolved works are acknowledged / subtitled as art works.
'Field Note' appears in the subtitle of material that was exposed to the heightened attentiveness of art-process, reflected on in studio processes, but were not used as part of a resolved artwork.

more popular in the 1940s when more affordable kits of track and ready-made locomotives appeared on the market. (Vale & Vale, 2013) Railway modelling has always straddled craft and consumerism, with customised, manufactured elements and hand-made, 'scratch built' components each having their part to play. Each model-maker prioritises whichever aspect of the activity best reflects their interests and motivations, which might include artistic skill, historical research, or the ambition to collect particular models.

Sheffield Model Railway Enthusiasts Club or 'SMRE' is an independent, not-for-profit club. The model makers work on their 'layouts' over months and sometimes years at bi-weekly club nights, currently located is a room above a church. The space is warm and lit by fluorescent tubes. It smells something like a combination of allotment sheds, churches and libraries; old books, solder, slightly damp cardboard and timber. In winter, the central heating pipes smell like hot dust. The periphery of the room contains miscellaneous kits, books and magazines about railways and railway modelling.

Some club members work on solo projects whilst others collaborate. There is a co-operative ethos in the group, skills and advice are shared, the social aspect of the club is greatly valued by its members. There is a club chairman, secretary and an exhibition manager but any hierarchy is not very tangible in the experience of the club night, while expertise and knowledge are valued and celebrated. The activities at the club include planning and modelling scratch-built landscapes and architectural features, making kit and scratch components for model trains, and running the stock. The co-operative co-authorship of layouts is an ongoing backdrop to these more focussed activities and there is a continual negotiation and re-

negotiation of spaces for working, storage and display. During the period of this research, the room contained between six and eight 'layouts' being worked on, arranged with just enough space for two people to pass when walking between them. There were usually between five and ten club members present, all male, ranging in age from early twenties to eighty years of age. Many of the members are retired, but often mention their working lives as architects, engineers, teachers, doctors and railway employees.

Figure 46. Ray, J. A view into the club room.
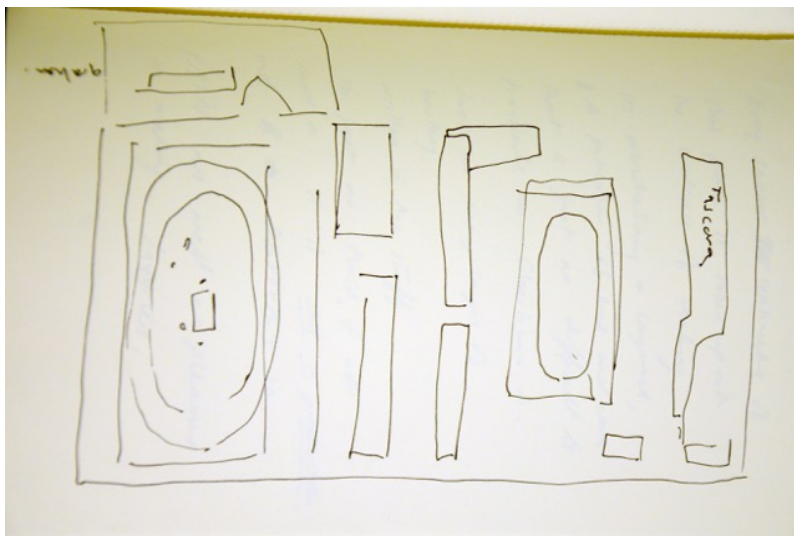
Figure 47. Ray, J. Field Notes (2015): A sketch of the footprint of layouts.

5.2.5 The Layout

I will begin in close proximity to the material of the model, and from here, explore the entwinement with bodies, the space-time of the club room and intersections with the wider world that arise from its production. Time spent alongside model makers, recording their processes, gave me access to layouts in a range of states, for example, from planning to negotiation, construction, deconstruction, transportation, display, reconfiguration and storage. Here I will discuss the possible affordances of the visual, material and auditory qualities of the layout, experienced as fragmentary, mobile, and re-configurable.

'Layouts' are the focus of activity at the club. A composite method of representation, layouts are part miniature pictorial landscape, part infrastructural model. Layouts typically include a combination of bought and 'scratch built' landscape and architectural elements. Landforms are constructed from foam, polystyrene, hardboard, or plaster. Backdrops are traditionally hand painted scenery, but in recent years digitally printed photographic imagery has become more popular. Scenes are truncated to fit the physical constraints of the room the layout will be made in, and vehicle it will be transported in[43]. The variety of environment represented can include urban, peri-urban and rural landscapes. Some layouts are designed with the aim of historical precision, whereas others are built to approximate a scene and infrastructure more generally typical of an era and location. Though dense in terms of the layers of time and focus and activity present in the object, layouts can be physically light. Their portability means they can be considered in a huge range of contexts over time.

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[43] This tradition of making to transportable dimensions is exemplified in the intriguing form of a layout at the National Railway Museum made to fit inside a Banjo Case.

5.2.3.1. Asynchrony: Visual, Spatial, Material and Auditory

Figure 48. Ray, J. Field Notes (2015-17): Photographic notes from the model railway club.

The modelling styles and finishes used in each layout are clearly distinguishable; like looking at photographs taken across decades, the colours appear more saturated in some, in others the detail is pin sharp, some appear faded or are coated in a fine layer of dust. The room is full of juxtapositions made unintentionally, or happened upon. A small world depicted in one layout meets another landscape in another era. Bringing the eye to table level, looking out from within the layout, transforms the room beyond into a 'view', a landscape of fixtures and furniture. Logos, imagery and words on storage boxes become accidental convergence of imagery and scales, things out of time or out of place. Tools or materials left in landscapes appear gigantic, as do the model-makers' hands and voices in relation to the landscapes.

The view through the club room sometimes seems like a theatre set, with receding layered views, a hybrid scape of mismatched landscapes that are in constant flux as one's body moves around the space. A sudden cut-away in the roughly painted blue sky over Cornwall reveals a landform in West Yorkshire. The stone walls of a mine in Nevada, give way to a 'sky' made of the patterned jumper of a model maker at work. These visual experiences call to mind the scope of all the imagined terrain (and time) made (and un-made), in this space and in the minds of the modellers, since the club occupied the room.

There are fragments from the outside world here too. They are folded in with the

Figure 49. Ray, J., (2016) Field Note: model carriages displayed on a quilt cover with steam engine repeat pattern at the annual exhibition

worlds of the layouts and the words of the model-makers. Graphics, some faded and clearly from past decades, on containers for holding tools or materials, crates from bakeries, supermarket bags and packaging. There are shelves, books, and magazines. Text on labels and notes give (unintended) new readings or narratives to the arrangements of objects or surfaces. There are unintentional moments of humour or absurdity and play (with the layouts and their absent makers) in these moments. The club room could be read as a kind of sprawling, spatial 'zine'.

Figure 51. Ray, J (2018) *Power for Controllers* [Photograph]

Figure 50. Ray, J. (2018) *We're crying out for Mournful Melodies* [Photograph]

Figure 52. Ray, J. (2018) *Somewhere, anywhere….Softer* [Photograph]

The Model Railway Layout and the club room could lend themselves to a contemporary psycho-geographic reading. The multi-layered, the infrastructural and affective, the remnants of previous architectures etc – all are present, condensed and intensified in miniature, in a state of simultaneous becoming and un-ravelling at a range of scales.

The sound-scape arising from the club room intersects with the miniature scene of the layout. Combinations of word, sound, material, object and image throw up unexpected associations. The effect is something like watching a film with an incongruous soundtrack. There are moments where the experience is something akin to viewing Patrick Kieller's *Robinson in Space* (1997) [44]. The collision of image, sound, fiction, and social history in the combination of these components conjures something more than the sum of their parts.

Visual asynchrony, resulting from views that combine multiple different moments in time, is echoed at a more intimate scale in the assembled substances and components of the individual layout, a kind of asynchrony through materiality.

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[44] *Robinson in Space* (dir. Patrick Keiller, 1996) begins with Robinson's unseen narrator quoting the 1960s French radical Situationist Raoul Vaneigem demanding that "a bridge between imagination and reality must be built". It ends with Robinson's disappearance and the narrator declaring that "I cannot tell you where Robinson finally found his Utopia". In between is the search for that Utopia in the industrial landscape of England, and an attempt to bridge the gap between two worlds.

A mysterious advertising agency has tasked Robinson with investigating the 'problem of England'. He and the narrator embark on a series of seven journeys across England, inspired by Daniel Defoe's *Tour through the Whole Island of Great Britain*, based on Defoe's travels as a spy in the 1720s. Robinson brings to the journey the same restless sensibility encountered in Kieller's previous film, *London* (1994), unearthing the unlikely histories of manor houses and ports alike. He discovers the French poet Rimbaud's residence in Reading, and the site of Dracula's mansion at Carfax. Everywhere, he finds traces of Defoe himself: the houses in which he wrote and the Bristol pub in which he met Alexander Selkirk, the model for Robinson's namesake 'Crusoe'. (Birchall, n.d)

Re-use of materials is a valued aspect of the craft. James Roy King (1996, p. 11) speaks of modelling using 'folk materials…cardboard in place of mahogany, plastic instead of glass, plaster or papier-mâché instead of concrete or granite'. Nick Pollard and Neil Carver (2016, p. 177) express this 'skilled use of convenient or found materials in modelling' as being 'the aspect of model making which we most valued'. Importantly these thrifty and inventive approaches also constitute a physical thread to other spheres of the maker's lives. Stuff gleaned from home or work environments all make their way into the fabric of the layout. Old newspapers, packaging materials, teddy bear fluff, earth from the garden, leftovers from D.I.Y. projects. All these components present a possibility that the modeller could be reminded of 'something forgotten until the material recalled it.' (King, 1996, p. 177).

Figure 53. Ray, J. (2015) Field Note: real soil from the garden as part of the model landscape.

The temporal qualities of the model making process are also tangible in the space. It is possible to re-model layouts, to repurpose sections of landscaping from one board to another, to appropriate scenes from one era to suit a model depicting a different space and time. Stripped back base boards show traces of past layouts. Sometimes future plans are sketched loosely on the surfaces, or on continuous-feed computer paper. Reference materials appear here too: photographs and notes, in which are contained processes beyond the club room (reading, walking old railway lines, archival research)

Figure 54. Ray, J., Field Notes: (2015) A baseboard stripped of its former landscape features, ready for re-use.

5.2.3.2 Auto Montage to Auto Agencement

The model maker may intend the layout to be viewed from a particular point, and in a state of completion. When the layout is witnessed 'in progress' and alongside other scenes in the space of making, the experience is more unruly. Can this constitute a form of 're-activation' beyond the model's original purpose? If so what is made possible in this re-activation?

Caroline Dinshaw (2012, p. 5) discusses asynchrony, 'different temporal systems colliding in a moment of *now*', as part of the experience of amateur historians and researchers at re-enactment events when, in character and in costume, imagined past eras combine with contemporary settings. This collision of worlds and times is described by Dinshaw as 'crowded', densely layered and complex. The visual experience of the rail club offers something akin to this. To be 'here' in the model railway club is also to be elsewhere and else-*when*.

In the *Arcades Project*, Walter Benjamin considers the insights possible through the inter-relation of anachronistic things. 'the relation of what-has-been to the now is dialectical' (Benjamin, as cited in Pensky 2004,p. 117). Max Pensky argues that the dialectical image allows us a critical stance through a slight distancing, in which we can regard the past and present in a 'constellation with the Now' (Pensky 2001, p. 217) Photographic images of the layouts and the visual anachronisms in the club could be considered as a kind of Dialectical Image, but time and movement are more prominent in the lived experience of these collisions and constellations. For a while, I

wondered if they might be considered a kind of montage[45] but this definition is bound to the idea of a constructed moment intended by an author. These experiences arise without that kind of authorial intention. In navigating the space, one experiences a flowing progression of intersecting time and space, an unfolding of events that offer a multitude of possibilities. The material might not lend itself to the 'cool' distance suggested by Pensky as an affordance of the dialectical image, but is it possible to understand this as a condition for a critical mode of thought or practice?

Figure 55. Ray, J., Field Notes: (2018) A layout disassembled, stacked and ready for transport

5.2.3.3 Fragments and Ruins

Fragments of past layouts collected on the peripheries of the club room. Fragments of architectural and landscaping components from disassembled layouts are stored underneath layouts which are under construction or in current use. The strata of

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[45]For Eisenstein, emotional and intellectual responses not by one image following another but by the 'collision' of images in Montage (Maclean, 2012)

materials forming the landscapes appearing like 'sedimentations' that could be peeled or worn away. The materials used in model railway layouts are varied and often somewhat vulnerable, but also easily repaired, familiar in their components.

The stored layouts are very tangible example of the model in dormancy (Stoppani, 2014) and occupy a particular 'interim' state that invites an unconventional approach to their interpretation. Deconstructed and often turned in on themselves to save space and protect their surfaces, these layouts possess a sense of latent possibility. These layouts 'in waiting' resemble cave systems, or inverted worlds, some are shrouded like Halloween ghosts. Partially obscured, they invite a kind of archaeological process to access and read their forms and surfaces. I lowered cameras into the spaces my eye could not access and retrieved blurred, indistinct views of the interior.
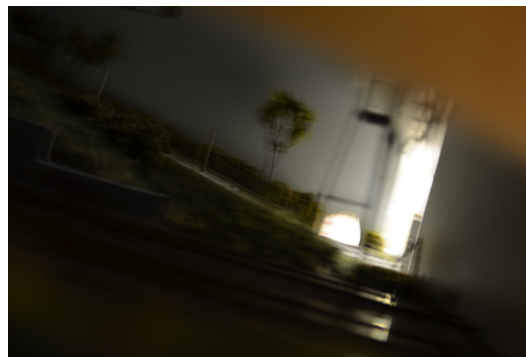
Figure 56. Ray, J (2015) Caves. Images from the inside of stored layouts – lowering the camera inside, further than my eye could access.

Figure 57. Ray, J.(2015) *Caves*

Figure 58. Ray, J. (2015) Field Note

Time is legible in the effects upon the model. The materials are vulnerable, not exactly transient but not built for permanence either. Cardboard and paper are likely to fade in daylight, peel or warp in too much heat or damp, landscaping surfaces can be friable, becoming chipped or worn in transit, or dusty if left uncovered. There is something about the often partial and fragmentary aspects of the model, combined with these material qualities, that calls to mind ruins. Ruins are active, they are always in a state of becoming more ruinous.

Deliberate painting or modelling effects are sometimes used to create a sense of decay or dilapidation. At the same time, real 'weathering' occurs – moisture damage, dust, scuffs and marks of use and transportation that accumulate as part of the layout over time. In quiet moments when the model makers are at rest or absent, It is unclear whether things in incomplete states are being moved towards completion or being un-done. The direction of movement in terms of the construction or dismantling of the layout is not always immediately clear, and indeed sometimes both are occurring at once.

The consequences of considering the model as a ruin run deeper than the 'weathered' surface aesthetic. In *Aesthetics of Decay*, Jorge Otero-Pailos asks us to consider 'What if we conceived of models and buildings, not as representations, but as ruins of each other?' (Otero-Pailos, 2014, p. 145)

When understood as ruination, the relations between the models and the buildings appear to be strengthening, because their aesthetic differences frustrate our attempts to see one as the fulfilment or expression of the other. Building and model remain related, but according to the logic of ruination their rapport appears to us as one of

mutual frustration: a denial of any attempt to collapse the two objects, a refusal to turn them both into a third ideal meta-object, and a negation of the primacy of one over the other, or of any claims that one could substitute the other.

> The logic of ruination allowed us to find value in the gross aesthetic differences between the models and the buildings, such as their divergent modes of decay, as defining the uniqueness of each object, and therefore as valuable intrinsic qualities worth preserving. (Otero-Pailos, 2014, p. 149)

What if we apply this to the model railway layout – a 'slice' or cross-section of the world. The ruination of the layout is then proposed as a thing through which to consider the distinct properties of ruination arising in the 'real' world, where the catastrophic finds visibility or remains unseen to us. The model is a space in its own right – not only a representation. This sets it apart from an image. It is spatial, tactile, social.

5.2.3.4   Auto-Agencement

The conception of the layout as a fragmentary and ruin-like, perpetually becoming in becoming un-done, asks us to move beyond ideas of dialectic image and montage conjured by the Field Note images, to Deleuze and Guattari's 'assemblage'. This provides a more helpful framework in considering the relational, shifting nature of layouts as they are experienced in space and time. Thomas Nail (2017) reminds us that translation may mislead us slightly. In the original French Deleuze and Guattari wrote of the *agencement*. The English translation 'assemblage', "the joining or union of two things" or "a bringing or coming together" does not mean the same thing. The verb *agencer* means "to arrange, to lay out, to piece together." (Braidotti, R., & Bignall, S., 2018 p. 185) While assemblage suggests, a whole-ness, a unity that is

complete and static, *agencement* brings a different emphasis, towards something more multiple, eluding an essential. – fluid rather than fixed, 'a kind of local condition of possibility' that allows the 'conjunction, combination, and continuum' of elements. (Nail, 2017. p. 26-27). The potential of the layout in progress feels close to this sense of *Agencement*, a condition of *possibility.*

The moments in which layouts are de-constructed, re-positioned, transported and re-configured offers an impression of landscapes shattering, floating and re-forming. In short, I propose that layouts (and the club space) are models in a state of continual re-activation or *possibility* of re-activation.

These experiences rely on the intensity of model itself, which embodies the enthusiast's skill and commitment. This 'side effect' of happened upon, asynchronous views are so potent precisely because they are a 'sideways' look, a glance across, something that happens in the corner of the eye.

These experiences of juxtaposed of layered spaces and times may not be the focus for the model-makers. What my practice offers is, perhaps, the identification and opening out of the unintended affordances of the layouts, things that may be surplus to the model-maker's intention and therefore a space in which more rhetoric and speculative thought can arise.

Figure 59. Ray, J., (2018) Field Note: – partial, mobile, in adaptation, mobile and re-configurable geographies

5.2.3.5 Re-activated layout

How might the particular possibilities opened up by the layout 're-activated' be characterised as a kind of critical space? Jane Rendell's method of 'site-writing'[46] offers a plausible answer. Her practice is a reflective, speculative responsive to the affective resonances of material and sensory impressions from the site that carefully considers the implications of fragments of histories legible there. In Rendell's methods, nostalgia is not dismissed. Rather, we are challenged to consider how we might harness the intensifying effect of 'longing' as a starting point from which to ask questions. Rendell echoes Fredric Jameson's stance that nostalgia can be, if 'conscious of itself', a critical and even revolutionary influence.

Perhaps a 'Site Writing' of the railway model could offer a means of engaging simultaneously with the layers of representation and lived experience entangled with the act of modelling and the model itself in the club room. The model as a real three-dimensional space is inhabited, and lived in over time by the modellers (unlike the architect's model, which is usually either discarded or displayed, intact and unchanging). It may be possible to consider the loose fragments of imagery, writing and sound that have emerged from my residency with the railway club as a kindred practice, related to 'site writing' and specific to the space of the model which is simultaneously virtual *and* physical.

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[46] This is exemplified in *May Mo(u)rn* (2013), a work which recounts Rendell's visits to a derelict home, an arts and crafts house somewhere in the green belt close to London, in which she finds historical imagery of the house along with photos of modernist architectural icons, and social housing developed after the second world war. The writing that emerges from this experience weaves together an account of the hopeful aspirations of social housing in the post war period, their gradual abandonment and the contemporary re-development that exploits these sites for profit. Very personal accounts of spaces remembered from childhood, and the sense of mourning for futures that did not come to pass, are bound up with the context of contemporary political events. Embracing the associations that arise from her subjective reading of the site 'May Morn' asks 'What does it mean *now* to turn back and examine these icons of modernism at an early moment, a spring-time perhaps, when hope for a better future was not viewed as a naively misjudged optimism?' (Rendell, 2013)

5.2.5 Nostalgic Re-activation: Mourning &Haunting

Introduced in his *Spectres of Marx* (1993) Jacques Derrida introduces the notion of Hauntology (a play on 'ontology') as he explores how Marxism might haunt Western society. Derrida foregrounds the importance of the continuing 'presence' of the absent in the present. Colin Davis (2004) rephrases this as the 'neither present, nor absent, neither dead nor alive'. Contemporary cultural theorists (most notably, Mark Fisher) have since used the concept to discuss cultural forms that exemplify our 'nostalgia for lost futures' by iterating the aesthetics of previous eras, rather that creating new, forward looking aesthetics. Mark Fisher's *Ghosts of My Life* (2014) exemplifies a kind of working through the cultural 'stuff' of his own life, through the lens of Hauntology.

A possible critique of Hauntology is that it is just another name for Nostalgia (by which I mean an uncritical Nostalgia, neither self-aware nor particularly questioning). However, Fisher defends the critical comparison between past and present as more than a 'pining for social democracy and its lost institutions'. He differentiates between yearning aimlessly for a particular period, and a more purposeful desire to move towards what might have been. He suggests that it is in fact 'the resumption of the *processes* of democratisation and pluralism…' that we are missing rather than the outward signs of a particular era. He reminds us that the social democratic project was not completed, but was, as he calls it, a 'compromise formation', an initial set of marks from which to plot a way forward and suggests that it is the 'Not yet' which never came into being that we should mourn. (Fisher, 2014, p. 27)

Railway Modelling could easily be viewed as uncritically nostalgic. My experience is of a far more nuanced activity, with possibility for a spectrum of criticality. If the model railway layout can be re-considered a possible space for a kind of iterative, collective site writing, could aspects of mourning and nostalgia manifest in the model railway club be seen as something more reflective, through which personal and collective insights might be found? The following account suggests this possibility.

5.2.6.1 *A lot of that stuff had already gone.* The Time that Just Eluded Us'
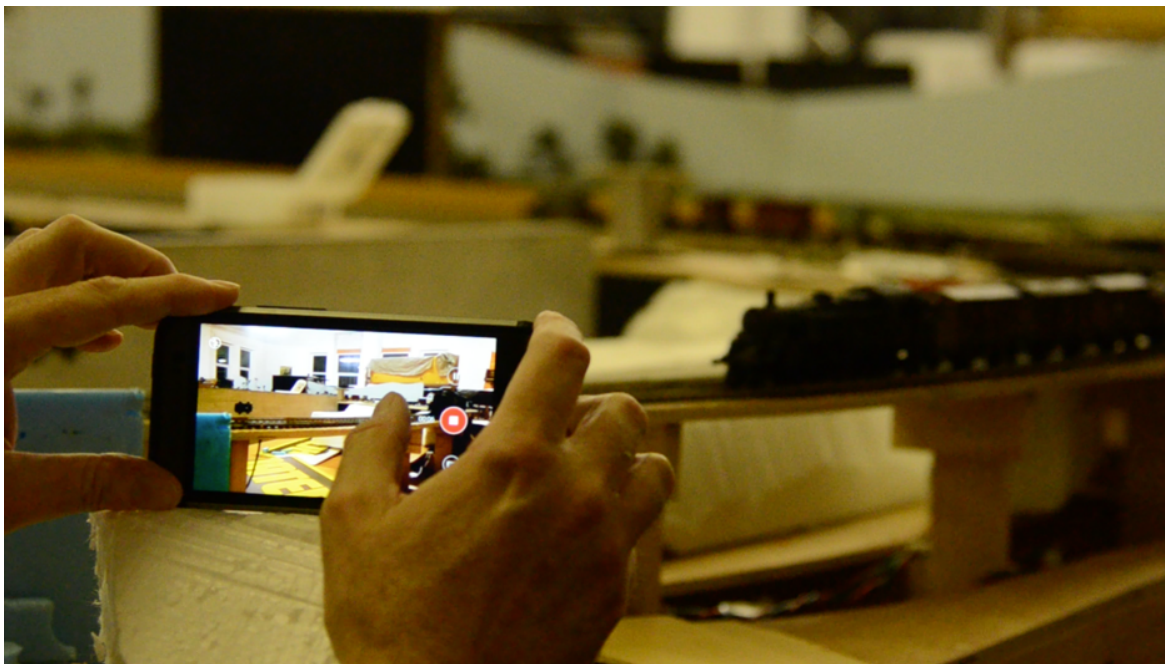
Figure 60. Ray, J. (2016) *A lot of that stuff had already gone.*

In a quiet time at the end of the club night, I set up my kit to make an audio recording of M's loco running round the track. As we both watched the train, M began explaining his interest in paint effects. He uses 'weathering' effects on his

model loco and wagons that simulate the effects of the passage of time[47]. I imagined his execution of this patination effect, the addition and subtraction of layers of pigment, through the stroke of a brush and the wipe of a cotton swab. A 'just out of reach' time is conjured through the time taken to carefully add each layer. Each interaction is a 'could be', or a 'not quite', each gesture an edit towards a more accurate or convincing version. This intimate material interaction becomes a space of possibility for continuous reflection and re-evaluation of an imagined past.

M explained why he made models from the era of the early to mid-1960s.This period signified something appealing to him connected to a sense of social cohesion. He described an idealistic image of a community around a rural branch-line station, explaining how the infrastructure around local industry and agriculture might have influenced the texture of day to day interactions and occurrences between people.

> ..it was almost more of a social railway then. You know. Every station would have its goods yard, and there'd be a station master and a porter and a signalman and they'd be a focus of their um, of the community, and the station master was an important man - usually a man of course - but that was how it was those days…but you know and… people would, you know… the station would be the focus because people would arrive and go and … there were no heavy lorries clogging up small country roads… I like that era very much…although I didn't experience it so much…I .. my experience was more, sort of, a bit later than that, when a lot of that stuff had already gone.

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[47] The 'weathering' of trains to appear aged, as discussed by M, is a miniaturised version of a tendency towards the picturesque played out in the railways themselves, albeit by other methods. 'As Francis Klingender wrote of industrial scenes and structures, 'picturesque' theory 'allowed the artist...to escape the more baleful aspects of industry by pretending it was already worn out. The rules of the picturesque allowed the intrusion of steam engines or mills or mines only if they were given an air of decrepitude or made to appear ancient and ruinous, and so harmless.' (Pacey, 2002, p. 22) Brunel, a man 'of taste', deliberately left one of his tunnel mouths un-completed, since in its unfinished state it more closely resembled a ruined medieval gateway. To increase the effect, he encouraged ivy to grow over it. This tussle, the push and pull of a narrative of progress through technology and industry deeply entwined with Romanticism and a retro-spection is perhaps at the core of the particular intrigue of the model railway.

He went on to describe the massive reduction of the railways brought about by the Conservative Government at the time, which was made possible by an act passed by their minister for transport, Ernest Marples (who, controversially, had business interests in a road haulage company) and was enacted in response to the Beeching report of 1963.

For M, this un-remembered past is constructed through research, then re-animated first in the model and then the anecdote. The account of his interest in paint effects and this purposeful relationship with the model, weathering the stock, allows him to meditate on the social cohesion that he regrets the loss of, express something about 'missing' an era just before his time, yearning, as Fisher (2017) says, for 'the Time that Just Eluded Us'

> You're trying to capture a moment or a scene that you want, that you remember … people want to remember the railway as it was in their childhood typically … that's very often the case.'
> I … don't really remember it but, that's when I saw … the err … the … I felt the railways were at their best (train stops) in some respects.

M's reflection begins with the surface of the miniature railway carriage, which provokes a nostalgia particular time and space he imagines as a *'more social'* world, and the possibilities it contained. Although a critical stance may not be overt in the model, the intersection of the miniature re-creation or representation of an era becomes a space, which enables an affective response, and a kind of analysis of past events that perhaps are happening in a register that is not quite that of discussion or argumentation.

I had asked very little, rather, it seemed as if the presence of the model carriages and the layout combined with my attentive watching induced this reflection. At the close of our exchange, he joked 'thank you for the therapy!'

The intimacy and pace of involved in the making of the model offers a way, in the words of Davis, to 'speak and listen to the spectre'. However, Davis goes on to suggest that 'Conversing with spectres is not undertaken in the expectation that they will reveal some sort of secret, shameful or otherwise. Rather, it may open us up to the experience of secrecy as such: an essential unknowing which underlies and may undermine what we think we know … The spectre's secret is a productive opening of meaning rather than a determinate content to be uncovered.' (Davis, 2005 p. 367-377) Similarly, it may not be possible to instrumentalise such encounters with the layout re-activated as a kind of therapeutic, reflective space. Rather, an opening may arise which we may not know the content or potential of, until we enter into it.

5.2.6.2 Repetition and Haunting

Acts of repetition in some aspects of model railway making are represented in long sections of video footage that show hands engaged in the same gestures over time. A sense of absorption, focus, boredom, distraction, and frustration is all-present. These iterative gestures are made with intention of revisiting and revising a scene which is 'missed', and might therefore be considered through a lens of Haunting. According to Fisher, Haunting is a failed mourning, when 'the ghost cannot be let go', or 'the ghost refuses to give up on us'. (Fisher, 2017, p. 22) He goes on to describe a state in which that which haunts us 'will not allow us to settle into / for the mediocre satisfactions one can glean in a world governed by capitalist realism'.

Figure 61. Ray, J. (2016) Untitled [stills from digital video]

As a collective form of production, railway modelling could perhaps be considered as a failed mourning of sorts. The cyclical running of the stock suggests being 'on a loop'. Reminiscences re-run memories as these activities unfold and artefacts result from all this re-iteration, re-capturing, and re-enacting. The worlds conjured in layouts often feel sanitised or idealised. But the processes of model-making generate more nuanced and open-ended discussion about the conditions of past, present and future. Could this form of model-production be a way of socially engaging with the difficult histories bound up with the ideas present in the imagery or the layout and the histories bound up with the railways?

The footage also suggests time and space being 'held' in a particular way by repetition. The model demands these repeated actions, which in turn produce the larger-scale repetition and ritual of the club-time. Manning suggests that 'habit operates as a choreographic tool. It directs our movement, organises our time, makes experience predictable.' Repetition holds both the capacity to escape ordinary time into a state of reverie. (Manning, 2016, p. 89) also asserts that there is a thread of a 'minor tendency' at the heart of habit – the potential for habit to be inventive. In that case, perhaps there is a potential that this unwillingness to 'let go' or 'settle', though melancholic, could be productive of a more critical kind of conversation.

5.2.7. *Is that Good Enough?:* Utopian Image & Method.

The camera remains static, watching a model-maker's hands at work, soldering a piece of rail track. Behind the hands, a pale blue matte painted sky, and a green embankment. The place where two sections of layout join is visible. The scene is framed by picturesque trees that remind me of Gilpin's illustrations. The modeller talks to himself (and the materials) as he works, and in between his own tasks he is also guiding others. The work is swift and approximate. As soon as something will 'do' he moves on. The room is audible, the sounds conjure up its volume and what lies beyond the shot. We can hear close and remote voices, footsteps and the sounds of making. Through the sounds this micro-view is connected to a world beyond. The words 'Is that good enough?' can be heard clearly above the ambient noise of the room. [48]

Figure 62 Ray, J., (2016) *Is that Good Enough?* [digital video]

Figure 63. Etchings by Samuel Aikin from William Gilpin, Remarks on forest scenery, and other woodland views, (relative chiefly to picturesque beauty) illustrated by the scenes of New-Forest in Hampshire (1791)

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Very few of the durational video works made in this research simultaneously show the pictorial elements of the layout *with* the making process. The glimpse of landscaping in this shot foregrounds the sense of the layout as a pictorial Utopian expression, and reflection on this work generated a discussion on the Utopian Image and Utopia as Method (Levitas, 2013) in the practice of railway modelling.

Model Railway Layouts share formal qualities with historical fictional Utopias; isolated on custom built trestle-tables, they are rather like islands, and like fictional utopias, depict in detail in their geographies, architecture and infrastructures. In the UK, the kind of landscape most commonly associated with railway modelling is a pastoral scene with a branch-line train station and a small town or village featuring various bucolic vignettes. The influence of the picturesque tradition is apparent in landscaping elements and compositional decisions, and this is explored in a seam of literature about the connection between railways and the landscape that touches on the interweaving of the sublime with images of nature and industry in response to the railways (Marx, 2000; Pacey, 2002). Scenes depicting factories and mills in industrial cities, or the workings of a mine, are also very popular. These are based on the pragmatic realities of the world we know, but have the ability to control a highly functional scene that can operate without the complexities and problems of the 'real world'.

Imperfect and complex processes are needed to make these 'perfect' island utopias. My footage sometimes catches this – approximate working, problems and compromise, long negotiations. The drive to generate the Utopian image brings
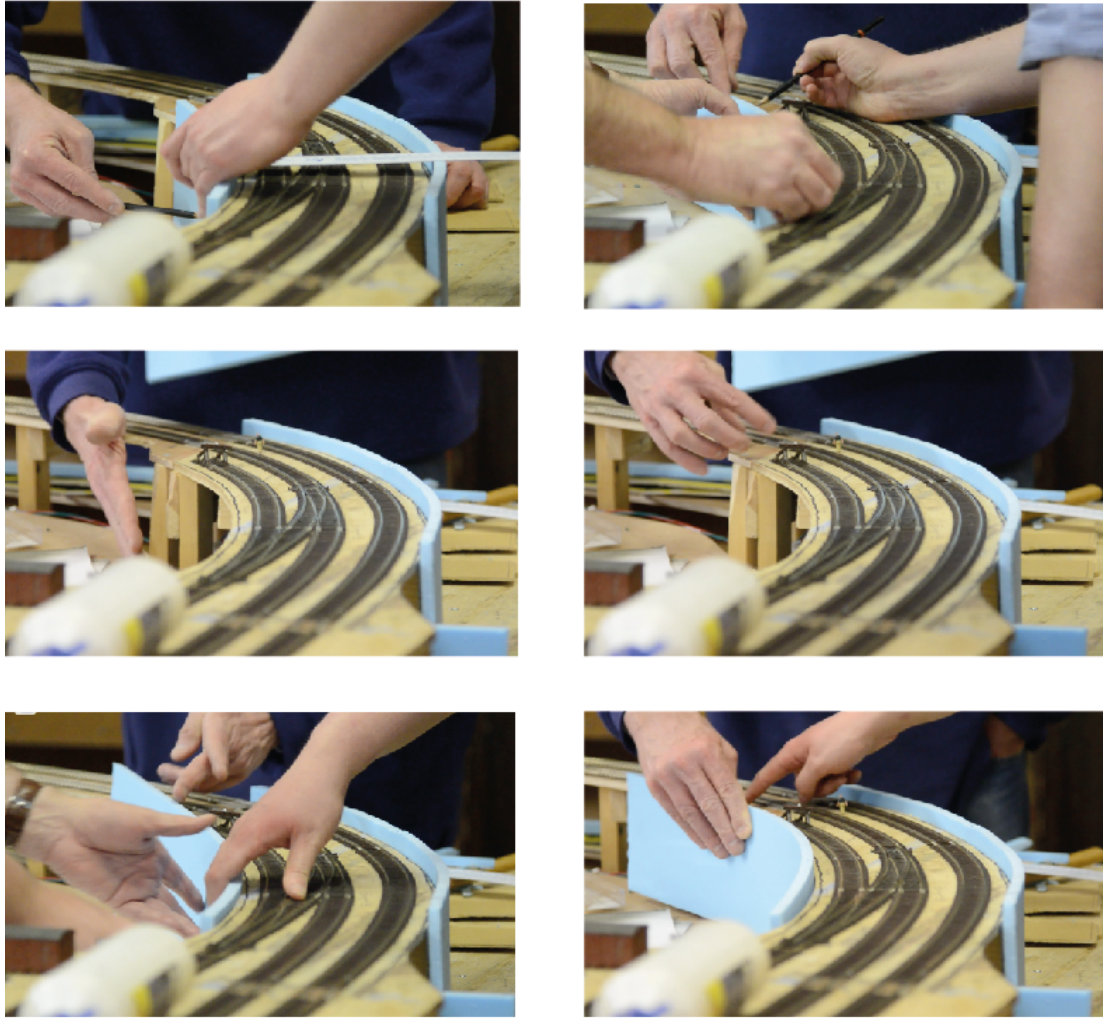
Figure 64. Ray, J., (2016) '*For Now':Negotiation* [Stills from Digital Video]

about the possibility of collective endeavour. Through coming together to support one another in making, the enthusiasts generate a social space that is supportive, generative and creative. This second kind of 'world making' results from their commitment to the first and rather than being an 'impossible kind of good space' (Cooper, 2013. p.3), is arguably something of a Utopian *method* (Levitas, 2013), something happening in the here and now which is imperfect but optimistic – 'Good Enough'.

In the short moving image work *For Now; Negotiation*[49] (2016), the modellers discuss at length how best to manage a particular piece of model infrastructure. Their hands demonstrate the shape of possible solutions in gestures, and the syllables of words are also emphasised, sometimes as part of the same gesture. Options are offered, 'mocked up' briefly with materials to hand, and though the interchange is swift, there is co-operation legible in the materials and movements.

The deep care manifest in the intensity of making reflects the social care present in the club, these cares seeming mutually inter-connected. Though model railways are bound by certain aesthetic conventions, the practice nevertheless creates the conditions for generative ways of being together that are potentially unconventional.

An 'Everyday Utopia', says Cooper (2013), could 'enact conventional activities in unusual ways… Instead of dreaming about a better world, participants seek to create it. As such, their activities provide vibrant and stimulating contexts for considering the terms of social life, of how we live together and are governed.' What might be perceived as 'unusual ways' in the rail club perhaps includes the intensity of care and imaginative activation that can feel excessive, even transgressive in adulthood if outside the world of work.

 5.2.8 Appraising the role of art practice

Gillian Rose's *Sites and Modalities* (2016) proposes a framework for the analysis of visual material which offers a way in to understanding the potentials of the re-location of the model. Sites referred to; the site of the production of the image, the

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[49] See practical submission: Chapter 5 works: 07 *For Now (negotiation)* or view with link
https://vimeo.com/365681010/e1a0347bb1

image itself, and the image encountered by an audience. Modalities include the technological, the compositional (which might bring with it references to genre for example) and the social (for example the economic situation / exchange the work arises from). Each modality can be considered in relation to each site as a framework for the analysis of work.

An attempt to use this framework made it apparent that the distinctions between the studio and the field (the site of production and the site of the image / audiencing) break down in the case of my art processes. Nevertheless, I will briefly reflect on the affordances brought to the fore by reflection using this framework.

At the club (in Rose's terms, the site of production), lenses and microphones denoted the location of my attention and interest, becoming 'pointers' which resulted in a shared, unspoken understanding of a serious intention, making tangible my drive towards a 'project'. I emulated the close attention and care of the model makers, but resisted direct involvement in the production of the layout. In this 'alongside' mode, makers would approach and speak to me as they wished to. Our conversations included direct discussions about models and their particular passions, as well as wide-ranging subjects from careers, to family life, reminiscence and discussion of their current lives. The gap between my own tools and processes and theirs remained clear, and the reflexive qualities of the research more distinct. I saw my own enthusiast practice as parallel to theirs in terms of intensity and intention. The slow and attentive process of art practice became an affordance to enter a slower kind of time, with and alongside the model makers.

Audio recording afforded a closer attunement to the sensory aspects of the activity and the space, enabling a consideration of what was arising that might be missed in the overwhelming richness of the visual experience. The microphone also allowed a closer way of being alongside makers, especially in processes that were not as connected to visual representation: sawing, soldering, and drilling for example. As a purposeful technical 'prop', the microphone allowed me durational access to making processes and to the underside of the layout, normally unseen to the viewing public at shows.

The attentiveness and intention towards art making are more than just 'observing'. The durational 'alongside' practices I undertook at the club and in reviewing footage in my own studio enabled me access something of the multiple temporal experiences in the club:

- the shift in perception of time offered when we imagine ourselves inside the model
- the imaginary occupation of another era or moment (or multiple times and spaces)
- the temporal experience of making together or individually

At the 'site of the image' (which I extend here to mean a re-turn to any footage made at the club), footage exploring the relationship between model maker and model was re-worked, re-composed in a range of ways for example:

- Long durational shots sliced into minute long sections, made transparent, and layered one on top of the other, so that 20 minutes are present in one.
- Audio of acts of making from the club were used as 'foley' for images, sounds which 'pass' for sawing, and for the sound of a train running.

- Separate 'takes' of a model-making were layered, so repeated gestures in the making process became super-imposed. [50]

At the site of audiencing[51]; a series of 're-locations' of footage tested the affordances of creating a spatial, temporal and pictorial interplay between the layout and spaces beyond. Re-locating the footage became a 're-activation' in its own right. Projections into domestic spaces, studios, and at the rail club's annual exhibition became a means of generating amalgamations of three spaces and times, each with their attendant material and formal characteristics, and social and historical contexts. It was through these processes that I began to understand the Layout, the Club Room and the connected spaces beyond; homes, sites of research, exhibitions etc., as a wider agencement / assemblage.

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[50] See practical submission: Chapter 5 works: 06 *Is That Good Enough*?, 07 *For Now; Negotiation*.
[51] I include in the practice of 'audiencing' the re-location of the footage for exhibition as well as smaller scale screenings, in studio or domestic settings.

Figure 65. Ray, J., (2016) Above: Re-location: installation view at Sheffield Model Rail Enthusiasts Annual Exhibition, Sheffield. Below: Re-location: Installation view at S1 Artspace, Parkhill, Sheffield.

A particular quality of this mode of being together emerged from an experience with audio footage made at the club. Whilst preparing the installation of for the club's annual exhibition (constructing a screen out of cardboard, measuring the projector throw, fixing speakers) I worked along 'to' the sounds of the club and experienced an overwhelming sense of being 'accompanied' by the model-makers in the studio, in which I was the only person present. This made clear to me the powerful companionability of the sounds of making, which was so much part of the atmosphere of the clubroom, but which became hugely heightened when listened to at a distance from the site.

Figure 66. Ray, J., (2016) Field note : working 'to' the audio of the model rail club, a companionable sound-space.

5.2.9 Summary:

Re-activations of models arise in a multitude of ways in the Model Railway Enthusiast Club. The most prominent is the ongoing physical re-activation and re-constitution of the Layout which is already an integral part of this practice. Art practice is not the direct 'reactivator' in this case, but perhaps the frame through which the potential of the re-activation can be articulated.

Still images failed to articulate this fully but functioned as part of an art methodology to analyse the experience of asynchrony in the club space. The partial and fragmentary images begin to articulate the Layout as an infinitely reconfigurable assemblage, part of a larger assemblage with the maker and the spaces of its production.

I speculate on the possibility of 'site-writing' the layout as a re-activation that allows us to 'speak and listen to the spectre'. (Davis, 2004) The responses to loose fragments of imagery, writing and sound that emerged from my artistic processes at the railway club could be viewed as a descendent of Rendell's practice.

The critical potential of the nostalgic in the context of the rail club (which is perhaps less tangible) is explored in relation to Rendell's 'site writing'. Rendell describes Site Writing as 'an amazing process to use in relation to encounters with buildings and artworks, because it raises memories, imaginary spaces which is very different from a traditional idea of criticism as a form of judgement' (Rendell, 2016).

Separating critique from straightforward judgement opens up the kind of criticality possible through model making, taking it beyond comparison or judgement into

something highly reflexive that can be informed by complex subjectivities. Though political critique is perhaps not a deliberate aim for this particular model-making community, part of the potential of their enthusiasm for history and re-telling through making, is the possibility of reflection on their individual and personal lives.

Boym says the 'Off Modern' has 'the quality of a conjecture that doesn't distort the facts but explores their echoes, residues, implications, and shadows that put the world off-kilter through creative erring'. (Boym, 2018, p. 11) The proliferation of anachronism in model railway production, unfolding from imagery and materials from different times and spaces, means in that non-linear and looping conversations with histories are an ongoing process, in line with these characteristics of the 'Off Modern'. (Boym, 2018, p. 395)

Finally, the relationship between the 'ideal worlds' envisioned by the model-makers and the processes entailed in their production are the locus of a discussion about the railway layout as 'utopian image' and the practice of model-making and the practice of the time-space of the club as 'utopian method' in which each practice mutually produces the other. The flow-state in making (which shows the embracing of improvisation and imperfection) presents one possible 'utopian method' in the transcendent, absorbed state of the makers, engaged singly and collectively in envisioning and creating worlds.

Davina Cooper (Cooper, 2013 p. 65) suggests that the 'imaginary reconstruction of society is always essentially an attempt to establish the institutional basis of the good life, of happiness, and the social conditions for grace'. The space / time of the clubroom itself may also be considered utopian, offering the possibility of an

autotelic activity motivated by affect, enthusiasm and desire for a 'better' kind of space.

The intention towards a coherent 'major' narrative (the complete and functioning layout a kind of vignette of Modernity) acts as a driver in this attempt. The practice, though always in flux, has a cultural longevity that promotes social cohesion. The seriousness of intent generates an intensified and protected space and time in which prospecting and playful practices can occur in a setting in which they are socially accepted and valued. The 'minor' gesture of the model railway maker is camouflaged within a re-iteration of the major narrative of Modernity. The Model Railway Enthusiasts club, viewed in this way, is a 'Promising Space', an everyday utopia (Cooper, 2013).

5.3 Christiania

'Freetown' Christiania – Where is the model? Where is the 'model'? Sensing the qualities of the model-like and modelling in in Christiania - The 'Big Model': A Static Christiania - The Volume: A re-activating a model for an evolving home - Heritage - A continuous re-activation - Summary

5.3.1 'Freetown' Christiania

Christiania is a community of around 900 people in Christianshavn, Copenhagen, founded in 1971. During a period in which there was a great need for affordable housing, the old military barracks on part of the city's ramparts were accessed by local people at first as a playground and soon after as a place to live, with buildings on site repurposed as communal homes, and ad hoc dwellings being constructed out of salvaged materials. The community grew quickly, declaring itself a 'Freetown' in the same year and being granted (temporary) status by the Danish government as a social experiment. This collective, creative and direct response to a need for housing and a desire for a self-determining way of life led to the development of community with an infrastructure independent of the state, where self-organised practices can be seen at a whole-community level, but also at neighbourhood, domestic and individual scales.

Hailed as 'a practical socialism that enables participation and self-determination to the individual person' (Iversen, cited in Thorn, Wasshede & Nilson, 2011, p. 13) Christiania has now been established for over forty-eight years and has experienced many changes. Its unusual status, location, size and longevity, have made it a particularly significant and highly visible alternative social model around which much research has been undertaken. This research has been be rationalized into three phases: from the 1970s and focussed mainly on *social issues* in relation to

Christiania; in the 1980s in which the Freetown became an important *space for alternative culture* (especially social, ecological and political activist movements in the face of emergence of a much more aggressively neo-liberal climate); and, from around 2004 to date dealing with urbanism, the pressures of gentrification, the government's 'Normalisation' agenda, and Christiania's continued resistance. (Thorn, Wasshede, & Nilson, 2011)
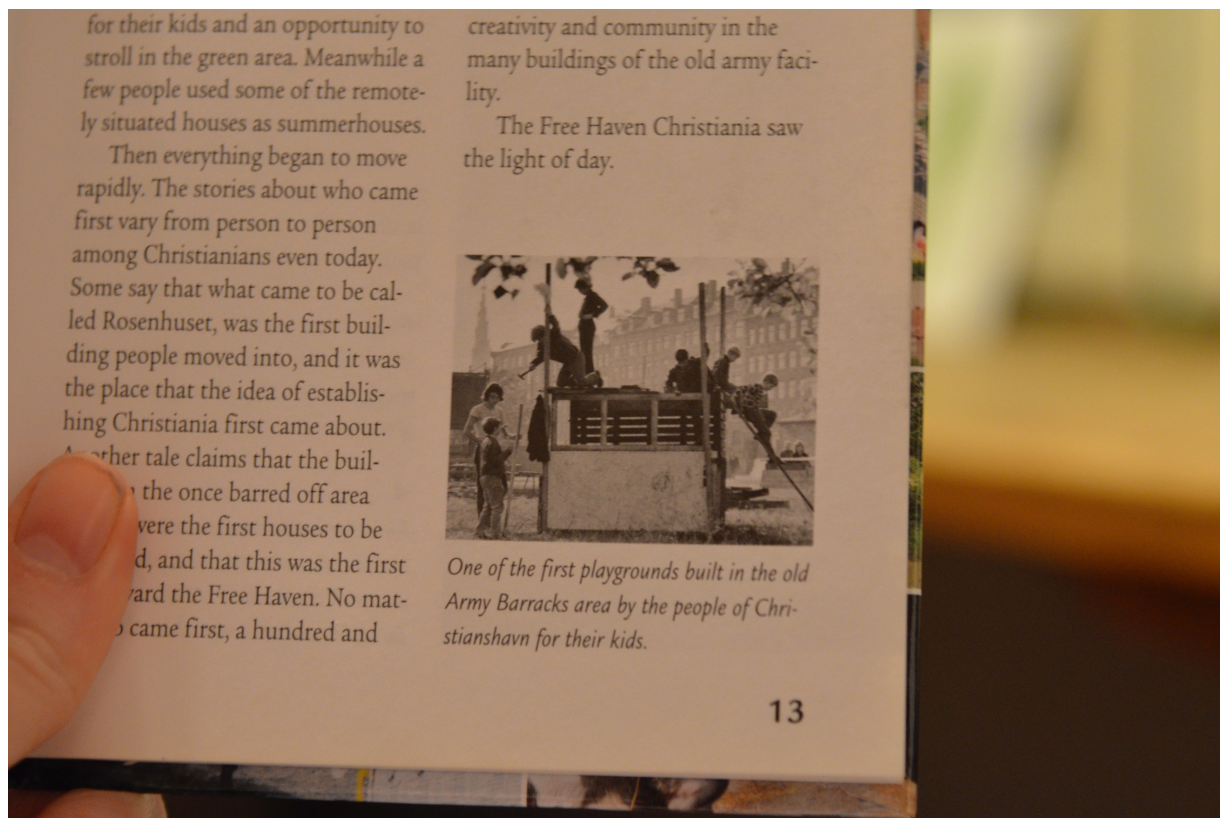
Figure 67. 'Junk Yard playground' Christianshavn 1971 in Pinkert, E. U., Teller, D., & Gringmuth, H. (1978).

Some re-telling of Christiania's early days cite the establishment of makeshift play spaces on the unused military site as the initial step towards initial dwellings and the eventual foundation of the Freetown.

5.3.2 Where is the 'model'? Sensing the qualities of the model-like and modelling in in Christiania

In the early years, the architecture of Christiania was fast changing, fluidly responding to the needs of growing families and shifting populations. The visual evidence of this change is still extant in many places, although anyone making

changes to buildings or wishing to build in the area must now go through planning procedures, negotiated with the Copenhagen Municipality via Christiania's own buildings office. Much has been written about the informal strategies for negotiation of space in Christiania, which, based in practice, are fluid and evolving. The 'soft infrastructure' of Christiania is made visible by some of these strategies, but this is not always evident in the material architectures of the place, and Helen Jarvis's research has done much to uncover the characteristics of the 'social architecture' that grows from the 'the humanistic pace and rhythm' of the place. (Jarvis, 2011. p.157-8)

For much of Christiania's lifespan, its material architecture and infrastructures have grown in an improvised way in direct response to the needs of the community (rather than being planned and imposed), 'vernacular, spontaneous, anonymous' and could be considered 'Architecture without Architects' (Rudofsky, 1987). It's possible to consider Christiania's early and evolving architecture as slipping in and out of 'model' status, unlike the architect's model or masterplan perhaps. 'Architect planning is absurd in relation to Christiania. Because the essence of Christiania is the unorganized and organized development, where the frames are filled after the user's needs or sudden ideas' (Christiania, n.d). It is something improvised, being at once a kind of proposal and an exemplar of process. There is something about the individual care and attention of people in the creation of structures that are simultaneously the 'test run' and the 'real thing', where the model is the structure at the same time, and also becomes a learning point for others. The Christiania Researcher in Residence House (CRiR) is one embodied example of the community's commitment to sharing what has been learned through their experiences.

Figure 68. Ray, J., (2016) Field Notes. Above, CRiR House.

Figure 69. Ray. J., (2014) Field Note at the Christiania Researcher in Residence House, 2016

The use of physical scale models has been a rather peripheral and rare part of Christiania's process historically. Long term residents state that in earlier years a model would be a very unusual thing, with perhaps one or two exceptions existing temporarily where the maker was a craftsman or architect. Plans or models would have been sketchy and temporary means of communicating design solutions during the process, rather than concept models or models portraying a final scheme to be completed to the letter of the plan. However, in recent years it has become necessary for the community to conform to more bureaucratic processes as part of the 'Normalisation' process, and because the community is now subject to restrictions and must follow a planning procedure in order to build new dwellings.

In 2006 Christiania produced its own prize-winning development plan in with visualisations and rationale in a language that speaks to formal planning procedures, and new developments are required to pass through planning procedures in a way that is aligned to the states processes, but in which the designs and ethos of the community still reflect the imaginative and ambitious history of self-build and ecological building that the community is renowned for.

Another more recent product of the pressure to adopt more mainstream planning tools is the 'Big Model' of Christiania, around which some of this chapter will find its focus.

The very direct relationship between people and their material and social environment remains a tangible part of Christiania's culture, evident in the everyday approaches to space, people and processes. This has been a means through which members of the community have exerted their will against the pressures applied by the state, for example the case of the dwelling known as 'Cigarkassen' (Cigar Box), a family home that was pulled down by the Police as an 'illegal structure' and rebuilt

in under 24 hours by 25-30 activists, working through the night. In their article on the events of that evening and its significance in terms of the idea of the Right to the City on a micro and macro scale, Thorn, Wasshede and Nilson (2011, p. 37) discuss Anders Lund Hansen's (2011) identification of Christiania's emphasis on 'dedication, improvisation, art, humour and politics of scale' as key to this communities' way of creating a different kind of city.

Here, we have the combination of the improvisatory, small scale, malleability through direct contact with the material of making that is also particular to the Model, but also the connection between the 'cellular and the planetary scale.' Lund Hansen invites us to consider: 'the multi-scalar battles over space that go on in cities throughout the globe … Christiania's fight for survival as part of the general urban space wars, i.e as a larger scalar reconfiguration of the geographical and social embodiment of political and economic powers' (Lund Hansen 2011, p. 294).

So, while some of the more material and tangible evidence of modelling as process in aspects of Christiania's architecture are no longer as apparent as in the early days of the community, the research around Christiania suggests a continuing set of principles and values that continue to maintain something of that quality. Though it may manifest more in 'soft' infrastructures and an approach to process, it is somehow entwined with the formative experiences of the community, still in living memory, which are still present in the day to day experience of the place. In short, Christiania is still engaged in a process of *modelling* or model-*making*.

Christiania uses a system of direct democracy and consensual decision-making.[1] Common meetings are called when a decision affecting the entire community must be made. Local area meetings manage issues on a smaller scale. During my first visit

to Christiania, as artist in residence and guest at the CRiR House, I sought permission and was permitted to attend a meeting of the economic office of Christiania. I could not understand any of the content of what was being said, and thus attended more closely to tone, gesture, the emotional timbre of what was being said. I spontaneously began to map, with a drawing, the frequency and 'intensity' of spoken interaction, arrivals and departures, spatial positions in the room. I realised quickly that this could not begin to express the complexity of other kinds of interactions that were arising, expressions, postures, atmospheres generated by the space-time of the meeting, the furniture, people, props, words, sounds and images each playing their part in the unfolding of events. On my return home, I translated this drawing into a simple vector line and made a video of a laser cutter 're-enacting' the interactions of the meeting, the nuance, timing, and detail stripped further away.

This sketch, seemingly unimportant at the time, became a constant visual reminder, a reference point for thinking about the 'social model' in Christiania, and the interplay of the material world with the relational as I navigated the next body of experimental work in relation to township, which forms the main focus of this chapter.
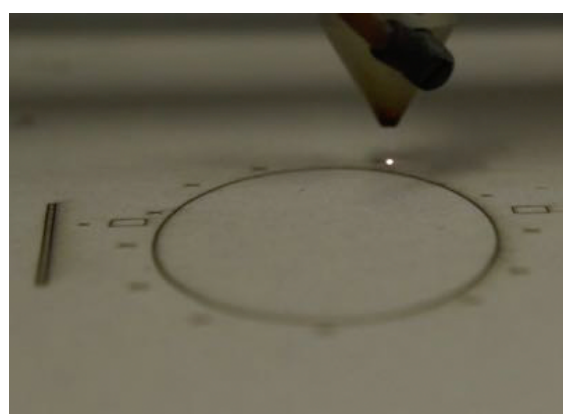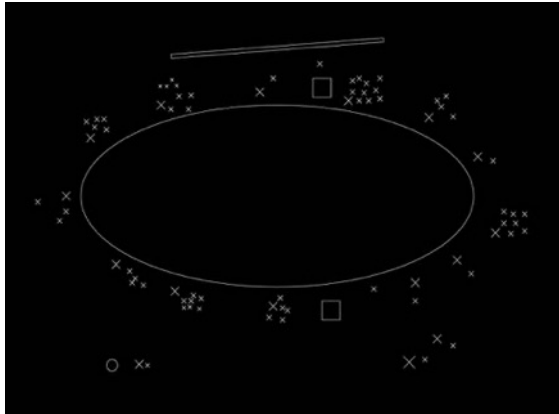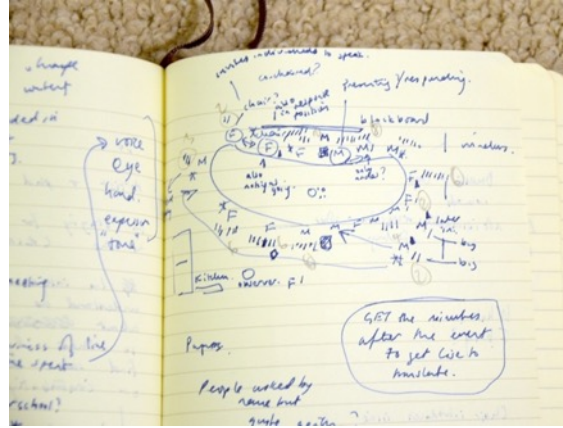
Figure 70. Ray, J. (2015) *Meeting Mapping* [digital video]

5.3.3 The 'Big Model': A Static Christiania

In early 2015 I became aware through an informal account of a 'Big Model' of Christiania that has been made by the community's carpenters. The original purpose of the Model was related to me in a few varying ways from different sources. Initially I understood that it was made as a tool for facilitation to enable the people of Christiania to 'dream' about what Christiania could be in the future, during a period referred to as the 'Closing Time' in which the community famously closed its doors to visitors to enable a deep exploration and discussion between residents, away from the public eye. In Spring 2016 I discovered that Ole Lykke, Christiania's' resident archivist-historian, was restoring the model ready to be taken to a museum in Åarhus, Den Gamle By[52], as part of an exhibition about Christiania. He explained that the intention behind the model was that it would be very useful for exhibitions, and that the display was therefore, the model's proper context. Later, I met with individuals who had been closely involved with the facilitation sessions of the 'Closing Time' who explained that the model was re-purposed for this event but had originally been made as a way of showing what was there, quantifying how much land, buildings etc., as part of the discussion with the state – which left the makers of it feeling conflicted. Whilst one resident reported the conflicted feelings of the model-makers, another described how the model had been made to be as 'professional' as possible, in order to demonstrate Christiania's abilities, gravitas and experience. Whatever its original purpose, the 'Big Model' had since been re-purposed iteratively, a useful material resource not to be wasted. A loose cluster of works emerged out of the process of trying to understand what an encounter with

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[52] Den Gamle By (The Old Town) is an open-air 'living' museum, founded in 1914, this was the first one of its kind to present town culture rather than just rural life.

the Model could reveal about Christiania, and what the experience of Christiania might help us understand about the limitations and potentials of models.

5.3.3.1 Den Gamle By

My first encounter with the Big Model took place in Den Gamle By, where I spent three days with the model as exhibit, filming and photographing the model and witnessing interactions between the model and visitors. One of Denmark's most popular museums, in some ways a miniature or microcosm of Denmark, Den Gamle By is a collection of historical buildings from 20 towns across the country organized

Figure 71. Ray, J. Field Notes: Clockwise from left:

Den Gamle By with Århus centre in the back ground, interiors at Den Gamle By, Poul's Radio shop in 1970s quarter.

into 'quarters' which encompass different periods in time, from the 1500s to the 1970s, complete with costumed staff who are to some extent re-enactors of a particular version of an era of life in Denmark, together making a living 'model' or tableau in which anachronisms arise frequently in views through the space which include the world beyond the museum, moments when staff move through the different 'quarters' in costume from a different era, and of course in the presence of visitors. The Poster Museum in the 1970s quarter, was host to the exhibition about Christiania featuring the Big Model, and I spent three days in the exhibit observing the model and interactions with it, in the context of the representation of Christiania (the exhibit) within a representation of an archetype of Denmark in the 1970s, within a representation of Denmark (Den Gamle By). In my field notes this 'model village' quality of Den Gamle By begins to merge with the broader issues of the research…

> I used to think my work was about trying to get to the bottom of place…Now it seems it's more and more about being out of time and out of place, and why people would do that. In *Utopia As Method* Levitas writes of being absorbed in the moments (this is sometimes expressed as to be 'lost '– but not lost as in subtracted, removed – indeed it's more like a moment is made more, multiplied by the quality of attention). Den Gamle By is being continually made and re-made daily by the people performing / being there.
>
> (field notes, 2016)

5.3.3.2 The Big Model at Den Gamle By

A 'block model'[53] of Christiania is accessibly displayed at a low height on a solid plinth. It is not easy to place the eye at street level or imagine moving through the space, a bird's eye view that offers an impression of the scale of the site and is the primary impression.

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[53] Block Models are three-dimensional representations of a site that show the shape and volume of buildings and spaces to scale, but are traditionally without surface detail.

Christiania occupies a curving section of land, its shape dictated by the steep earth works and canal that form part of the city's historical military defensive system. The curvature means that some of the model is always inaccessible from whatever position one takes on the perimeter of the model.

The model does not show this topography, but is mounted on a full-colour digitally printed photographic image of the area, a satellite image including the nearby docks, surrounding streets and water masses. Even having viewed Christiania in these ways on my laptop screen prior to arriving, to see it presented in this way as a physical model feels unfamiliar. The ordinariness of it feels unlike the place I have experienced. Christiania thinks of itself, and is held by others, as something different, resistant and special. The language of the satellite image flattens, presenting Christiania as more of the same as every square meter around it. It occupies the same world and can be quantified and known in the same way.

The township is differentiated from the rest of the surrounding neighbourhoods by simplified, blank-surfaced, blond wooden-block models representing massing of dwellings including individual buildings and some recognisable individual homes. There is also some foliage – the kind of plastic 'scenics' material that can be bought for architects models or model railways. Printed labels bearing the names of some key buildings and streets are curling, peeling away from streets and buildings. In this context the designed characteristics of the model do not invite an active exploration, or even to be pored over at length or projected into. There must be something about the model that invites touch, because there are traces drawn by fingers in the dust on the surfaces. Perhaps it is the dust that invites touch and mark making, rather than the model itself.
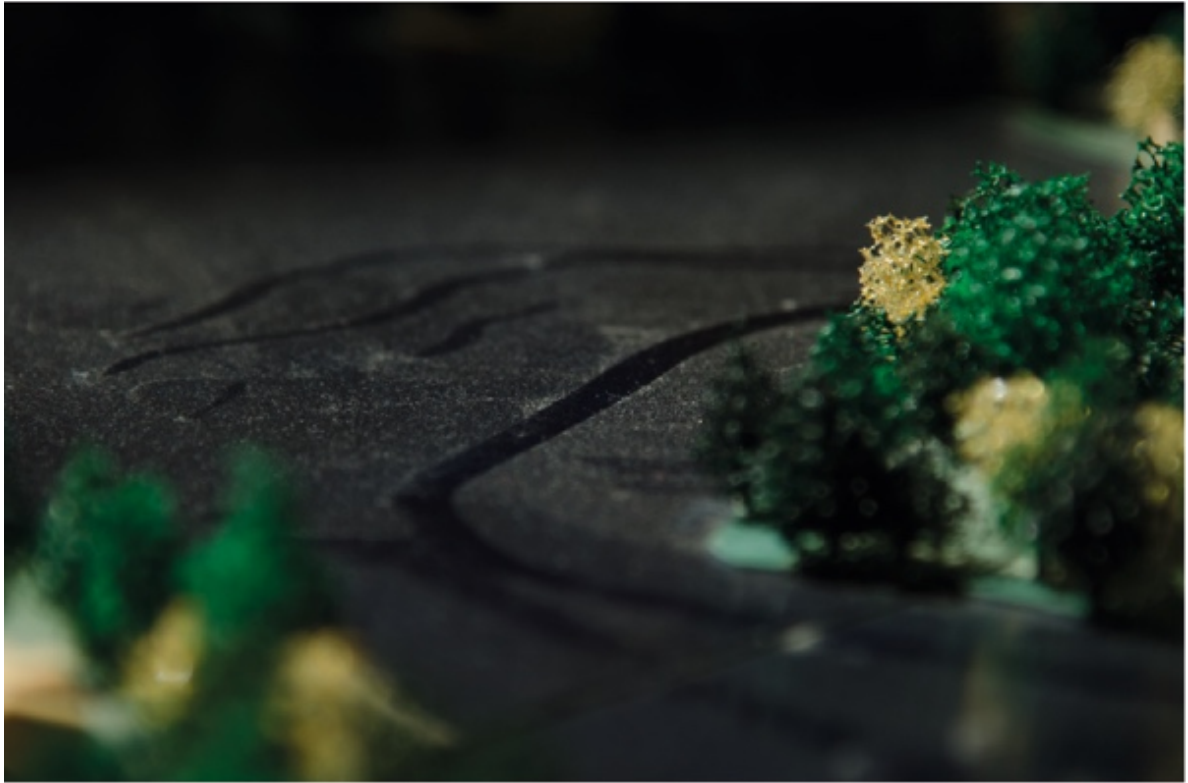
Figure 72. Ray, J., (2016) Field Note: Details of *The Big Model* in the Poster Museum.

The block model succeeds in yielding up quantitative information quickly, as it was designed to, and in the context of this exhibition it is not presented as anything more than a simple illustration of Christiania's physical location and the space it occupies. The blank surfaces of the block models refuse any further access, unspeaking, self-contained and seemingly complete. Perhaps a block model could always struggle to convey the characteristic aesthetics of Christiania, which, according to Merete Ahneldt-Mollerup, result from the simultaneous valuing of the individual and their autonomy, along with a collective mind set and a scavenger economy. (Ahnfeldt-Mollerup, in Thorn, Wasshede, & Nilson, 2011, p. 26). However, the glossy, sealed finish of the materials and decision to use satellite photography in the base board feel even more remote from the visual, material and social experience of Christiania. D, a resident of Christiania spoke about the model as not expressing the scale of the actual community, which fluctuates daily, which includes many people who live outside…the reach of the territory of Christiania going well beyond its measured geographical boundaries. In this respect the model seems 'dead', bereft of people and any sign of life, and is insufficient to describe the scope and complexity of Christiania as physical site and community entwined.

Figure 73. Ray, J., (2016) Field Note: The Big Model in the Poster Museum at Den Gamle By

5.3.3.4 The Big Model in the 'Closing Time'

Over the decades there have been numerous attempts and threats by the state to limit or remove Christiania. The value placed on it as a part of the city's identity makes a wholesale 'shut down' and physical removal of the community so controversial that this is no longer as broached as it was in earlier years. However, residents fear that the principles and freedoms preserved in Christiania are under threat of being eroded piecemeal in a way that is less visible and which is not as tangible to those outside the community.

During an impasse in negotiations with the state during 2014, Christiania took the collective decision to close to visitors so that residents could find time and space to consider the future of the community carefully with one another. Christiania has in many ways become a representation of itself, and creating this differentiated time and space, removing Christianitters and the space itself from the public (and tourist) eye[54] was an attempt to reclaim a space to re-imagine what Christiania could become. The Big Model was one resource used in workshops during this period. A heterotopic space/time created by the 'closing time' (Foucault & Miskowiec, 1986). In this context (rather than in the museum) the Big Model was more able to fulfil its potential for a similar suspension of ordinary practices.

The aesthetic specificity of Christiania referred to in so much literature about the township is not obviously present in the model at Den Gamle By. However, photographs by Karina Tengberg of the model being used as part of workshops in

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[54] For a full discussion of the Tourist Gaze, see Urry (1992) The Tourist Gaze revisited.

2014, run by and for the community, show a very different stage in its life in which that more fluid and lively energy appears to be present.

Figure 74. Tengberg, K. (2014). 'The Big Model' used in Christiania's workshop [Digital Photograph]

On my return to Christiania from Åarhus, I met with two residents of Christiania who were involved in attending or helping to facilitate these sessions –S, an architect and long-term resident, and D, a relative newcomer who in recent years had been helping to facilitate meetings in the community, providing mediation where decisions or relationships had become difficult.

In our initial conversation, the architect was sceptical about the usefulness of the Big Model in the 'Closing Time', suggesting that this kind of professional model, to scale and quite 'finished' did not offer a way in for the kind of visionary processes Christiania was adept at. However, at a second meeting a few days later, he had recalled a particular moment of opportunity afforded by that act of making rather than speaking:

> I remember one guy he doesn't normally talk at the meeting, he was very … he built a lot of models… Maybe he suddenly has something to say afterwards because he had basically made a plan for a huge area and it was very nice, he was good at it, and people came and looked at this work so suddenly he was an important man for two hours.
> And I have seen that. I could have lifted him and asked him what was in his head when he made the model of that. So… there would be opportunities. Now I am very angry at myself because we are talking about it and I remember… it was… it was not meant for me to do that because I did something else… but it could have been a lot of fun, to help people to come in to express themselves.

Although the material and aesthetic qualities of the underlying model cohere to that of the architects 'master plan' – an illustration of quantifiable aspects of space and structures, the re-activation of the model with malleable, cheap, colourful modelling clay transformed it into something else for the duration of the workshops. It became

a space for expression of possibilities, pragmatic or fantastic, and possibly a way in which participants might experience themselves in a different role.

Though the original model itself was perhaps not the most perfect tool, it was a resource to hand at the time and was re-purposed in line with the scavenger economy of Christiania and demonstrates that the open-ness to 'spaciousness' in the process of democracy takes forms beyond spoken and written language. Christiania's website clearly communicates the aspiration towards inclusion: 'That everyone participate in the discussions sometimes make the meetings chaotic, but it has the effect that the structure has spaciousness and prevents the social marginalizing and expulsion that we usually see in the rest of the Danish society' (Christiania, n.d).

The use of a three-dimensional physical model has the potential to provide the opportunity of redressing some power imbalances that could arise in any group of people with diverse life experiences and skills – a tactile and visual representation of ideas. A tool to go *alongside* words which might enable things to be suggested that are difficult to speak, to ensure that those who can only be present briefly can make a contribution, and that those who prefer not to speak can make their thoughts known. It is a means of communication that has the potential to transcend written or spoken languages.

However, opportunities to convert participation into a real stake in the conversation can be lost very easily if resources to capture and translate this on a par with written words or powerful oratory are not provided. Indeed, the very *sense* of participation that speaking through making can provide, can give a false sense of ease that the process has been democratic, and could even be misused to suppress, giving the

impression of having been engaged in a process whilst not carrying the content of that conversation forward. There is a critique of engagement via participatory processes as a tokenistic gesture in mainstream planning and urban development. Could the same be true of the community facilitating within and for itself?

The use of visual methods in meeting processes appear to be uncommon, the facilitator I met described Christiania as 'really not a workshoppy place'. Meetings are part of the decision-making process in this community, especially for decisions that impact everyone. But at a more intimate local scale, residents are accustomed to making proposals through action. Christiania's direct democracy has been criticized for not enabling all of its citizens, for example common meetings have been notorious for favouring those with an ability for public speaking, who were more physically or mentally able to withstand the long duration of difficult and sometime aggressive arguments, or who did not have responsibility of being the primary carer for dependents.

In a community of this size dealing with a level of political and financial negotiation with the state, it is possible that some people who have the benefit of education, confidence and status may be in a better position to express their vision for Christiania and, ultimately, influence the future of the community. One resident challenges me to consider how I might make a model to describe those disparities in power and differences in motivation.

5.3.3.5 Return to Den Gamle By – Attempts to re-activate the model.

Day two at Den Gamle By. After some initial documentary shots, I started making images of small sections of the model. Viewing each shot on the small preview screen on the back of my camera, I began to edit and re-shoot, deliberately under exposing the images and adjusting to a short depth of field. The micro-decisions I took led towards a set of images that bore little relation to the visual experience of the model in the exhibit. I believe these decisions were an impulse to imbue the model with the kind of appeal that I have come to expect from encounters with models, and that they expose my willingness to romanticise the form or to try and return myself to state in which I can feel enchanted by it.
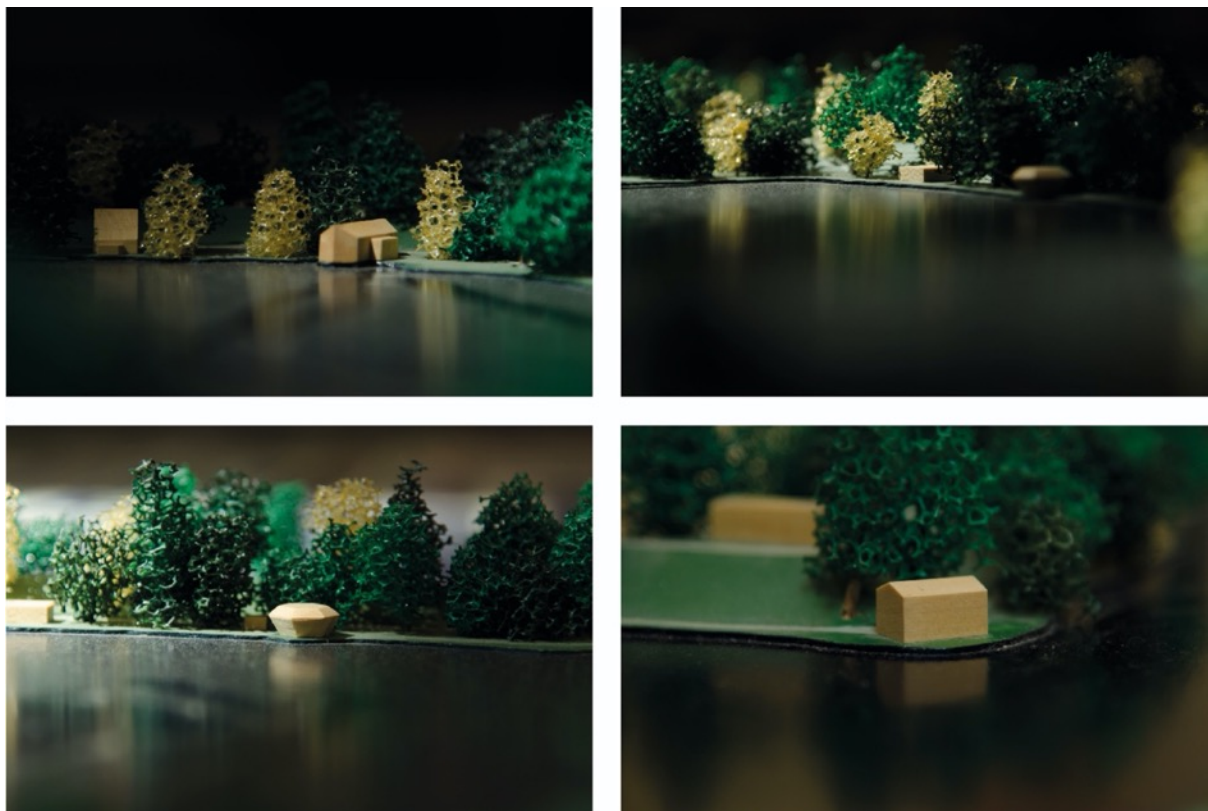
Figure 75. Ray, J., (2016) *Untitled* [photographs]

I could extrapolate from this and suggest that perhaps there was a parallel effect in feeling my experience of Christiania itself was somehow becoming stripped of something, of a sense of enchantment and specificity, through this laying-bare of its status as real estate, revealing its precise location, orientation, volume and area. Coming to know this small territory before knowing the wider city, my sense of scale was skewed towards the significance of Christiania, so that (though rationally I knew otherwise, and had seen it on 'Google Maps') Copenhagen was somehow just a small appendage attached to Christiania.

My 'on the ground' experience was, so far, overwhelmingly detailed, multisensory, fragmentary and confused. It included getting lost or allowing myself to be led by people who had lived the place for years, and in that relaxed state of being guided on a shared adventure, having even more of a sense of this terrain being huge and amorphous. I did not want to fully know and map it, but to have it remain somewhat unruly, not exposed to ordinary measurement. I felt my experience of the place somehow reduced by witnessing the model (which, in my files, I began to name as 'map' rather than model). This somewhat Romantic attitude, a desire to 'preserve' an experience of Christiania reflects Signe Sophie Boggild's (2011, p. 110) discussion of Christiania's status as both 'real urbanity' and 'urban imaginary'. (Boggild discusses the idea of preservation of heritage(s) in relation to the protection of a counterculture and the phrase 'Bevar (preserve) Christiania' is a commonly seen around Christiania.[55] Some of the architecture of Christiania also calls on aesthetics that have their roots in '18th century bourgeois Romanticism and its critique of

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[55] To promote the purchasing of Christiania shares which (rather than any kind of future market speculation) are a means of donating towards a fund through which Christiania could be 'bought free' from the state, you are invited to participate in ensuring Christiania's status as public heritage.

highly organised and rationalistic version of Modernity' (Ahnfeldt-Mollerup, in Thorn et al, 2011, p. 26).

I think there is something more than the architectural aesthetics in Romanticism about Christiania, something about an experience of time and space that resists standardization, that is ludic.

My reaction to the model, to my inability to access something about Christiania directly from it, and the feeling that it almost threatened to subtract something of my experience, revealed something about the qualities of that experience that I had not really been able to articulate before, and revealed a romantic attitude towards Christiania.

At the museum, visitors interacted with the model and with me. Generally, people offered their view on Christiania, which ranged from reminiscences of visits there to celebrating the experimental lifestyle, to more conservative views challenging whether Christiania should be there, as well as nuanced discussions about the hash market for example. Children often guessed it was a model of Den Gamle By. I particularly noted how the model, most prominent on first entering the space, elicited comments about scale before anything about the social aspects of the place. 'It's too big' or 'too much', which called to mind the idea that 'Perhaps the point is not that they should be torn down, but instead that bourgeois Denmark wants to buy Christiania and is displeased about it not being for sale' (Ahnfeldt-Mollerup in Thorn et al, 2011 p. 26).

On the third day I became absorbed in an attempt to make a series of panning video shots using a camera slider. I imagined this might help me to explore something

about the eye brought close to, or moving *through* the model to animate the space, to interact with in a more lively way.

The resulting panning footage, dictated by the path of the rail, actually served to reinforce the sense of moving through a space without one's own autonomy – a view dictated and merely skimming the surface of structures. With each attempt to somehow infiltrate the model, the resulting footage seemed to articulate more clearly an *inability* to have access. In the time of making I was unable to rationalise this as a useful finding; I only felt a sense of frustration and concern that the model was working in almost the opposite way to my expectations of it. I felt unable to 'reactivate' this model in a way that felt generative.

5.3.3.6. Re-Turn / Relocation of the Big Model to Christiania

Returning to Christiania, re-locating the footage from the model in the museum back to its 'home', I reviewed and edited the footage in the evenings and explored Christiania on foot during the day (making audio recordings and notes, and thinking about the relationship between this place and the model).

As soon as the light was low enough, I made exploratory sketches, projecting images of the model into the spaces I had access to, the CRiR house and the offices of Christiania. Viewed as a minute, bright image on the back of my camera, the footage had looked intriguing, but on a screen it felt impenetrable, dull, confounding my expectations (desires?). The apparatus dictated a monotonous pace, the rails providing a stable and pre-determined trajectory, with a fixed focal point and

direction of view; the panning shot gave the most impassive visual experience of the model, like a glazed-over stare.

The hybrid spaces generated by my relocation of footage from one space to another became a way of considering the contrasting qualities of these intertwined imaginary and experienced spaces. Imposing the footage in a rudimentary way onto the surfaces (via projection) or into the lived spaces of Christiania (on a laptop screen) offered a means of reconsidering the qualities of each space in relation to the model and vice versa. These experiences called to mind Michel Foucault's account of the Heterotopia, which is 'capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible' (Foucault & Miskowiec, 1986).[56]

Figure 76. Ray, J., (2016) Re-locating the Big Model in Christiania's offices and the CRiR house

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[56] See practical submission: Chapter 5 works: 08 *Re-locations of the Big Model*

The bland, tracking shots of the block model contrasted with the detailed surfaces and forms of lived environments that gave a fleeting sense of the activity occurring in these spaces - office interiors, a messy work bench, a bedroom. In these small-scale, ad hoc interventions, ultimately there seems to be an inversion of the idea that the model is the inventive space for dreaming. Here, rather, the 'real' world is the space of potential, improvisation, play and 'freedom' whilst the planning model is the static, passive translation.

In engaging with the normalisation process the model borrows from the language of the professional and the state and temporarily strays away from methods that are Christiania's 'Model-ness'. Discussing the Big Model with Lund Hansen, shortly after filming snails on the CRiR house balcony and taking delivery of a new fridge for the residency house, we discussed the perceived scale of territory and how it is expressed. The experience of the 'fine grain' of Christiania was central to our discussion. How you enter, coming through the woods, mud tracks ... finding your way… exploring… does not equate to the model.

5.3.3.7 Is a model of Christiania possible?

The architect challenges me:

> I suddenly had an idea that you could make a model… like this is an architect's model… what if you could make an art work that was a Christiania way of moving around… then you have two models…

In Christiania, I did not feel like a 'real' maker, and as an interloper academic, I did not feel qualified to deliver on this suggestion. I was extremely conscientious and anxious to make a 'worthy' work in response to Christiania, sensing myself to be really not of this place but feeling a desire to join in with this culture of creative

action. Instead I was in a state of continual and pained alertness but unable to find a gesture that felt like 'enough'. I made dozens of videos and audio recordings of long durations whilst walking or hiding out at the CRiR house. These included a long, static shot of snails on the balustrade of the CRiR House, in which their internal systems are visible, huge storm clouds shifting slowly (shot from the same spot), light falling through a bedroom window illuminating dust motes, and flashing bike lights strapped to the bridge to help people find their way. On each of these videos, the audio recording settings are turned up (too) high, catching buffeting wind, feet scrunching on gravel, my sighs and accidental touches, the screeching of swallows, the sound of a nearby radio). In retrospect, I realise that accumulatively these sketches started to suggest something about the passage of time and a sense of scale in Christiania, and in their own Minor way nudge towards what the architect suggested and perhaps get towards the 'fine grain' Lund Hansen has spoken of.

Reflecting on these visual sketches and notes, video works in which no narrative occurs but in which time unfolds, I realise that there is something about movement in each of these videos that nods towards self-organising forms or at least a liveliness that cannot be planned for. Also, about passage of time that is not marked in conventional ways.

What is not grasped by the Big Model is how Christiania as a social entity works to change time and space. In Christiania it is the space itself that is the assemblage, the model.
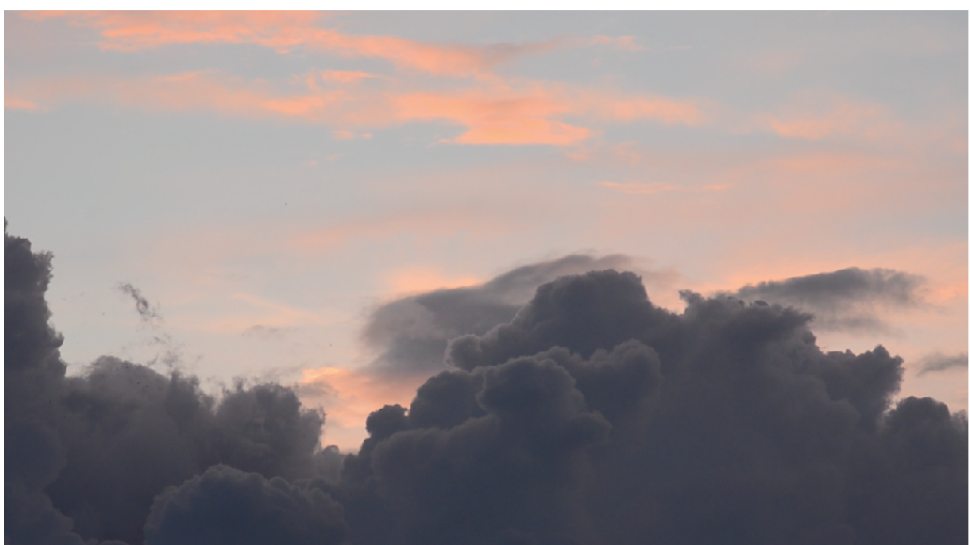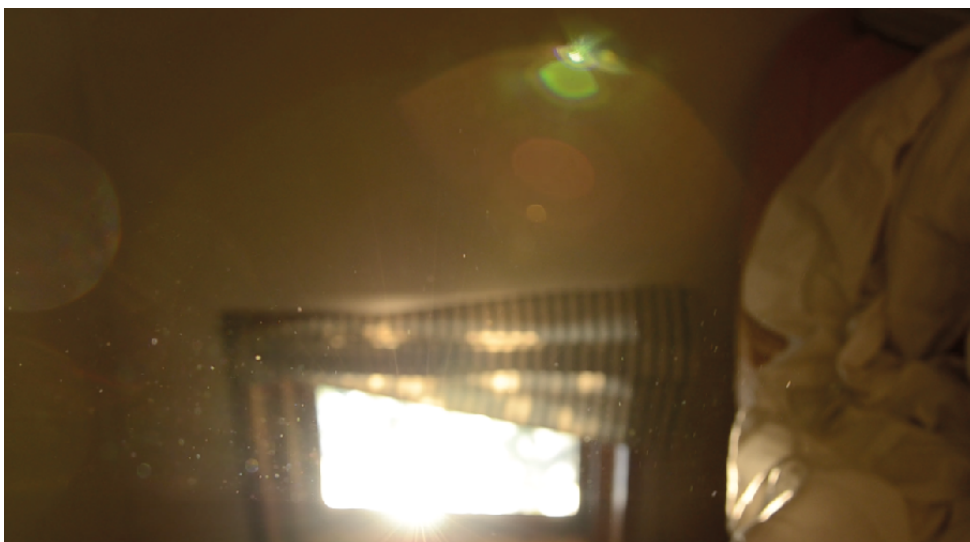
Figure 77. Ray, J., (2016) *The Fine Grain* (i, ii, iii) [videos]

5.3.4 The Volume: re-activating a model for an evolving home

Alongside the work developed with the 'Big Model' a conversation arose with the architect, prompted by the discovery that he had saved the model he and his partner had made when re-imagining their home.

This conversation seemed a kind of parallel, which addressed the more intimate and domestic scale. Again, we are presented with a model that touches on the language of professional design disciplines, which, as acknowledged by the maker, is (at least historically) something of a rarity in Christiania's processes. This time the scale allows for more detail, something of the characteristics of the building as well as an expression of its volumes and their configuration. [57]

Shot in the very space described by the model, the video footage is not immediately apparent as a *mise-en-abyme*[58], but nevertheless presents the miniature within the structure to which it refers. The architect explains how the model was made at a particular point in the life of the building, when the original house he had built needed to evolve to meet the needs of their growing family. This particular model is really intriguing in this regard, as an embodiment of a conscious sharing and democratising of process between people living together, which also demonstrates the transition of his relationship with building as he enters the role of professional architect.

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[57] See practical submission: Chapter 5 works: 10 – 10b *The Volume* and iterations ii and iii.
Or view with links https://vimeo.com/237828214 , https://vimeo.com/237828214

[58] *Mise en Abyme*: French, 'placing into the abyss'. A formal technique in Western art of placing a small copy of an image inside a larger one. ('Mise en Abyme' 2011).
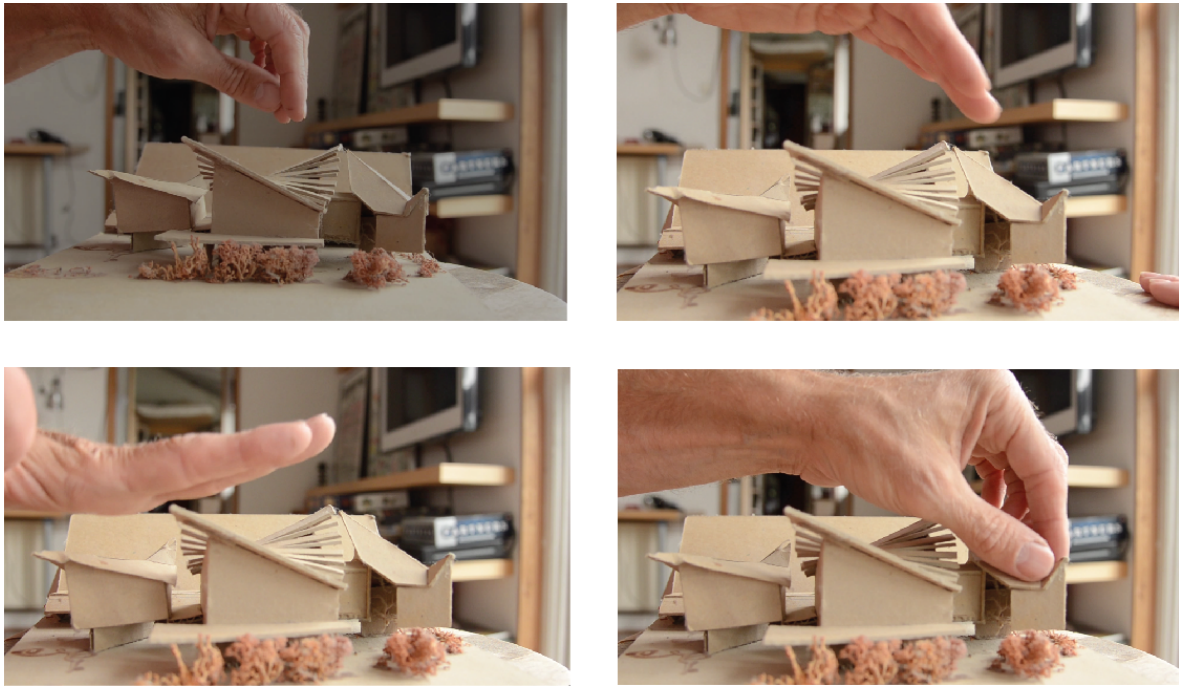
Figure 78. Ray, J., (2016) *The Volume I* [stills from Video]

On the same visit, I made some rough hand-held video footage of a walk through and around this home. My nervousness at documenting such a personal space, even with clear permission, is evident. I have accidentally left the settings on 'auto', so the light flares and dips, the camera rarely settles on anything but glances across surfaces, not lingering on details for too long. The shot flits from clusters of shoes at the threshold of the house to clothes drying on the radiator in the kitchen. A workstation with a sewing machine set up, the light on, ready. Art work on a picture-rail, along with things made by children at different ages. Huge woodworking clamps lined up along a high shelf in the living room. The stuff of making displayed as part of the telling of the family and home.

Figure 79. Ray, J., (2016) *The Volume II* [stills from Video]

The making of this footage was arrived at through a conversation with the architect, semi-improvised; I had an approximate idea to make a video of the model inside the house but had not planned any further.

A number of iterative works were generated with this footage. I re-located and re-filmed the footage in popular sitting places from which the real house could be seen. On my return to the UK these were projected at a large scale onto the concrete walls of my university studio space in the former 'Scottish Queen' pub at Park Hill flats in Sheffield, UK.

Figure 80. *The Volume*, Relocations. Top: detail. Centre: exploratory screening in Christiania. Below: Re-located to Park Hill, Sheffield.

5.3.4.1 Re-location as Re-activation

Each iteration of this work explores the experience of the space and the model. As visual access to the model itself recedes through shrinking scale (and with each translation via screen / device) so our access to the context increases. Projected at a large scale, it becomes easy to imagine the haptic experience of the model. The removal and substitution of audio, plays with the expectations set up by formal documentary conventions. Rough footage recording the process of walking and exploring the house suggest something of a fleeting, 'shy' witness to an intimate and complicated space.

These iterative video edits have different effects on the reading of the work. In some versions, the spoken dialogue is present, with the architect explaining the thought process around the design of the house via the model, giving us an apparently 'straightforward' history of the structure. In others it is replaced by the field recording of the space immediately outside the room. The fluently gesturing hands tell us that there is a voice present, a narrative occurring that is inaudible. This muting feels almost like a physical sensation. A frustration.

Without the voice, the 'volume' is increased on the gestures of the hands. Moving across, around the model they suggest movement of the spaces and structure without any such direct tactile demonstration. Malleability is implied but not seen. The footage screened and re-filmed at the side of the lake in Christiania, next gives a distinct experience of proximity and distance, access and frustration and suggests a tourist gaze.

There is something present in each of these iterations and their readings that addresses the difficulty of attempts to access an experience so located in time and space via the model. A representation of the building offers the make-up of the building wholly to our investigating eye. It is small and light enough to be brought close, re-orientated, adjusted by the hand. This omnispective potential does not completely help us to understand the process of the making of the home, the relational qualities at play in the interaction around the model, which here is retold by one resident.

What speaks most of the process are the material effects of time and touch on the model. When projected at a large scale, the cobwebs, dusty surfaces, faded foliage and slightly dented edges tell us something about the model's life and status in the present as a memento of process in the past.

5.3.5 *Heritage*; a continuous Re-activation

The question of what characteristics of Christiania, what 'heritage' (tangible or intangible) should be preserved, recurred in conversations with residents who expressed what mattered to them (a sense of freedom and creativity, something visionary to inspire others, for example) as well as raising the issues of the state's interpretation of heritage which they felt prioritised the ancient ramparts (and that such arguments were being used by those who would limit the community's ability to develop further dwellings onsite).

Separate stylistically from (but ultimately closely related to) the 'Big / Small Model' works, I made an intervention, thinking about the diversity of characteristics on site and the multitude of histories and 'heritages' that could be found here. Constructing

a simple ad-hoc apparatus for capturing video in two directions at once - a sheet of Perspex with a windscreen phone-holder, and marking it with the word heritage, I filmed a number of walks around Christiania.[59]

Though still a relatively quiet interaction, this was the most visible intervention I made in the township. The word 'heritage' written on the Perspex and carried around on my shoulder was read aloud at times by people in passing. Much of the footage is outside of my control and is therefore 'flattened' somewhat, I cannot see directly what I am capturing ahead of me (thought I have some sense of this) and the reflections in the Perspex capturing my 'rear view' I have no control over at all.

Figure 81. Ray, J (2016) *Heritage* [intervention & video]

[59] See practical submission: Chapter 5 works: 11 *Heritage*
Or view with link for extract. https://vimeo.com/289581213/3288b59a67

The chalk letters on the thin slice of reflective plastic become a marker for the unfolding moment in which I encounter something. The surface of the plastic simultaneously gives sliding, shifting glimpses into what has just been, and what is coming. There are moments in which I stop or slow and 'select' features on the walk, writing on a bridge, a stack of wood, a building in progress, a milk crate. These moments of attention shift during the process; to begin with I attend most to whatever calls on my particular interests and biases, but there are slippages where I start to imagine and invent alternative versions, imagining my eyes are that of a resident, a child, or a property developer.

The limitations of the flat surface explored here relate back to the 'Big Model'. The complexity is here in fragmentated moments though – at least hinted at in the flux of the footage which contains the noise of people, creatures, the sounds of surfaces being interacted.

The piece in some way enabled me to think about my tourist (or at least guest) gaze and the continual visual exposure of Christiania and its residents, and the challenges of any attempt to know the experiences of a place through a surrogate object or image. The model as souvenir.

Crucially this intervention offers a state of continually shifting juxtaposed spaces, a constant flow of one image (reflection) 'relocated' into another. What is emerging in front of me (future) and what recedes behind (past) are held in the frame at every moment. This new development in the act of re-location in the work points to something more fluid and improvisational.

5.3.6 Summary

In Christiania, architect's or planner's models are, historically, rather anomalous. The 'Big Model' and the 'Small Model' featured in 'The Volume' are exceptions. Made by highly skilled Christianitters (craftspeople, makers and professionals) who are steeped in their community's tradition of proposal through / in-action without conventional planning. These models nevertheless also speak with the language of the professional model. They do not obviously draw on the more processual aesthetics evident in the real structures of Christiania, which are characterised by a variety of colour, surface and layered form borne out of the re-use of found materials for example. The two models have been created at quite different times, and for different purposes, but they share a moment of inception with an arising need for analysis and reflection on what already exists, before a re-invention of sorts.

As two bodies of work the 'Big Model' and 'Small Model' bodies of work are related but contrasting. They each begin to trace fugitive moments of liveliness, qualities of *modelling* in and around encounters with these particular models. These are brought to 'points of visibility' (Harrington, 2015) or tangibility exposed through the agitation (worrying, turning-over) of physical materials and temporal events (gestures, moving images and sounds). Or, at times, a lack of '*modelling*', a greater degree of fixity of stasis, is identified through contrast to another space or state.

Imagery of the model and its contexts is replayed, re-located, re-read in an ongoing off-modern practice, and their interpretation, loosely reflecting Rose's sites and modalities (2016), and perhaps more aligned with Rendell's site writing (2011), allows a deep consideration of the contexts through which these forms have come into being as well as what arises with / through their re-activation.

The contrast afforded by the transposition of the original footage into alternative spaces in Christiania (and beyond) works as a provocation, a dialogue between the qualities of the model and the lived space. Sometimes the 'miniature-ness', the dormancy or static-ness of the model is made apparent by the texture, space, movement and unpredictability of the space around it. Through spatial compositions, the work exposes the model as a transportable, transposable ideal space (with potential to seed and foster processes that share the potentials of modelling / model-making, elsewhere). The sense of frustration that is present in some aspects of these works (perhaps present also in the process and experience of making them) foregrounds again the sense of yearning for an idea / ideal that is just out of reach, a search for home or Utopia that threads through this thesis.

Each of these works offers a conversation between representation and the lived space. They also deal with different ways in which we might come to sense, measure, and communicate what is valuable. By teasing out the particular limitations of representation in the case of Christiania, this method of working could help to articulate the specificity of what it is Christiania does, where the emergent qualities of *modelling* lie, and how it might be different to the processes of planning that we are usually subject to. It is perhaps more challenging to make visible and to communicate the soft processes through which Christiania has practiced successfully, and the qualities of 'spaciousness' in time and practice that can still be felt here in the grain of how the place is practised. Rather than trying to represent these elusive things, these works speak of the difficulty of expressing them. These are valuable things felt through practice, and preserved through practice rather than representation as heritage, or as real estate with the limited vocabulary of worth / value that those definitions bring.

5.3.7 Reflections on Ethical considerations.

During my periods of research in Christiania and the model rail club, I reflected on the ethical quality of my undertakings. I will use this short section to reflect on some of the ethical issues raised throughout the project.

In both Christiania and the Model Railway Club I felt a sense of being 'hosted', and a reciprocal care to be a good 'guest'. I actively reflected on these unspoken inter-relations. In each setting I felt myself adjust to meet the social expectations of the site, to some extent. In Christiania it proved difficult to set up meetings ahead of my period there as researcher in residence, and I was guided by my host at the residency, a long-term resident, that generally meetings could be arranged through in-person introductions or simply by knocking on the door of the person you hoped to speak with. In my usual working practice, this would have felt unethical in its direct-ness. However, in this particular context a direct, in person approach was valued more highly that an email for example.

A kind of participation fatigue through overexposure (to tourists, and to 'outsiders') is an issue for this community in general. Many people I spoke to said they felt frustrated by being asked the same questions over and over again or by their time being taken up. In response to this insight I approached my connections with no expectations and with open-ness about what they might want to discuss. I feel my tentativeness and care not to ask too much of participants in this environment contributed to the work feeling somehow quiet and unpopulated in general. The swift and 'glancing' movement of the camera in Heritage and in the rough footage of the home in Christiania featured in The Volume demonstrates a kind of reticence to intrude. The architect and I had very frank conversations about what felt positive for him and his family in terms of my presence.

The issue of anonymity was not straightforward in this project. The first participant I encountered in the study requested anonymity. The sound of this participants voice was removed from video footage and I cut the video so that his face is not identifiable. I felt somewhat uncomfortable at 'silencing' their voice, however as I made a response to their hands without using my voice, I reflected on the new focus this contributed, to gesture as communication. This was folded into the findings of the work, and influenced the decision to remove audio of voices on other video work in the study.

In all cases I was cautious about making images that included peoples faces and, even when participants gave permission to be identified by name and image, I made shots that focussed on hands and arms. As the study progressed, I reflected on the status and framing of the practices of participants, many of whom would prefer to be credited by name, especially in connection to their own creative work. Sometimes attitudes changed and I have tried to make space to check in with participants (within the life-span of the study) about their preferences.

In the participatory work *A Working Model*, some participants preferred to be identifiable and connected with their work, whereas others initially preferred to remain anonymous when the work was first exhibited. At the time of writing the thesis all participants opted to be named and reflected positively and on the experience they had making their submarines. In these cases I asked the participant how they preferred to be known (whether by first name / full name for example) and credited them in the art work. In this work, I realise that my understanding of the participants role shifted during the process; from that of contributors to collaborator. The conversations that arose and efforts made in the making felt like a truly reciprocal process.

Particularly in terms of re-using footage with people and their own practical work appearing in it. As the project progressed into more field work, my wariness at using footage of people perhaps rendered the work less resolved as 'art work'. I felt reticent to claim as an art (product) imagery that was rich through the work of another maker.

As this shift took place, I think I also shifted from a focus on my own subjectivities (in 'Grasping things' to a more diffuse and interconnected way of bringing other people's subjectivities into the work. As this happened, the tangibility of the 'art work' shifted and also became more diffuse. I have reflected that the difficulty in resolving 'final' works perhaps this was in part due to a reticence to claim authorship when footage included the work, voices, and presences of others.

In all cases, the intimate scale of the project allowed a degree of sensitive and detailed interaction which allowed discussion between myself and participants about what was emerging in the research. The approach I adopted aligns with a situated ethics 'local and specific to particular practices' (Simons & Usher, 2012p.)

In future research the experiences of this study could inform the development of a more robust argument for a situated and emergent ethics (Shaw, 2016)

Chapter 6: Conclusion

6.1 Introduction

I set out to find out what models , scale models in particular, could offer us in the apparent precarity of the present. This form is readily associated with a speculative imagining of past and future, so the study explores what models might be able to offer in a time of mourning for lost futures, in which Utopian expressions can seem outmoded or futile.

Through insights that could only emerge through the 'undergoing' (Dewey, 1934) of art practice led research, I have extended Teresa Stoppani's notion of the site of re-activation as a site of new knowledge, drawing on a unique set of strategies for re-vivifying 'dormant' models, each re-activation demonstrating particular affordances.

In this concluding section I will respond to each of the research questions and outline how the study has addressed them, reflecting on the findings arising from works that explored intra-actions with models, and site responsive research at Sheffield Model Railway Enthusiasts Club and in Christiania.

6.2 Findings

6.2.1 How has art practice led research articulated the affordances of models? Does
  articulating the characteristics of models contribute to how we understand the
  potentials of art practice?

In writing it has become clear that these two research questions were mutually
supportive. In the doing-thinking of the practice, practice-led research has been
articulated as having qualities akin to modelling, and the re-activation of models a
form of critical practice led inquiry.

I employed an open-ended and reflexive art practice, responding to archive material,
direct encounters with models and sites of model production. This has demonstrated
the potential of art practice to generate knowledge through process and embodied
experience.

6.2.1.1 Knowledge from inside the experience of practice; from the model to
modelling

The specific contribution of this inquiry through art practice derives from 'feeling
through' materials and processes to gain insights into the potentials of the model,
modelling, and model-making. The thesis traces a shift, in response to insights
through practice, from looking at the model 'from the outside' to the *process of
modelling* from the 'inside'.

The investigation began with 'Grasping Things'. The works in this section broadly
responded to models that were visible and identifiable as entities from the 'outside'.
The processes that re-activated them began to interrupt and open them up, exploring
the continuum of experience from 'outside' to 'inside' the experience of the model
and modelling.

In the second set of work, 'Missing Things' the characteristics of the works tangibly shifted. My attempt to use actual models (as physical entities) as 'hooks' from which to generate work in field work settings felt frustrated, forced. The practice became more diffuse, iterative conglomerations of images, sounds, that were more fragmentary and contingent.

These works, I argue, were made from *within* the assemblage, struggling to articulate the scale and complexity from the inside of a process of becoming. These works simultaneously addressed the coming into being that is part of each community of practice (Christiania / the Rail Club) *and* my own practice led inquiry. The video and audio works make at the Rail Club for example, failed to articulate the experience of the model maker from the inside, but rather helped me to map the kindred characteristics and contrasts between their practice and my own, from the 'inside' of my own process. The 'just out of reach' sensation these works conjured during the making, and their unsatisfactory outcomes, helped me towards insights about models, and their capacity to bring into being what was once inaccessible. Thus, the frustration and the unresolved nature of those works became a significant part of their validity as research, exposing the difficulties inherent in observation as a mode of research.

The particular attunement to site and situations contributed by an art practice-led engagement also led to the reflection on aspects of social and spatial contexts (the railway modelling club and Christiania) as being akin to the contingency of the process of modelling.

In Chapter Five, I discuss the model railway layout and the space of the club as an assemblage. In Christiania, the relative inaccessibility of the 'Big Model' contrasts with the soft infrastructure and evolving nature of the social structures of Christiania.

I initially began accumulating a lexicon of the 'model-like' in relation to these contexts.

- Light
- Re-configurable components
- Transportable / Multi-locational
- Legible means of production
- A shift in scale or material
- Responding to a referent
- Physical and imagined space simultaneously

On reflection, rather than describing the characteristics of the model as an object, I understand this list reflects the qualities of *modelling* made possible by whatever means and components. The evolving, improvisatory and contingent, full of the potential of becoming in this social, spatial and material process, have enabled me to recognise potentials in the qualities of art practice, and in the practices of the model railway enthusiasts and the residents of Christiania.

In this study, methods that could easily be perceived as Reflections *on* action (ie, thinking about the practice after the event) were actually part of an iterative reflection *in* action. (Schön, 1983) The sites of screening and review, collection and reflection, rather than being regarded as spaces of analysis separate to the practice, were approached as and enfolded into practice. How did this lead to insights?

For example, the curatiorial project 'What's to Hand' brought individual models together in a larger assemblage, making visible the process of 'agencement' through the physical and spatial processes of curation, placing myself inside the assemblage, the process, an expanded kind of modelling. An attempt to taxonomize broke down as the ever-shifting modes possible in encounters with models emerged. Classification became akin to cartography (Van der Tuin & Dolphijn, 2010) or a topographical analysis (Lather, 2016). The failure of rigid classification affirmed the mode in which models are experienced as highly contingent, mobile and malleable, dependent on the context and subjectivities in each encounter.

The micro-collective practices of '*A working Model*', '*A Fabrication*' '*Untitled: Conversation*' and '*The Volume*' demonstrated an intimate scale of conversation and a sensitivity of exchange, where working with the model generated relationships and connections.

In works such as *Untitled: Conversation* and the video works from the rail club, I had hoped that recording conversations and acts of model-making would bring me closer to what this experience yielded for the maker. Instead, the impossibility of fully accessing the experiences of others was palpable. Again, this became a useful finding. The very frustration presented by this gap in knowledge, the just-out-of-reach, suggested the particular sense of dissatisfaction, a nostalgia for a barely

remembered feeling, that skills, technologies and social changes within our reach might deliver some 'better' future.

The body of works explored in Chapter Four Grasping Things', could have been regarded as discrete 'case studies'. Instead, encounters with models in practice spilt out, reaching far beyond the object, the moment, initial site as I worked with the encounter as material. In the inventive connections made through practice, people and space emerged as being akin to correspondences (Ingold, 2010). Intra-actions rather than interactions. In intra-action, agency is understood as co-constituted in the relations between human, non-human, material and nature. (Barad, 2011)

The works made visible the entanglements of models and other time-spaces, their many possible functions and associations.

Unexpected affordances arose through oblique approaches to practicing in relation to each model, which are present in the art works themselves and in the writing which enfolds into the practice, a bringing-into-being in its own right.

The inventive capacity of artistic inquiry discussed in Carter's 'Material Thinking' is exposed in this research. Carter discusses invention as a process of emergence and states it 'begins when what signifies exceeds its signification – when what means one thing, or conventionally functions in one role, discloses other possibilities….the found elements are rendered strange, and of recontextualization, in which new families of association and structures of meaning are established.' (Carter, 2007 in Barrett and Bolt p. 15)

6.2.2 What possibilities were offered by the model 're-activated' beyond its original intended purpose?

Stoppani proposes that the model 'reactivated' beyond its original intended purpose is a site for the production of new knowledge. This study has tested and expanded upon this idea through art practice. Re-activations of the model through art practice were central to my approach at the outset; however in my work responding to Christiania and the model railway club, my processes also identified re-activations already arising in these contexts. For example:

- the continual re-constitution and re-activation of the terrain of model 'layouts' and the production of the time-space of the model railway enthusiasts club.

- the ever-evolving social and infrastructural 'model' of Christiania, a time-space that seems impossible to map by conventional means.

- unintentional 'reactivations' : visual collision of depictions of times and spaces in the clubroom are also revealed through photographic and video imagery, these unintended activations or 'auto - agencements' are discussed as a site of potential for critical reflection on the different times and spaces folded together. These may not arise intentionally but are a by-product of the railway modellers' practice that could be seen as a particularly rich provocation.

6.2.2.1 Re-activations through art practice

Untitled: Conversation, A Working Model A Fabrication and *Pictorial House Modelling,*
After Miss Joyce Inall all presented different kinds of re-enactments or performances
'to' the model as modes of re-activation. The exploratory constraint used in my
collaboration with Rees Archibald explored the spectrum of hylomorphism to
textility (Ingold, 2010) in the act of model-making and modelling. Simultaneously
the work reflected on the standardisation of human movement in industrial
manufacturing processes and the mechanisation of gesture promoted by the work of
the Gilbreths and their chronocyclographs.

Pictorial House Modelling, After Miss Joyce Inall introduced the possibility of diverse
experiences of time through the model. The folding together of times and spaces was
made possible through a work echoing the optical trickery of 'Pepper's Ghost'.
Emulation as a reactivation was explored through the performed repetition of
gestures pictured in a manual of model-making. The final work visually enfolds
multiple bodies and times. Through this mimicry, the similarities and differences in
the conditions of each maker are thrown open for consideration, which makes
possible a kind of critical space.

In Chapter Five, I explored the notion of the re-activation of models in field work at
Sheffield Model Rail Enthusiasts Club and Christiania, both living sites of model-
production.

The scale, material and formal characteristics of the block model of Christiania
rendered it somehow inaccessible. It yielded quantitative information very
efficiently but did not express the complexity of the lived experience of the space it
represented. This work made more apparent my expectation that the small scale of

the model, the miniaturization of a space alone, would allow a certain intensity of imaginative absorption, as suggested by Stewart and Bachelard in the contextual review. The capacity of the small scale to condense and intensify, to generate these 'profound values' (Bachelard, 1994) was contradicted by the Big Model. The *resistance* of the model to my attempts at 're-activation' provided a finding in itself, demonstrating the shortcomings of the block model (usually used by architects and city planners) as a tool for communicating the complexity of Christiania.

In Chapter Five, the re-location of video footage of models came to the fore as a mode of re-activation. Re-viewing and working with footage of the Model Railway Club off-site was key to developing and understanding how the model could generate a space of reflection. Rather than conceding to the popular idea of the model as an isolated entity, the research argues the layout as a space for considering the conditions of the wider worlds, in the way it generates reflections on the conditions of time and space it depicts, and then how it relates to the wider world via the model-makers' homes, sites of research, and exhibition.

The space of the model is intrinsically linked to the spaces beyond, as described by Stewart (1992, p. 45), 'situation within situation, world within world', not separate but emerging from and in turn creating the worlds that arise around it.

In the merging of the time-space of the model with the lived spaces of Christiania, what was 'missing' in the model became ever more tangible. These qualities, the 'fine grain' of lived experience in Christiania, were explored in a series of durational videos made in Christiania, which were initially an aside, an intuitive response to my frustrating encounter with the 'Big Model'. The moving-image work *Heritage* evolved from the accumulation of these experiences. In this work, I moved through Christiania carrying a Perspex sheet with a camera trained on its surface. A constant

flow of juxtaposed images was captured by the camera. What results is a moving-image work which presents us with view *through* the transparent surface (forwards, to the future) and, simultaneously, a reflected image passing over the surface of the material…a view of what was receding behind me (what is passed / past) in one plane and frame. This intervention offered something like the folding together of space-times presented in previous works, but distinctively this work presents a more continual and emergent re-activation that takes in the unpredictable aspects of the environment in all its complexity.

6.2.2.2.Collective Reactivations

A Working Model engaged a group of participants in individual and collective re-activations of the same model, a set of instructions to make a toy submarine from an eggshell, taken from *Every Woman's Encyclopaedia 1910*. Their particular experiences and decisions became manifest in material, surface and form. These contemporary re-activations and the contexts of the lives of the 're-activators' became a conversation, through making, with the socio-political contexts of the original model.

6.2.2.3. Reactivated Model as 'Off Modern' Practice

I began with the assertion that all models are intrinsically speculative, having a particular capacity for enabling us to envisage or communicate possibilities about the future or the past. The kind of speculation a model enables is often clearly determined by its context. I wondered what kind of speculation might arise from 'Re-activations' in new contexts.

Pictorial House Modelling, After Miss Joyce Inall supports the argument that re-activated models offer a space of rhetorical and reflective potential. In this work in

particular, I identify the experience of asynchrony and the speculation afforded on our current conditions in relation to past(s) and possible future(s). This proposal is extended in the section about the model railway layouts, in which I began to try to define this experience via Benjamin's Dialectical Image, the idea of auto-montage, and assemblage / agencement.

This work suggests a method by which the model re-activated can be re-read, mis-read and re-invented. The off-kilter, non-linearity of this process, that loops back and forth in time, aligns with Boym's description of the 'Off Modern', which she uses to discuss evaluations of the Modern project that are somehow 'sideways', unexpected, open to detours.

The Off-Modern, says Boym, allows us to 'touch-ever so tactfully – the exposed nerves of cultural and human potentiality, the maps of possible if often improbable developments' (Boym, 2017,p. 13). The kind of critique possible through the Off-Modern is not one of straightforward judgement, but an opening up of more speculative, reflexive thinking that can be informed by multiple subjectivities, and the affective.

The 'sideways' approach of the 'Off Modern' embraces affect and complex or contradictory attitudes towards the past or future. In this context, nostalgia is understood as an impulse that, when approached in a questioning and alert way, can afford a re-examination of what has been, what is, and what might be. This is a critical stance which acknowledges affect and the ways in which we are bound up in the difficult histories of a tumultuous world. This stance encompasses the themes of haunting and mourning drawn out through reflections on work at the Model

Railway Enthusiasts Club. The perception of the miniature as sentimental, unquestioningly nostalgic, is challenged and transformed through re-activation.

The re-activation of models as an 'Off Modern' practice is a key contribution of this thesis. Grounded in the reflexivity and unpredictability of art practice, it offers a new argument for the critical potential of art practice that is not tied to meaning making in a representational sense.

A mode of practice where the result of the re-activated model may be unknown, that does not pre-determine a certain outcome, offers a different a space of potential. The content of the art works and my reflection on them demonstrates how the re-activation of models allows the 'spectre to speak' although this thesis does not grapple in depth with what is spoken. Rather, the focus lies in contributing embodied, practical methods to what has, until now, been a theoretical speculation, and could be seen as a series of case studies for the affordances of models, re-activated.

6.3 How has practice-led research been expanded through the research

The insight into models and modelling offered by this practice led inquiry is distinct from the kind of artistic works discussed in Chapter Two, as it simultaneously explores the capacities of models *and modelling* whilst making tangible the shared qualities present in artistic practice, as a means of coming to new knowledge.

Through this enquiry some shared qualities of art practice and models have emerged. The art practice methods in this study are claimed as sharing the qualities of modelling, parallel to, but distinct from the model-production practices it strives

to articulate. This constitutes a new contribution to the field of art practice as research.

Many of the characteristics demonstrated in the art works leading this research can be understood as being like modelling in terms of material qualities and mode of enquiry; light, re-configurable, transportable, and employing a shift in scale or material. In addition to this model-making and art practice share territory as:

- Means of coming to new knowledge through materials and embodied actions.

- An autotelic process – having its own intrinsic value for the maker / investigator.

- A tendency towards the speculative, in which process leads. A prospecting, 'not-knowing' stance, (as put forward by Fisher, E., & Fortnum, R. (2013) as being a valuable part of how artists think.)

- A means of analysis.

6.3.1 Poiesis

"Ancient Greek embodied wonder in poiein, the root word for making. In the Symposium Plato says, 'Whatever passes from not being into being is a poiesis', a cause for wonder." (Sennet, 2009, p. 211)

Definitions of Poesis imply the 'bringing-forth' of completely original that did not exist before. The moment of Poeisis arising in this research process begin with something / things that already exist, but which, in enabling associations, connections, serendipidous flights of sorts, create something new.

The 'off modern' and the minor must by definition refer to Modernity, or operate from within the major, and this kind of invention, though again less 'heroic' and perhaps less easy to name or categorise. Rather than being grounded in identifiably skilled acts of making – the more traditional craftsman-like occupations, the kind of art practice offered in this research offers moments of poiesis conjured from the scraps of others.

What makes it possible for these things to become lively, full of possibility, to be imbricated in a new becoming? Using Heidegger's notion of 'handlability', and the idea that to handle brings a tacit understanding (rather than a theoretical knowledge) Barbara Bolt discusses how arts practice research concerns itself with un-self conscious process, rather than self-conscious theorisation. (Bolt, 2004)

Discussing handling as 'care' she suggests that the particularities of handling in art practice can bring us a different kind of insight. With things that have a prescribed purpose, we can become accustomed and overly familiar… no longer attuned to the 'wonder of it all (Bolt). Whereas in a truly open ended art practice, which sets it apart as space of possibility, is that absolute attention and care that is paid to each material and component of a process, because we are uncertain as to its role and where the process will take us. Through this uncertainty, we collaborate with deep care, attending closely to every component.

Bolt argues that to focus on the artwork itself is limiting, whereas the emphasis in art as research shifts to the process - *work* of art, which she calls the 'precise state of interminglings' (Bolt, 2004, p. 2).

Prior to this research I had struggled to articulate what I felt to be the case, that practice is my mode of thinking, that the way I come to understand theory is also through practice rather than vice versa.

6.3.2 The Minor

The study has demonstrated methods for generating creative critical processes that, rather than provoking straightforward judgement, are rhetorical and reflective. The micro-political potential of the practices established in this thesis align with Manning's Minor Gesture. Operating not from the position of the model maker, but from that of artist, I have opened out transparently the way in which practice is thought in my own processes. The thesis provides evidence for the value of artistic practice which is perhaps at times so multiple and shifting that it is nebulous, difficult to pin down, or, in short, is operating in the 'Minor' key.

At present in the UK, the perceived value of arts practice is often tied to the production of a marketable art-work or participatory processes, with pressure to articulate a pre-planned outcome. Part of my interest in undertaking this research was to better understand and articulate a role for art-led processes that are less legible to institutions such as funding bodies, education providers, commissioners and galleries. This thesis makes a claim for art practices which elude definition in such clear terms, which are speculative and open ended, and which may be visually slight, slow, or happen at an intimate scale.

6.4 On Scale

We might think of small-ness in terms of shrinking or receding, equating this with a loss of power. However, it might equally represent a form of resistance, a super-power. If something is stealthy, for example, too small to be detected, it can perhaps move with new freedoms and pass undetected. In many areas of life the insistence that all must be made visible is becoming more prevalent. Our contributions, it seems, must be evidenced through numerous systems to be validated. Some aspects of experience are fleeting, fugitive and hard to see, or so small or slight in terms of visibility that they might be missed entirely or construed as not valuable. To invest oneself in the pursuit of experiences that lie in this realm, is, perhaps, a political stance.

The issue of scale has recurred throughout this project. We see it overtly in the visual presence of models, in the presence of a human hand and the close-up video shots that record the 'fine grain' of spaces and places. However, it is also present in terms of the spatial and social intimacies of the home, the club room, and the communities that form the context of much of the study. The micro-experiences of immediate lived environments and their connections to the wider world, the macro-view and the local and global are considered through this interrogation of the model and how it generates possibilities. The possible agency of the unseen and uncertain practices upon the wider world is a constant important presence in the thesis.

Chapter Five argues that the act of model-making and the space generated by this act is a utopian method generated by a utopian image. This was in part a reflection on the 'flow state' in making, but it extended to the multitude of subtle acts of care and attentiveness at a granular level throughout the Railway Modelling Club, from the model to social interactions. Following this logic, Christiania is also an example

of a 'Promising Space' or every-day utopia as defined by Cooper. But what is the significance of such spaces beyond their own territories?

Model-making, in dealing with a surrogate for the 'real' could be interpreted as an avoidant behaviour, seeking absorption as an escape. There is potential for modelling in this club to be a habitual repetition and also a more critical, inventive practice. Indeed it may shift between these modes. 'To 'fiddle while Rome burns' is an idiom that means to occupy one's time doing something unimportant while a disastrous situation is happening. However, I would suggest that the model, in being at once a real and ideal space, making extant the things one can imagine, has particular potential as a critical tool. I am interested in the spectrum between positions of action and inaction and how the model as a form relates to these. Perhaps 'fiddling' is a resistance to ideas about what is a 'productive' use of time and is actually the kernel of resistance to the forces that are driving environmental, economic, social injustices at all scales.

At the outset of the project I established that the art practice-led research I would undertake would be an emergent process. I had not anticipated how the characteristics of *modelling* would reveal themselves in my practice.

I have been holding a fragment from *To the Lighthouse* in mind throughout the thesis, unsure of its place but sensing its relevance. It has moved around in footnotes and margins for the full duration of the study. I now realise that this fragment identifies precisely how such spaces, the 'corner of the eye' of research, are crucial in what I am arguing for. So, for now, I'm placing the quote here.

> She remembered, all of a sudden as if she had found a treasure, that she had her work. In a flash she saw her picture, and thought, Yes, I shall put the tree further in the middle; then I shall avoid that awkward space. That's what I shall do. That's what has been puzzling me. She took up the salt cellar and put it down again on a flower pattern in the tablecloth, so as to remind herself to move the tree. (Woolf, 1991, p. 71)

Lily's use of the salt cellar as a surrogate to remind her of a composition in the painting she is making. This vignette describes a slight, almost invisible action. However, condensed and contained within this gesture is an enormous expanse of internal life, and a serious stance in resistance to docile and normative behaviours she is invited to play out in the role of good female at Mrs Ramsay's table. The small and ordinary is revealed as a powerful tactic: a moment of agency simultaneously minute and gigantic.

The contingent, fugitive, uncertain, often small or fragile, flighty characteristics of my working practice -a source of anxiety at times - has been offered as a simultaneous consideration for a mode of speculative critique that operates in the Minor.

I began this study wondering about the characteristics and potentials of models for the present moment. What has become clearer through this research is that the contingency and invention that I have associated with models is perhaps more an attribute of art practice.

This practice led inquiry, rather than representing the visual or tactile qualities of models, has opened out for scrutiny, through emergent processes, the experience of modelling. All the ways that models are certain and uncertain are present in the doing. We have seen that though the life-cycle of the model may contain moments of lightness, malleability, emergence, models are not *always* any one thing. As my frustrated experiences in attempting to 're-activate' the 'Big Model' in Christiania showed, models can be lumpen, resistant, misleading, more Major in their mode of operation.

In this research it is the de-stabilising, enlivening force of the re-activation through art practice that provides the generative uncertainty, the Minor Gesture.

Problems and questions about the role of art practice as a force in the world brought me to this research. I understood that my mode of work could not be framed as activist in the way that some strands of socially engaged practices are identified. However, I understood tacitly a critical capacity in the practice that I could not sufficiently explain or name. This research brings a new understanding and ability to articulate, not just how my art practice works, but how I can work, in the world.

6.5 Future Directions

The research methods developed in this study offer opportunity for future work exploring the possibility of collective critical spaces produced by 're-activations'. This study has contributed insights into specific communities and practices as an intra-active form of research. Nelson suggests that other disciplines may benefit from practice as research (or in this case practice led research) and indeed this project demonstrates the capacity for practice to embrace complex network of exchanges that arise between material, space, people and things. This suggests particular relevance of application of practice led research, and art practice led research, to other fields, such as anthropology and human geography. Artistic inquiry, perhaps more than other modes of research, is active and reflexive in how it responds to, and works *with*, (rather than observing) the field.

The post-qualitative, practice-led approach of this study has destabilized the understanding of the model as passive and subject to human design, investigated and communicated the multiple possibilities not only in what people do with models, but what the model does with us; the possibilities that arise in these material, spatial and processual intra-actions. Open ended processes such as these applied in other fields could enabling the researcher to engaged in state of emergence with the site of enquiry (as a complex, shifting assemblage). This could offer deeper and more acute insights that take in the multiple perspectives, and acknowledge the affective and embodied knowledges. These potentials could be of relevance across the humanities, and in particular in the fields of human geography and anthropology. In these fields, creative probes and arts approaches are often deployed, and this study presents a more circumspect, speculative methods, could enable more meaningful questions to emerge.

I have recently undertaken a role as Research Associate on the AHRC funded project '*Odd: Feeling Different in the World of Education*' which explores the experiences of children in primary school through cross-disciplinary research involving art, anthropology and education. In this context, I have begun to extend my methods of 'Worrying Materials' and the 'Shuffle of Things' in a series of experimental art-led 'labs'. These have begun to explore how research data re-activated or re-located from the field, exposed to repeated 'turning over' (Barad, 2014) might offer new insights. This work points to the cross-disciplinary possibilities of the methods contributed by this thesis.

Bibliography

Abbot, K (2015, June 16) '*Jake and Dinos Chapman: how we made Hell*' retrieved from

    https://www.theguardian.com/artanddesign/2015/jun/16/jake-and-dinos-

    chapman-how-we-made-hell

Alexander, C. (1964) *Notes on the Synthesis of Form*. Cambridge, MA: Harvard

    University Press

'*A Mere Phantom*' (1876) [frontispiece] A Mere Phantom. 1876. The magic lantern:

    How to buy and use it and how to raise a ghost. London: Houlston and Wright.

    Cited in Morus, I. R. (2012). Illuminating illusions, or, the Victorian   art of

    seeing things. *Early Popular Visual Culture*, *10*(1), 37-50. Chicago

Amouroux, C. S., Bøggild, S. S., Lund Hansen, A., Hellström Reimer, M., Jarvis, H.,

    Karpantschof, R., ... & Wasshede, C. (2011). *Space for Urban Alternatives?*

    Christiania 1971-2011. Gidlunds Förlag.

Anderson, M (Director). David, S. (Producer), (1976) *Logan's Run* [Motion Picture]

    United States, Metro-Goldwyn-Mayer.

Architects (including Louis Skidmore, (far left) and amusement consultants meet in

    May 1930 to examine a clay model for the 1933 Chicago World's Fair

    [Photograph]. In Moon, K. (2005). *Modelling Messages* (p.110). Michigan:

    Monacelli Press.

Ashkin, M., & Kamps, T. (2000). *Small world: dioramas in contemporary art*. San Diego:

    Museum of Contemporary Art

Bachelard, G. (1994). *The Poetics of Space*. Boston, MA: Beacon Press.

Barbican Centre (01 June- 03 September 2017) *Into the Unknown*, London

Bailey, C. J. (2017). *Investigating the lived experience of an after-school Minecraft*

    club (Doctoral dissertation, Sheffield Hallam University).

Barad, K. (2014) Diffracting Diffraction: Cutting Together-Apart. *Parallax*, 20:3, 168-187, DOI: 10.1080/13534645.2014.927623

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of women in culture and society*, 28(3), 801-831.

Barrett, E. and Bolt, B. (eds) *Practice as Research: Approaches to Creative Arts Enquiry*, London: IB Tauris, 2007

Berardi, F. (2011). *After the future*. Chico, CA: AK press.

Berkeley, B & Enwright, R (Directors) **&** Willis, H.B (Producer), (1934) *Dames* [Video file]. Retrieved from www.warnerbros.com/movies/dames/

Bill Phillips and his modelling machine (no date) [photograph] Science Museum. Retrieved from https://www.sciencemuseum.org.uk/objects-and-stories/how-does-economy-work

Birchall, D. B.F.I (n.d). *Robinson in Space*. Retrieved from
http://www.screenonline.org.uk/film/id/498912/index.html

Bolt, B. (2004, September). Heidegger, handlability and praxical knowledge. In Proc., Australian Council of University Art and Design Schools Conf (pp. 23-25).

Bourdieu, P., & Wacquant, L. J. (1992). *An invitation to reflexive sociology*. Chicago, IL: University of Chicago press.

Boym, S. (2001). *The future of nostalgia* . New York, NY: BasicBooks.

Boym, S. (2007*).* Nostalgia and its discontents. *The Hedgehog Review*, 9(2), 7-19.

Boym, S. (2008). *Architecture of the Off-modern* (Vol. 2). Princeton, NJ: Princeton Architectural Press.

Boym, S. (2018). *The Svetlana Boym Reader*. New York, NY: Bloomsbury Publishing USA.

Braidotti, R., & Bignall, S. (Eds.). (2018). *Posthuman ecologies: Complexity and process after Deleuze*. Rowman & Littlefield.

Bratich, J. Z., & Brush, H. M. (2011). Fabricating activism: Craft-work, popular culture, gender. *Utopian studies*, 22(2), 233-260.

Brinded, N. (2015) The myth making of nation building: Walden and the technological sublime. *E-Sharp issue 23, Myth and Nation*. Retrieved from https://www.gla.ac.uk/research/az/esharp/issues/23spring2015-mythandnation/

Broadley, A (2015) Review, *Model Behaviour*, Manchester: The Holden Gallery.

Burnett, C., & Bailey, C. (2014). *Conceptualising collaboration in hybrid sites: playing Minecraft together and apart in a primary classroom*. In New literacies around the globe (pp. 70-91). London: Routledge.

Butsch, R. (1984). The commodification of leisure: The case of the model airplane hobby and industry. *Qualitative Sociology*, 7(3), 217–235. doi:10.1007/BF00987312

Calhoun, C., Sennett, R., & Shapira, H. (2013). Poiesis means making. Public Culture, 25(2 70), 195-200.

Capra, F. (1937) *Lost Horizon* [Motion Picture] United States, Columbia Pictures

Cameron, W. (Director) & Korda, A.(Producer), (1936) *Things to Come* [Motion Picture], U.K, London Film Productions

Campbell, C. (2005) The craft consumer: culture, craft and consumption in a postmodern society. *Journal of Consumer Culture*

Carter, P. (2007). Interest: The ethics of invention. *Practice as research: Approaches to creative arts enquiry*, 15-25.

Carter, P. (2004). *Material thinking: The theory and practice of creative research*. Melbourne University Press.

Castlefield Gallery (18 November 2016—22 January 2017) *Miniature Worlds.*
Manchester.

Cauty, J. (2014-16) *Aftermath Dislocation Principle*. Installation, dimensions variable.
No place.

Cauty, J. (2016) *ADP Riot Tour*
www.airspacegallery.org/index.php/projects/jimmy_cautys_adp_riot_tour

Chapman, J.&D. (1998-2000) *Hell.* Installation. Destroyed in a fire, 2004.

Christiania. (n.d). *How Christiania's Self Management Works*. Retrieved from
https://www.christiania.org/info/pages-in-english/

Cohen, R. & Van-Balen, T. (2013) *75 Watt.* 40 objects and a film documenting the
choreography of their assembly. Permanent collection, MoMA. retrieved from
https://www.cohenvanbalen.com/work/75-watt

Colebrook, C., & Deleuze, G. (2002). Routledge Critical Thinkers. *London and New
York: Routledge*, 40.

Collinson, P. (2010-15). *Sculpture Park*. [Cardboard, mount board, model makers'
materials, toy car (Subaru Imprezza 1/35th scale) oil paint]. Hull. courtesy of
artist.

Cooper, D. (2013). *Everyday utopias: The conceptual life of promising spaces*. Durham,
NC: Duke University Press.

Csikszentmihalyi, Mihaly (1997). *Finding flow: The psychology of engagement with
everyday life*.   New York, NY: Basic Books.

Csikszentmihalyi, M., Abuhamdeh, S., Nakamura, J., Elliot, A. J., & Dweck, C. S.
(2005). In A. Elliot & C. Dweck (Eds.), *Handbook of competence and
motivation* (pp. 598-623). New York, NY, US: Guilford Publications

Csikszentmihalyi, m., 1996. *Flow and the psychology of discovery and invention*. New
York, NY: Harper Collins.

Cunningham, Frank (2010). Triangulating Utopia: Benjamin, Lefebvre,

      Tafuri. *City*, 14 (3), 268-277.

CRiR (no date) accessed from http://crir.net/about.html

Davis, C. (2005). Hauntology, spectres and phantoms. French Studies, *59*(3), 373-379.

Davy, J. W. (2017) *Miniaturisation: a study of a material culture practice among the*

      indigenous people of the Pacific Northwest. Doctoral thesis , UCL (University

      College London).

Davy, J. (2015). A Lego snowmobile and the elements of

      miniaturization. *Anthropology   Today*, *31*(6), 8-11.

De Certeau, M. (1988). *The Practice of Everyday Life*. Berkeley, CA: University of

      California Press.

DeLanda, M. (2002). *Intensive science and virtual philosophy*. London, UK: Continuum.

De Leon, J. P., & Cohen, J. H. (2005). Object and walking probes in ethnographic

      interviewing. *Field Methods*, *17*(2), 200-204.

Deleuze, G., & Guattari, F. (2004). *A Thousand Plateaus*. London: Continuum.

Deleuze, G. (1986). *Kafka: Toward a minor literature* (Vol. 30). Minneapolis, MN:

      University of Minnesota Press.

Deleuze, G., & Guattari, F. (2009). 4 What Is a Minor Literature?. *Poetry and Cultural*

      Studies: A Reader.

Demand, T. (1995) Buro. Chromogenic color print (183.5 x240 cm) Retrieved from

      https://www.moma.org/documents/moma_catalogue_116_300173025.pdf

Dewey, J. (1934). Having an experience. Art as experience, 36-59.

Dinshaw, C. (2012). *How soon is now? Medieval texts, amateur readers, and the queerness*

      of time. Durham, NC: Duke University Press.

Dubberly, H. and Evenson, S. (2008). *On Modeling The Analysis-Synthesis bridge model*.

      Interactions, 15 (2), 57-61.

Dubberley, H. (2008). The Analysis-Synthesis Bridge Model [Diagram] retrieved

from. *http://www.dubberly.com/articles/interactions-the-analysis-synthesis-bridge-*

model.html .

Dunne, A., & Raby, F. (2013). *Speculative everything: design, fiction, and social dreaming*.

Cambridge, MA: MIT Press.

Downey, A. (2009). An ethics of engagement: Collaborative art practices and the

return of the ethnographer. *Third Text*, *23*(5), 593-603.

Ecclesall, B. (2006). *1 Slater Street* . [Painted Watercolour paper]

Evans, F.T. (n.d). *Arch Models*. [Wood, rubber cord]. Leeds: Artemis Collection.

Evans, F.T. (2008). Two legs, thing using and talking: the origins of the creative

engineering mind. In Gill, Satinder P. (ed.), *Cognition, Communication and*

Interaction. Springer   (pp. 309-337). London: Springer.

'Exaptation', Oxford English Dictionary n.d. Retrieved from

https://www.lexico.com/en/definition/exaptation June 2019

Fisher, E., & Fortnum, R. (2013). *On not knowing : how artists think* . London: Black

Dog Publishing.

Fisher, M. (2014). *Ghosts of my life: Writings on depression, hauntology and lost futures*.

Alresford: John Hunt Publishing.

Forensic Architecture (2018) *'The Grenfell Tower Fire'* retrieved from https://forensic-

architecture.org/investigation/the-grenfell-tower-fire

Foucault, M., & Miskowiec, J. (1986). Of other spaces. *diacritics*, 16(1), 22-27.

Gilbreth, L. & F (1917) *Applied Motion Study: a collection of papers on the efficient method*

to industrial preparedness. New York, NY: Sturgis and Walton

Company.Accessed

https://archive.org/details/cu31924004621672/page/n8 16th May 2016

Gilpin, William (n.d.) *Remarks on forest scenery, and other woodland views, (relative chiefly to picturesque beauty) illustrated by the scenes of New-Forest in Hampshire. In three books' (n.d)* retrieved from https://www.fineeditionsltd.com/pages/books/BB0837/william-gilpin/remarks-on-forest-scenery-and-other-woodland-views-relative-chiefly-to-picturesque-beauty

Hackney, F. (2013). Quiet activism and the new amateur: The power of home and hobby crafts. Design and Culture, *5*(2), 169-193.

Harbison, R. *Thirteen ways: theoretical investigations in architecture*, Cambridge, MA: MIT Press.

Harrington, J. J. (2015). *Process made visible-in and outside the object* (Doctoral dissertation, Sheffield Hallam University,).

The Henry Moore Institute (17 January – 18 March 2001) *Homes for the Soul: Micro architecture in medieval and contemporary art*. Leeds.

Hobbs, E.W. (2008[1928]) *Pictorial House Modelling*, Alcester: Read Books.

Holden Gallery, Manchester Metropolitan University (26 October 2015 – 11 November 2015) *Model Behaviour*. Manchester

Hollinshead, R., Campbell, C., Jeans Houghton, B., Ray, J., Streffen, I., Weileder, W., ... & Hearn, M. (2012). *Magnificent Distance: Five Site-Specific Installations Washington DC 2012*. Grit & Pearl.

Hvattum, M. & Lending, M. (2014) *Modelling Time*. Oslo: Torpedo Press

Ingold, T. (2009). The textility of making. *Cambridge Journal of Economics*, 34(1), 91-102. http://sed.ucsd.edu/files/2014/05/Ingold-2009-Textility-of-making.pdf> [accessed 13 November 2014]

Ingold, T. (2010). *Bringing things back to life: Creative entanglements in a world of materials*. Manchester [NCRM Working Paper, unpublished] http://eprints.ncrm.ac.uk/1306/

Ingold, T. (2017), *Correspondences, Knowing from the Inside*, Aberdeen: University of Aberdeen. https://knowingfromtheinside.org/files/correspondences.pdf [retrieved 4th March 2018]

Ingold, T. (2007). Comment. In Jorge, V. O. and Thomas, J. (eds), Overcoming the Modern Invention of Material Culture, special issue of the Journal of Iberian Archaeology vol. 9/10, Porto, ADECAP 52J, (pp. 313–17)

Ingold, T. (2013). *Making: Anthropology, Archaeology, Art and Architecture*. Routledge, London, UK.

Ingold, T., & Hallam, E. (2014). Making and growing: An introduction. *Making and growing: Anthropological studies of organisms and artefacts*, 1-24.

'Jack Needham'(2005) Folk Art in Bottles. Retrieved from https://www.folkartinbottles.com/artists/artists-i-r/41-jack-needham

Jackson, A. (2010). Constructing at home: Understanding the experience of the amateur maker. *Design and Culture*, 2(1), 5-26.

Jarvis, H. (2011). Alternative Visions of Home and Family Life in Christiania: Lessons for the Mainstream. In H. Thörn, C. Wasshede, & T. Nilson (Eds.) *Space for Urban Alternatives? Christiania 1971-2011*. (pp. 156-179) . Sweden: Gidlungs Förlag.

'Jimmy Cauty's ADP Riot Tour' (2016) *retrieved from* http://www.airspacegallery.org/index.php/projects/jimmy_cautys_adp_riot_tour October 2016

Jung, H. (c1922). *Archimedes Apples*. [Wood, Metal, Cardboard]. Leeds: Artemis
      Collection.

Keay, C. (2014). *Model based on Finsterlin's playforms* . [cork, lead tape, plasticine,
      wire and 3D print]. Courtesy of artist.

Keay, C. (2012). *Model for Kennedy Gardens beehive* . [Balsa]. Courtesy of artist.

Kheel Centre. (c. 1915-17 *). 2 cycles on drill press showing 'HABIT' positioning after*

transporting. Note the 'hesitation' before 'grasping'. [stereoscopic photographs]. Frank B.

Gilbreth Motion Study Photograph. Retrieved from

https://www.flickr.com/photos/kheelcenter/5279841396

Kieller, P.(Director), & Griffiths, K. (Producer). (1997). *Robinson in Space* [DVD]. UK:
      BBC films.

King, M. (2001). *Guide to Heidegger's Being and Time*. Albany, NY: SUNY Press.

King, J. R. (1996). *Remaking the world, modelling in human experience.* Urbana, IL:
      University of Illinois Press.

Knott, S. D. (2015). *Amateur craft : history and theory*. London : Bloomsbury Academic.

Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., & Wensveen, S. (2011). *Design
      research through practice: From the lab, field, and showroom.* Cambridge, MA:
      Elsevier.

Kumar, K. (2010). The ends of utopia. *New Literary History*, *41*(3), 549-569.

Lather, P. (2016). Top Ten+ List: (Re) Thinking Ontology in (Post) Qualitative
      Research. *Cultural Studies <—> Critical Methodologies*, 16(2), 125-131.

Levitas, R. (1990). Educated hope: Ernst Bloch on abstract and concrete
      utopia. *Utopian Studies*, *1*(2), 13-26.

Levitas, R., 1993. The future of thinking about the future. In John Bird et al (Eds.)
      Mapping the Futures: local   cultures, global change (pp.257-59). London:
      Routledge.

Levitas, R. (2013). *Utopia as method: The imaginary reconstitution of society*. London: Palgrave Macmillan

Lund Handsen, A. (2011). Christiania and the Right to the City. In H. Thörn, C. Wasshede, & T. Nilson (Eds.) *Space for Urban Alternatives? Christiania 1971-2011* (pp. 288-308) . Sweden: Gidlungs Förlag.

Maclean, C. (2012). 'That Magic Force That is Montage': Eisenstein's Filmic Fourth Dimension, Borderline and HD. *Literature & History*, *21*(1), 44-60.

MacLure, M. (2013). The wonder of data. *Cultural Studies<━> Critical Methodologies*, 13(4), 228-232. Chicago

MacLure, M. (2013b). Researching without representation? Language and materiality in post-qualitative methodology. *International journal of qualitative studies in education*, *26*(6), 658-667.

Manning, E. (2016). *The minor gesture*. Durhm, NC: Duke University Press.

Marcoci, R. (2005) *Thomas Demand*, New York, NY: Museum of Modern Art.

Marx, L. (2000). *The machine in the garden : technology and the pastoral ideal in America*. Oxford : Oxford University Press.

Massumi, B. (2002). *Parables for the virtual: Movement, affect, sensation*. Durham, NC: Duke University Press.

Mendel, J. (2012). A taxonomy of models used in the design process. *interactions 19*, 1 (January 2012), 81-85.

Merrifield, A. (2017). *The Amateur: The Pleasures of Doing what You Love*. London: Verso Books.

'Miniature World' (2016) retrieved from https://www.castlefieldgallery.co.uk/event/miniature-world/

'Model Behaviour' (2015) retrieved from https://www.holdengallery.mmu.ac.uk/2015/model-behaviour/

'Mise-en-Abyme' (2011) in A Dictionary of Media and Communication

   https://www.oxfordreference.com/view/10.1093/oi/authority.20110803100

   201557 [retrieved April 2018]

'Model', Oxford English Dictionary n.d. Retrieved from

   https://www.oed.com/viewdictionaryentry/Entry/120577

'Model', in Online Etymology Dictionary. Retrieved from

   https://www.etymonline.com/word/model

Moon, K. (2005). *Modeling Messages: The Architect and the Model*. Michigan, Monacelli

   Press.

Morris, M. (2006). *Models: architecture and the miniature*. Chichester, Wiley- Academy.

Morus, I. R. (2012). Illuminating illusions, or, the Victorian art of seeing things. *Early*

   Popular Visual Culture, *10*(1), 37-50.

Nail, T. (2017). What is an Assemblage?. *SubStance*, 46(1), 21-37.

Needham, J. (1972). *Modelling Ships in Bottles*. Cambridge: Patrick Stephens.

Nelson, R. (2013). *Practice as research in the arts*: Principles, protocols, pedagogies,

   resistances. Chicago, IL: Springer.

Nordstrom, S. N. (2013). Object-interviews: Folding, unfolding, and refolding

   perceptions of objects. *International Journal of Qualitative Methods*, *12*(1), 237-257.

Nuwer, R. (2015) *Feel Big Live Small* – Apex Art. Exhibition publication (PDF)

Oettermann, S., & Schneider, D. L. (1997). *The panorama: history of a mass medium* (Vol.

   2, pp. 22-32). New York, NY: Zone Books.

O'Reilly, K. (2005) *Ethnographic Methods*. London: Routledge.

Otero-Pailos , J. (2014). Aesthetics of Decay. In M. Hvattung & M. Lending

   (Eds.) *Modelling Time* (pp. 145-156). Oslo: Torpedo.

Karssen, A. & Otte, B. (2014). *Model Making, Conceive, Create and Convince*.

Amsterdam: Frame Publishers.

Ownby, T. (2013). Critical visual methodology: Photographs and narrative text as a visual autoethnography. *Online Journal of Communication and Media Technologies*, 2, 1-24

Pacey, P. (2002). The Picturesque Railway. *Visual resources*, 18 (4), 285-309.

Pallasmaa, J. (2009). *The Thinking Hand: Existential and embodied wisdom in architecture* Chichester: Wiley.

Payne, A. (2009). Materiality, Crafting, and Scale in Renaissance Architecture. *Oxford Art Journal*, *32*(3), 365-386.

Pearce, C. (2006). Productive play: Game culture from the bottom up. *Games and Culture*, *1*(1), 17-24.

Pensky, M. (2001) The Trash of History. In *Melancholy Dialectics: Walter Benjamin and the Play of Mourning* (pp. 211-239). Amherst, MA: University of Massachusetts Press.

Pensky, M. (2004). Method and time: Benjamin's dialectical images. In David S Ferris (Ed.), *The Cambridge Companion to Walter Benjamin* (pp. 177-198), Cambridge: Cambridge University Press.

Perry, M., & Medina, C. (2011). Embodiment and performance in pedagogy research: Investigating the possibility of the body in curriculum experience. *Journal of Curriculum Theorizing*, *27*(3).

Pink, S (2015) *Doing Sensory ethnography* [video] retrieved from https://www.ncrm.ac.uk/resources/video/RMF2010/pages/18_Sensory.php

Pinkert, E. U., Teller, D., & Gringmuth, H. (1978). *Materialen zur Christiania-Debatte: Argumente zur Erhaltung eines befreiten Stadtviertels im Zentrum von Kopenhagen*. Copenhagen: Gisela Lotz Verlag.

Pollard, N., & Carver, N. (2016). Building model trains and planes: An autoethnographic investigation of a human occupation. *Journal of Occupational Science*, 23(2), 168-180.

Price, B. (1989) Frank and Lillian Gilbreth and the manufacture and marketing of motion study, 1908-1924. *Business and economic history*, 18. http://web.mit.edu/allanmc/www/TheGilbreths.pdf [accessed 20 July 2016]

Ray, J. (2015) *Whats to Hand* [self-published exhibition booklet] Sheffield.

Ray, J. (2015). *Pictorial House Modelling, after E. W. Hobbs* . [Digital Video]

Ray, J. (2015). *After Jack Needham* . [Digital Print].

Ray, J. (2015). *Untiled: Conversation*. [Digital Video].

Ray, J & Bailey, C., Charnley, C., Everard, A., Kirk, R., Levene, R. ... Ray, D. (2015). *A Working Model*. [Digital Print].

'Rehearsal', Oxford English Dictionary n.d. Retrieved from https://www.lexico.com/en/definition/rehearse

Reed, H. (1967-2035). *Exploring an escape boat 'Precious Cargo'*. [Plastics (kits), plaster, sculpting tools, card.]. Sheffield:

Reed, H. & Stanton, A. (2014-15). *Investigating tactile simulation* . [electrical actuators, computer aided design and 3D printed plastics.]. Sheffield: .

Rendell, J. (2011). May Mo (u) Rn: A Site Writing. In Nadir Lahiji (Ed.) *The Political Unconscious of Architecture: Re-Opening Jameson's Narrative* (pp. 109-42). London: Routledge.

Rendell, J. (2016) *Site Writing* Inside/Out lecture series [lecture] retrieved from https://www.leedsbeckett.ac.uk/larc/lectures/jane-rendell/

Riley, J. (2011). Shaping textile-making: Its occupational forms and domain. *Journal of Occupational Science*, 18 (4), 322–338. doi:10.1080/14427591.2011.584518

Rose, G. (2016). *Visual methodologies: An introduction to researching with visualmaterials*. London: Sage.

Rudofsky, B. (1987). *Architecture without architects: a short introduction to non-pedigreed architecture*. Albuquerque, NM: University of New Mexico Press.

Scholze, J. (2016). Ghosts and dancers: immaterials and the museum. In Liz Farrelly and Joanna Weddell (Eds.) *Design Objects and the Museum* (pp. 61-72). London: Bloomsbury.

Schön, D. A. (2017). *The reflective practitioner: How professionals think in action*. Chicago. IL: Routledge

Schwartz, H. (1996). *The Culture of the Copy: Striking Likenesses. Unreasonable Facsimiles*. Cambridge, MA: MIT Press.

Seikei, S. (circa 1887). *model of the motion of a particle during an earthquake*. [wire model]. Cambridge: The Whipple Museum.

Senior, T (2012) *Minecraft UN Block by Block to help young people redesign their neighbourhoods* PC Gamer, Future Plc, Archived from the original on 7th September 2012, Retrieved 5 September 2012

Sennett, R (2008). *The Craftsman*. London : Penguin.

Shaw, J. (2016). *Emergent ethics in participatory video: Negotiating the inherent tensions as group processes evolve*. Area, 48(4), 419-426.

Sheehan, J. (2010-2014). *Model for Unit 119* . [Wood, card and filler Separate parts of a stop-frame animation set.]. Courtesy of artist.

Simons, H., & Usher, R. (2012). *Situated ethics in educational research*. Routledge.

Sheffield Model Rail Enthusiasts; Gurney, N., Smith, R., Walker, D., & Wheeliker, B. (2013-2014). *Jackson Bridge*. [mixed media]. Sheffield: Courtesy of Sheffield Model Railway Enthusiasts.

 Springgay, S., & Zaliwska, Z. (2015). *Diagrams and cuts: A materialist approach to research-creation*. Cultural Studies<⟶> Critical Methodologies, 15(2), 136-144.

Stasi central office in Berlin, January 16, 1990, from Der Spiegel [Press image]. Retrieved from

https://www.sothebys.com/en/auctions/ecatalogue/lot.157.html/2018/photographs-n09836

Stebbins, R. A. (1992). *Amateurs, professionals, and serious leisure*. Montreal: McGill-Queen's Press.

Stewart, S. (1993). *On longing : narratives of the miniature, the gigantic, the souvenir, the collection* . Durham, NC: Duke University Press..

Stoner, J. (2012). *Toward a minor architecture*. Cambridge, MA MIT Press.

Stoppani, T (2014) *The Model*. Ian Kiaer: Tooth House talks series [CD]Henry Moore Institute, Leeds.

Streffen, I. (2012-2014). *Fylingdales in Winter*. [wood, plastic, ceramic, glass, paper, eggs, milk, domestic lamp]. Courtesy of artist.

'The Arch Never Sleeps' (2010) http://www.open.edu/openlearn/science-maths-technology/mathematics-and-statistics/the-arch-never-sleeps?track=4

Thompson, N (2015) *Mechanomics*. Video. retrieved from

http://nthomson.co/Mechanomics/

Thorn, H., Wasshede, C., & Nilson, T. (2011). Introduction: From 'social experiment' to 'urban alternative' — 40 years of research on the Freetown. In H. Thorn, C.

Thrift, N. (2008). *Non-representational theory: Space, Politics, Affect.* London: Routledge.

'Toys Made of Eggshells' (1910) in *Everywoman's Encyclopaedia Vol VII, London*. Retrieved from

https://archive.org/details/everywomansencyc07londuoft/page/5058

Trombley, J. (2016) "Models" Theorizing the Contemporary, *Fieldsights*. Retrieved from https://culanth.org/fieldsights/models

Trumbull, D. (Director). Gruskoff, M., Hornstein, M., Trumbull, D,. (Producers), (1972) *Silent Running* [Motion Picture] United States, Universal Pictures.

Douglas Trumbull's *Agridome* from *Silent Running* (1972) *Into the Unknown* [exhibition] Barbican Centre (June 2017). Retrieved from https://www.flickr.com/photos/thewavingcat/34991981810/

Urry, J. (1992). The tourist gaze "revisited". *American Behavioral Scientist*, *36*(2), 172-186.

Unknown photographer (c. 1915) *From image verso: "2 cycles on drill press showing 'HABIT'positioning after transporting. Note the 'hesitation' before 'grasping.'* stereoscopic photograph, Frank B. Gilbreth Motion Study Photographs (1913–1917)

Vale, B. & Vale, R. (2013) *Architecture on the Carpet: The Curious Tale of Construction Toys and the Genesis of Modern Buildings*. London: Thames and Hudson

Valery, P. (1998). *Seashells*. (R. Manheim, Trans.) . UK: Beacon. (Originally published 1964).

Valli, M., & Dessanay, M. (2011). *Microworlds*. London: Laurence King Publishing.

Van der Tuin, I., & Dolphijn, R. (2010). The transversality of new materialism. *Women: a cultural review*, 21(2), 153-171.

Wasshede, & T. Nilson (Eds.) *Space for Urban Alternatives? Christiania 1971-2011.* Örlinge, Sweden: Gidlungs Förlag.

Weizman, E. (2014). Introduction: Forensis. In Caroline Sturdy Colls (Ed.) *Forensis: The architecture of public truth* (pp. 9-32). Berlin: Sternberg Press.

Whiten, A., McGuigan, N., Marshall-Pescini, S., & Hopper, L. M. (2009). Emulation, imitation, over-imitation and the scope of culture for child and chimpanzee. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1528), 2417-2428.

Weizman, E. (2018) interviewed by Phoebe Braithwaite, *The Wire*, March 2018. Retrieved from www.wired.co.uk/article/grenfell-media-archive-forensic architecture-sky-news [accessed Jan 2019]

Woolf, V. (1991). To the lighthouse . London: David Campbell.

Woodward, S. (2016). Object interviews, material imaginings and 'unsettling'methods: interdisciplinary approaches to understanding materials and material culture. *Qualitative Research*, 16(4), 359-374.

'Worry' Oxford English Dictionary, n.d retrieved from https://www.lexico.com/en/definition/worry

Yarwood, R. & Shaw, J. (2010). N- gauging' geographies: craft consumption, indoor leisure and model railways. *Area*, 42 (4), 425-433.

Yates, Raymond Francis (1920). *Boy's Book of Model Boats.* New York, NY: The Century Co. <https://ia802307.us.archive.org/9/items/boysbookofmodelb00yate2/boysbookofmodelb00yate2.pdf> [accessed 20 July 2016].

Zanzo, K. Genealogy of the Posthuman. (2018). *New Materialism(s)*. Retrieved from https://criticalposthumanism.net/new-materialisms/

Appendix A. List of artworks / outputs

Artworks

	Title	Format	Dates
1	Untitled (Conversation)	Digital Video	February 2015
2	Pictorial House Modelling (After Miss Joyce Inall)	Digital Video	March 2015
3	A Working Model	Installation; Digital Video, Print, Egg Submarines.	March -July 2015
4	After Jack Needham	Digital Print	March – August 2015
5	A Fabrication	Collaboration with Rees Archibald Installation: Digital Video and Audio, plywood, Perspex.	July-August 2016
6	The Volume	Digital Video	July - October 2016
7	Heritage	Digital Video	July – October 2016
8	Is That Good Enough?	Digital Video	October 2016-
	A lot of that stuff had already gone	Digital Video	October 2017

Exhibitions

1	What's to Hand SIA Gallery, Sheffield.	August 2015
2	Testing, Testing, SIA Gallery, Sheffield.	August 2016
3	Sheffield Model Rail Enthusiasts Annual Exhibition Birkdale School, Sheffield	March 2017
4	Dystopia and Resistance Festival of the Mind, Millennium Galleries, Sheffield	September 2017

Publications

	Title	Context	Exhibition history	Date
1	Field Readable	Produced as part of *The Editions*, by Guerilla Writers, edited by Sharon Kivland	Pages International Artists Book Fair. The Tetley, Leeds

The Hepworth Print Fair The Hepworth, Wakefield | August 2015 |
| 2 | Do You Read Me? | Produced as part of *The Editions II*, for MA Bibliothèque, edited and published by Sharon Kivland. THE GOOD READER is a new series of booklets published by MA BIBLIOTHÈQUE. | Acquired by Tate Britain for its book collection, March 2016

Manchester Artists Book Fair, Holden Gallery, October 2015

London Art Book Fair, Whitechapel Gallery, September 2015 | 2015 |
| 3 | Testing, Testing Vol I & II | *Testing, Testing* was initiated and produced by practice-based Fine Art Ph.D. researchers at Sheffield Hallam University. | SIA Gallery, Sheffield | 2016 |

Papers / presentations

	Title	Context	Date
1	Paper *Modelled On : A Working model.*	C3RI postgraduate research conference, Sheffield Hallam University	28th April 2015
2	Presentation: *After a Fabrication.*	Symposium, Testing, Testing, SIA Gallery, Sheffield.	September 2016
3	Paper: Testing 'Model-ness' through art practice; exploring the critical potential of enthusiast models.

Panel; The Aesthetics of Modelling: patterns, politics and pleasure in visual representations | RAI 2018. Art, Materiality and Representation. Royal Anthropological Institute, London. | 2nd June 2018 |
| 4 | Presentation: What's the Matter with Models | MA Design. Module :Theory Supporting Practice.

Session: Working with Material(ity)

Sheffield Hallam University | October 2018 |

Appendix B : What's to Hand : self published booklet to accompany exhibition.

What's
to
Hand

Paul Collinson

Sculpture Park (2010)
Card board, mount board, model makers' materials, toy car (Subaru Imprezza 1/35th scale)
oil paint

Collinson makes paintings which meticulous translations of photographs taken from dioramas created specifically for this purpose.

'I wanted to make an 'enclosed' model that needed to be viewed from within the model by the camera lens. The point of view would create an image for the painting I had in mind called 'Temple of Liberty'.

The model was also intended to be used for the painting entitled 'Sculpture Park'. Following a visit to the Yorkshire Sculpture Park, I was considering how the curation could be more democratic, using the abandoned car as substrate.'

Paul Collinson is a painter based in Hull, UK. He has recently been exhibited in the John Moores Prize, Dean Clough Gallery Halifax and the Jerwood Space.
http://www.englandsfavouritelandscape.co.uk/

Bryan Eccleshall

1 Slater Street was made during a residency in Barrow-in-Furness at Art Gene. It is a model of a building close to Art Gene that has undergone lots of changes. The small sign indicates that at least part of the building was once a Video Rental Shop. The material used to make the model was bought at a local charity shop.

Residencies imply a kind of site specificity and I took a lot pf pictures of the area (well, some) and resolved to spend the materials budget in the town. The paintings were bought with no thought as to what I could do with them. I had the material and then noticed the building on my way to lunch. The model was a way of grappling with a practical problem as a way of solving another one (what to make during the residency that was relevant).

1 Slater St. (2006) Painted Watercolour paper

Bryan Eccleshall is an artist currently researching a practice-led Fine Art PhD at Sheffield Hallam University.

https://bryaneccleshall.wordpress.com/

Professor Francis Evans

Francis Evans was a Professor in the School of Engineering at Sheffield Hallam University. Interested in 'thing use' in human inventiveness and creativity, and his teaching methods were renowned for their emphasis on learning through tactile experience.

Evans developed a series of models for teaching which demonstrate the hidden forces at play in arches. Based on H.C.Fleeming Jenkin' s work in Encyclopaedia Britannica, 9th edition, 4,1876: article 'Bridges',

These sets became a resource for many museum and teaching collections. This particular set are on loan from the Artemis Collection in Leeds.

Qualifying the value of the model in his paper 'Two Legs, Thing Using and Talking: The Origins of the Creative Engineering Mind' Evans writes 'We have to remember that whether we describe a thing in words or numbers, our description is not the same as the thing itself. Whatever my analytical or intuitive ideas are about an arch, they are not the same as that arch and miss some truth about the 'real thing'. This was brought home to me when I built a model beam out of dozens of small rectangles of plywood, held together by rubber cords running through it. It formed a beam when its ends rested on two bricks, and it bent when a weight was put on the middle. I only intended the model to show that bending, and I could have written a computer programme to show it happening on the screen. But then I put the weight nearly at the end of the beam, and instead of bending, the blocks slipped past each other. This is another kind of failure known as shear. If I had not put shear into the computer programme, it would not have shown me that effect. In other words, my conceptual model .'would not have been as good as the physical model.the computer programme, it would not have shown me that effect. In other words, my conceptual model would not have been as good as the physical model.'[1]

1   Evans, F. (1998). Two legs, thing using and talking: The origins of the creative engineering mind. AI & SOCIETY, 12(3), 185-213. 1998
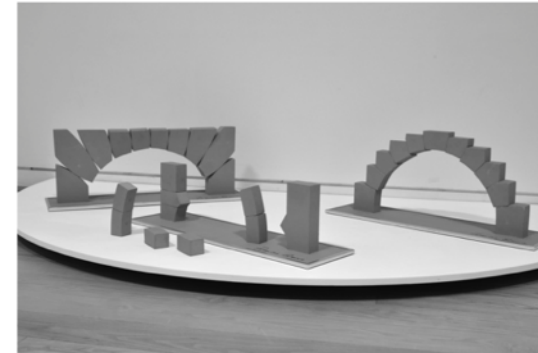
An online Open University resource 'The Arch Never Sleeps', shows Evans demonstrating to students using a similar set of models.

'When I made this I was playing with it and one day I lifted one end and I could actually feel it pushing. And this time I viewed it in a completely different sort of way, not as words that I'd been told, but this time I'd learned it with my hands and I think that way it gets into your understanding in a very, very different way. '[2]

2   THEOPENUNIVERSITY (2010).The Arch Never Sleeps: Track 4 http://www.open.edu/openlearn/science-maths-technology/mathematics-and-statistics/ the-arch-never-sleeps?track=4

Cath Keay

This is a visualisation of an unbuilt architectural design by the expressionist architect Hermann Finsterlin. The mixed media sketch model was scanned and then test printed in various plastics and resolutions. I made the model with whatever was at hand, knowing that it would be scanned and transformed into a uniform and stable material by the printer. I really wanted to capture the errors, the scaffolding, flashing and stratification inherent in the process, but it is hard to see these things at such a small scale. This is a test piece or sample rather than a presentation model.

Model based on Finsterlin's playforms (2014)
cork, lead tape, plasticine, wire and 3D print
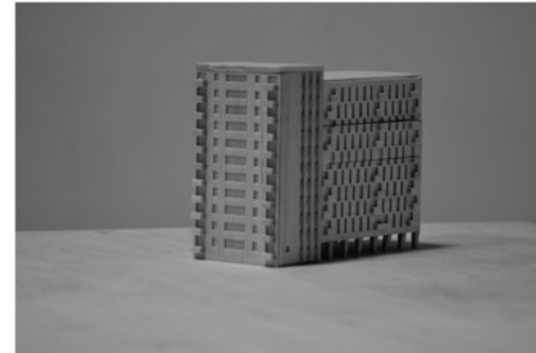
Model for Kennedy Gardens beehive (2012) Balsa wood
Competition model submitted for Rednile's Factory Nights commission.

A competition model (1:10) of one of a series of 4 beehives based on iconic Modernist and Brutalist buildings around Teesside (my project titled 'Middlesbrough Modern Beehives). It enabled me to demonstrate how I would translate recognisable buildings into functioning beehives.

Cath is a sculptor with an interest in architecture, and has taught on both BA and BArch courses across Britain. Recent residencies in Berlin and Rome examined the legacies of each city's built environment. Nearer to home she responded to the Brutalist heritage of Teesside with her Middlesbrough Modern Beehives exhibition at MIMA in 2013.

Her practice-based PhD in Fine Art from Newcastle University– entitled, Unforeseen Outcomes: The Role of Aleatory and Rhizomic Processes in Sculptural Form and Text Equivalents– examined ways to challenge sculpture's monumentality through the chance actions of insects, growth or the elements. She is about to begin a Leverhulme Fellowship at Edinburgh University researching the architects of the expressionist Glass Chain and what can learned from their utopian correspondence.

Heath Reed

A long standing interest in boats, boating culture, form and internal space led to an exploration of my perfect 'escape boat'. Very much a work in progress (due for completion in 2032!) and acting as an enjoyable release from making (for others) at work the 3D study considered hull forms from the elegance of the Clipper to 'pregnant' hull forms of the larger Brigg, how these hull forms may integrate for both beauty and practicability and scale, how the spaces they enclose could be used to live and work in some fantasy future.
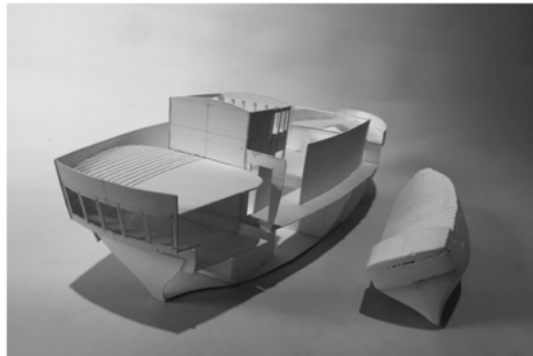
Exploring an escape boat... 'Precious Cargo' (1967 to 2035')
*from birth to retirement
Plastics (kits), plaster, sculpting tools, card.

The model worked on a number of levels. Firstly, as 'therapy', to explore an interest that overtook everyday work. Secondly, the models helped explore creative ways to understand the complex hull forms and attempt to integrate towards better understanding of the 'rules' behind and underneath hull forms. Thirdly, the model helped understand the internal spaces, both practical and aspirational.
In these ways each model has a specific purpose.

https://www.shu.ac.uk/research/c3ri/people/heath-reed

Heath Reed and Andrew Stanton

As screen based and computer driven entertainment and information technology advances and becomes ever more present in our lives, the opportunity to augment visual experiences with tactile information grows. This study looked at how we might develop systems that simulate a range of tactile and haptic sensations, the roughness or smoothness of a virtual surface, or whether a virtual object is 'hard' or 'soft'. In this way we may feel as well as see virtual or remote experiences. Many devices exist that plug into computer generated graphical interfaces, force feedback joysticks are one example, but how can we induce sensations directly into the hand and fingers and in a way that enables the hand to be 'free', to move, feel shape and explore without being bound to a device. The electro mechanical models each started as a discrete sensation simulator experiment and gradually / through iteration were combined into a multi tactile sensation inducing explorative tool.

The model was used to explore the possibilities, what could we simulate? How could we simulate? How can we ergonomically integrate? Its only once we have integrated many aspects, reliably, that the final model becomes a usable tool to explore the field itself.
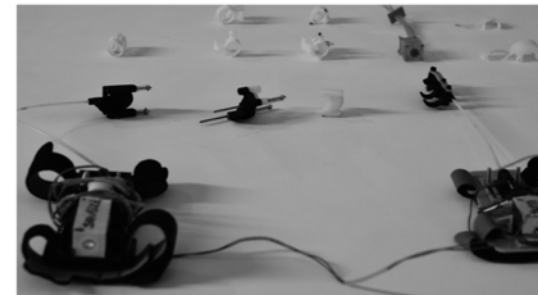
Investigating tactile simulation (2014-15)
electrical actuators, computer aided design and 3D printed plastics.

Heath Reed and Andrew Stanton is a knowledge work within Design Futures at Sheffield Hallam, develop new and innovative products for the commercial market as well as supporting a range of research and development projects.

http://www.shu.ac.uk/research/c3ri/people/andy-stanton

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Jo Ray

Pictorial House Modelling, after E. W. Hobbs (2015) Digital Video

These works in progress are a reflection on the model, drawing on languages of instruction and demonstration to explore emulation and improvisation.

In the 1930s the engineer Edward Walter Hobbs published a miscellany of instructional books. The connecting principle appears to be the aim to develop skill in changing one's environment, via the practice of this through domestic and even miniature scale. In 'Pictorial House Modelling' Hobbs employs carefully choreographed illustrations which demonstrate the stages of a process through the depiction of the maker's hands, posed mid-action. A model for the making of models, his approach attempts to make an account of the tactile in the technical. In 1918 an engineer also named E. W. Hobbs patented a prosthetic hand.

'After Jack Needham' is sampled from an instructional book the renowned Sheffield born ship in bottle builder, whose works were reportedly shown at the 'Sheffield, City on the Move' exhibition in London, 1971.

In 'A Working Model' I invited individuals to follow original instructions for a toy submarine sourced from ' Everywoman's Encyclopaedia' (1910), My participants were all individuals I have tried to learn something from.

Jo Ray is an artist and Phd researcher at Sheffield Hallam University. www.joray.co.uk

Joe Sheehan

Model for Unit 119 (2010 - 2014)
Wood, card and filler
Separate parts of a stop-frame animation set.

Based on Edmund Husserl's method of phenomenological reduction, the construction of the model was employed as a means to perform eidetic variation on my visual perceptions of the real Unit 119. In practice this meant measuring the interior spaces and objects of the studio and gradually removing details and simplifying these structures as I built the equivalent miniature space. The resulting set was then animated using stop-frame capture and the subsequent sequences act as temporal, visual phenomenological description of my original experiences.

Joe Sheehan is an animator and researcher at The Arts University College Bournemouth. He has exhibited in the UK, the Czech republic and Holland. His Phd focussed on the construction of the space in which he worked as a scale set for the animation 'Unit 119' (2012), his works explore the cultural construction of place and event.
http://joesheehan.co.uk/

Sheffield Model Rail Enthusiasts

Though named after a real West Yorkshire town, Jackson Bridge is an amalgamation, based on a range of locations. An attempt to distil something of a particular time and place.

Described as a 'what if?' layout, Jackson Bridge speculates on what would have been if the kind of branch-lines that existed in valleys just to the north of here also extended into this valley.

'All buildings were scaled up from some 80 photographs taken on site. The buildings are placed not in actual relation to each other, but in space available to portray a Pennine landscape. This might upset some, but since there was never a railway in any case, we felt entirely justified in doing so.'

Materials used in the model include a few bought elements, but also include; 'Weathering [...] by pastel crayons rubbed on with the finger and then sprayed with hair lacquer [...] card from packets of cereal [...]the rock faces are carved from plaster, carved and painted appropriately[...] The weir is made from corrugated plasticard, and the flat stones from card torn into pieces. The irregular stones are different grades of ballast, and grit taken from bins for use on the road in winter.'

'Ground cover is a mixture of teddy bear fur, hanging basket liner and old-style carpet underlay. Trees are heather twigs, with foliage, ballast and other scatter material mainly from Woodland Scenics. The brambles are from horsehair. The back-scene consists of photographs taken in the hills above Jackson Bridge.'

Sheffield Model Rail Enthusiasts meet twice weekly and work on layouts and projects at various scales, each individual has their nuanced motivations and approach.

Many of the club members use scratch building methods for making stock as well as buildings and landscaped elements. Some take more interest in the landscaping and building construction, others emphasise the making and running of stock. Skills and resources are pooled.

This layout is a collaborative work by members Nick Gurney, Richard Smith, David Walker and Brian Wheeliker (with thanks to fellow members Albert, Matt, Alex, Graham and Bill for their additional input).

http://www.sheffieldmodelrailwayenthusiasts.com/

Isabella Streffen

Fylingdales in Winter, (2012)
wood, plastic, ceramic, glass, paper, eggs, milk, domestic lamp

It sounds prosaic, but it needs to be said, sometimes work has to sit and wait for thinking to catch up with it. And The Model, built between 2009-11 was abandoned as simply an occasion for viewing, an invitation to look. I left it on a table whilst I thought of other things. At some point much later, I brushed some of the dust off it. Later still, I added some lead shot from the Somme battlefield. Gave it a reflective lid. Added some trees. Wait a minute! I added some trees? What was that about? Why was I still returning to modify it? It seemed that   relegated to the discard pile   the repudiated Model finally developed an identity and a purpose, surrendering its sculptural concerns, and revealing itself as an engine for thinking.

Isabella Streffen is an artist and curator who lives and works in Bath. She is interested in looking at things that she shouldn't, and in teasing the invisible into visibility.

The Artemis Collection

The Artemis Collection contains around 10, 000 artefacts and 3,000 original works of art which are available free to loan to schools for use in teaching, with the aim of promoting creativity, understanding, analysis through encounters with objects. It is maintained by Leeds City Council's education department. The accessibility of this resource offers an unusual and valuable model.

I was allowed access to the collection, licence to wander and follow hunches in the selection of exhibits. The potential of this kind of intuitive response to objects that can be handled and pondered is part of the method at play in the project as a whole; an attempt to diagnose or hone a direction of inquiry through the shuffle of things.

Archimedes Apples (c. 1922)
Wood, Metal, Cardboard. On loan from the Artemis Collection.
This model was developed in the 20s by Hugo Jung as a means of teaching fractions.

http://artformsleeds.co.uk/artemis/