Clayful Phenomenology and Material Engagement: explorations in contemporary cognitive archaeology

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Abstract

The thesis explores the phenomenology of creative cognition from the viewpoint of a contemporary ceramic workshop. Over five chapters, six clay sculptural projects track the development of a method I call 'clayful phenomenology'. Informed by Material Engagement Theory (MET), the method takes sculptural development (normally understood to be the realization of an artist's vision) and reformulates it so that a body of clay becomes a transient, diffuse, knowledge-producing assembly. The reformulation replaces subjective experience with a systemic, phenomenological proposal for extended sentience.

Clayful Phenomenology turns material culture from an object of study into a method for investigating its own creative becoming. Videos, photos and written notes record the materialization and evolution of ideation as it is enacted in the gestural relationship between clay and hand, what Malafouris calls "creative thinging". This account of sculpting by sculpting gives unique access to the three principles of MET and focuses on how:

1. thoughts, feelings and sensations establish themselves through gestural activity in the workshop rather than neural activity in the brain, thus extending the mind;
2. intention develops through the making and breaking of habitual practices imbuing material with agency;
3. signification, enacted and ideated through material change, enables each project to learn itself into existence.

Clayful phenomenology gives reason to question the meaning of 'cognitive' in 'cognitive archaeology' by suggesting the discipline might move away from retrofitting cognitive science models to past human thinking and towards using the archaeological study of material culture to challenge neuro-centric conceptions of the mind. The first three chapters develop the method by elaborating five contemporary examples of creative thinging. The final two chapters introduce a form of experimental cognitive archaeology during which clayful phenomenology explores the enactive signification of a prehistoric artefact: a *Jōmon* flame pot. This diffractive analogical approach does not attempt to uncover past meanings but to make sense of the archaeological record by creating new experiences of its traces in the present. The thesis concludes with a review of extended sentience in relation to the ownership of feelings and letting go of affective intentions.

Acknowledgements

I thank my supervisor, Professor Lambros Malafouris, for developing a theory of Material Engagement in the first place. Without MET, clayful phenomenology would not have got very far. I thank him also for being prepared to risk this uncertain endeavour and for showing an impressive capacity for negative capability - a good and rare quality, which you can read about in the introduction. This thesis has profoundly changed my life and I thank him for that most of all.

I thank my very dear friend, Professor Frédéric Vallée-Tourangeau, who as you will learn in the preface, is responsible for getting clayful phenomenology off the ground in the first place. He has been a source of sound advice and gentle encouragement throughout. His boundless curiosity and unfailing enthusiasm would have kept me going for ever if it wasn't for…

…my wife, Elizabeth March, who I thank for being my wife, for her love, her open-heartedness and her selfless support. I am grateful for her patience which only began to wear thin a few months ago – a sign that it was time to bring things to a close.

In addition, I thank Professor Chris Gosden for being benignly facilitating in the background and actively helpful in the foreground, for commenting on chapters and drafts and for transferring and confirming my status. I thank Professor John Robb for his editorial comments on the paper that appears as CHAPTER FOUR. The changes he recommended and encouraged improved my archaeological scholarship significantly and reoriented the conceptual basis of CHAPTERS FOUR and FIVE. I thank Professor Simon Kaner for providing me with the guidance I needed to improve the quality of *Jōmon* scholarship in CHAPTERS FOUR and FIVE. I thank Doctor John Harris and Doctor Emanuele Prezioso for their feedback on the conclusion. Finally, I am grateful to Mr Richard Lennane for proofreading the introduction and conclusion, putting commas where they belong and removing them from where they do not.

Dedication

I dedicate the thesis to my parents-in-law, Doctor Margaret Harris and Professor Bryan Harris, who despite meeting some stubborn opposition, introduced me to the joys of a good education and showed me a way of living that is tolerant and honourable.

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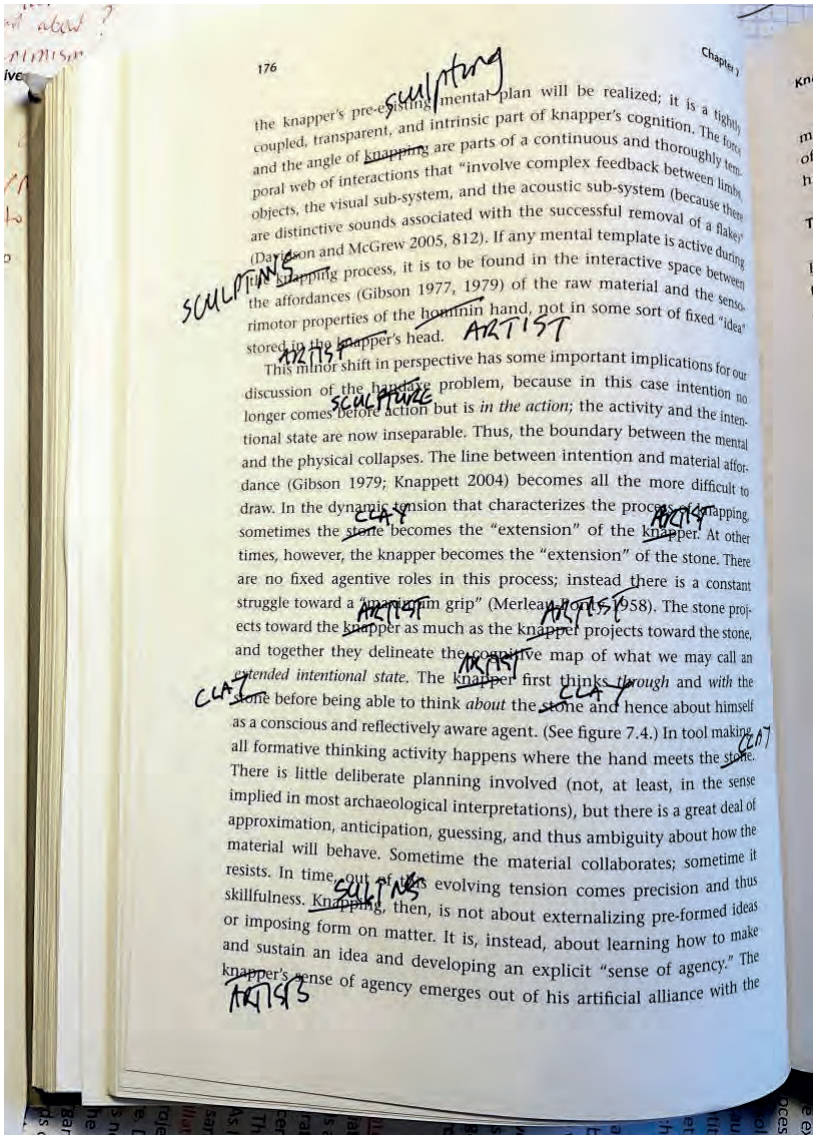
CHAPTER 5: The Clayful Phenomenology of *Jōmon* Flame Pots. Part 2

Preface

I have been an artist for over twenty years. Before that I was a clinical psychologist. This thesis stems from the conceptual alignments and confrontations that took place between these two domains as I went about making things in the workshop. Within psychology, science is the only credible pathway to knowledge, but when I became an artist I found that what passes for knowledge in science is not at all what happens in art. In 2009, I began working with clay, and its peculiar revelatory power is responsible for developing the ideas reported here. Sculpting clay created the impression that artistic activity might offer a crucially different route to extending our understanding of the ways in which humans and the world interact. As a body of clay develops into an artwork, the transformation is, in and of itself, a learning experience. When the finished work is exhibited in a gallery, the knowledge gained by a sculpture-in-formation can be sensed by others. This is fine as far as it goes but the knowledge is trapped within a cultural milieu which is limited to emotional expression and perhaps a bit of social commentary.

The idea that the knowledge-making potential of art could be made explicit began when a close friend and cognitive psychologist, Frédéric Vallée-Tourangeau, recommended a book by the archaeologist Lambros Malafouris: *How things shape the mind: a theory of material engagement.* (2013). Reading it, I found that I could cross out all the words that referred to archaeology, replace them with words that related to art, and the text continued to make sense – even more sense – for an artist (image 1). This word substitution game revealed how the three principles of Material Engagement Theory (MET) – the extended mind, material agency and the enactive sign – offered a conceptual framework that I could use, not to

translate the meaning of artworks into words, but to describe the development and process of materially expressed ideation. Of the three principles, enactive signification found a special place in my affections because it finally gave me a way of describing exactly what art does. With the enactive sign, Malafouris proposes that an ~~artefact~~ /artwork express meaning directly, in real-time, by and through its materialisation rather than indirectly by representing, in symbolic form, a pre-existing meaning to be found elsewhere, such as in the mind of the artist. It was a joy to learn that such a concept exists, not only because it helps to legitimise materially mediated discovery, but because it gives a framework for transposing the sensorial but mute process of creative making into the academic discourse that follows.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Chapter 7

the knapper's pre-existing mental plan will be realized; it is a tightly coupled, transparent, and intrinsic part of knapper's cognition. The force and the angle of knapping are parts of a continuous and thoroughly temporal web of interactions that "involve complex feedback between limbs, objects, the visual sub-system, and the acoustic sub-system (because there are distinctive sounds associated with the successful removal of a flake)" (Davidson and McGrew 2005, 812). If any mental template is active during the knapping process, it is to be found in the interactive space between the affordances (Gibson 1977, 1979) of the raw material and the sensorimotor properties of the hominin hand, not in some sort of fixed "idea" stored in the knapper's head.

This minor shift in perspective has some important implications for our discussion of the handaxe problem, because in this case intention no longer comes before action but is *in the action*; the activity and the intentional state are now inseparable. Thus, the boundary between the mental and the physical collapses. The line between intention and material affordance (Gibson 1979; Knappett 2004) becomes all the more difficult to draw. In the dynamic tension that characterizes the process of knapping, sometimes the stone becomes the "extension" of the knapper. At other times, however, the knapper becomes the "extension" of the stone. There are no fixed agentive roles in this process; instead there is a constant struggle toward a "meaningful grip" (Merleau-Ponty 1958). The stone projects toward the knapper as much as the knapper projects toward the stone, and together they delineate the cognitive map of what we may call an *extended intentional state*. The knapper first thinks *through* and *with* the stone before being able to think *about* the stone and hence about himself as a conscious and reflectively aware agent. (See figure 7.4.) In tool making all formative thinking activity happens where the hand meets the stone. There is little deliberate planning involved (not, at least, in the sense implied in most archaeological interpretations), but there is a great deal of approximation, anticipation, guessing, and thus ambiguity about how the material will behave. Sometime the material collaborates; sometime it resists. In time, out of this evolving tension comes precision and thus skillfulness. Knapping, then, is not about externalizing pre-formed ideas or imposing form on matter. It is, instead, about learning how to make and sustain an idea and developing an explicit "sense of agency." The knapper's sense of agency emerges out of his artificial alliance with the

Image 1. How art shapes the mind.

Introduction

An overview of Clayful Phenomenology.

The thesis follows a process of artmaking over five years, from 2016-2021, but also references work before 2016. I use the Theory of Material Engagement to organise, extend and articulate research as the thesis tracks the development of a method of knowledge that, over its course, I come to call clayful phenomenology. Phenomenology normally concerns the study of consciousness and the nature of experience from a personal or subjective perspective. In contrast, the epistemological basis of this thesis and the ideas it presents were realised not by a person but through the playful engagement of, by, and through the plastic qualities of clay, hence the neologism clayful. (Image 1) Emphasising what goes on between human and clay transforms the unit of phenomenological enquiry from subjective to relational and from personal to systemic.

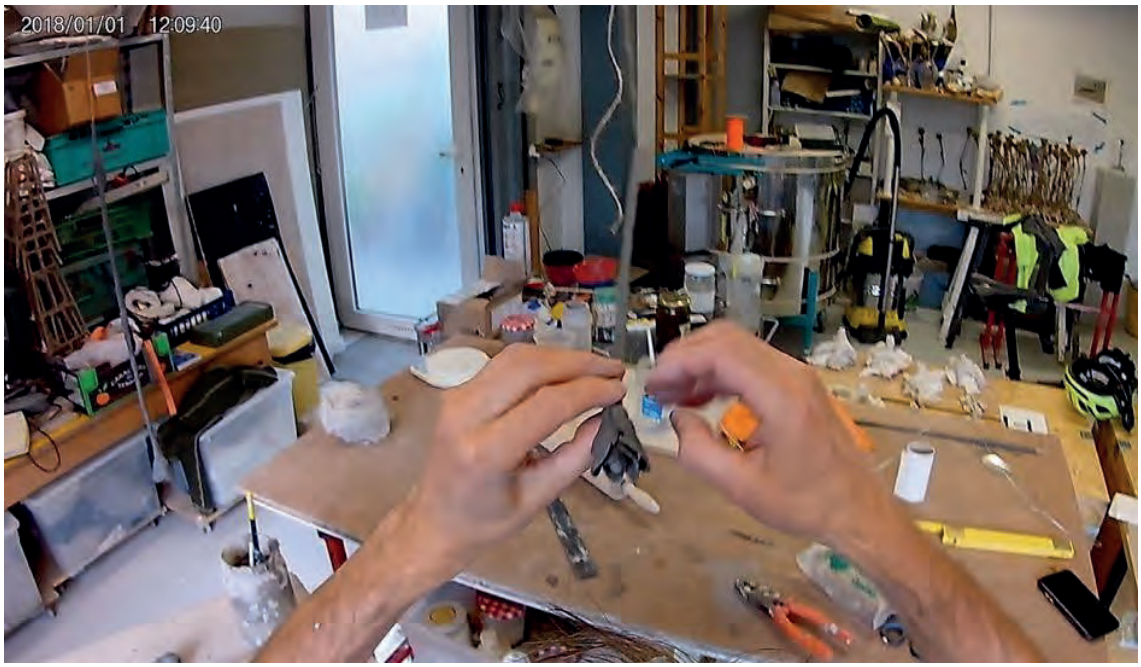

Image 1. Clay, hands and their surroundings realize themselves into a transient system of creativity.

By systemic I am referring to a non-reductionist perspective with its origins in the cybernetic approach of Bateson (1972) and general systems theory (Von Bertalanffy,1950). These initial formulations, so-called first-order systems theory, became associated with processual archaeology and when that fell into disrepute under pressure from post-processual concerns about its mechanistic and dehumanising repercussions, systems theory was discredited too. The brand of systems theory which informs this thesis is different from the processual version, falling broadly under the second-order cybernetic movement which developed after archaeology had turned its back on the systems approach. I return more generally to second order cybernetics in the section on cognitive archaeology but the systemic influences on the thesis come principally from a range of family therapy approaches I encountered when working as a systemic therapist in the 1990s. The largely overlooked work of Follett is also important. Her book, *Creative Experience* (1924) provides a processual account of creative activity, a good thirty years before cybernetics appeared. While Follett's approach is explicitly systemic, she maintains an emotional sensitivity to the human condition, something the early cybernetic movement could have emulated.

Image 2. Photo of workshop taken on 10.4.21 accompanied by the following notes. “Pots of oxides…mixes everywhere, shellac, 2 diff clays, molds, wood stumps. Casts of wood stumps, casts pf chrysalises in different clays. A shifting crowd of actors - that I work on more or less in parallel. How did they come together? And what does it mean to say they came together?... The mess in the workshop. Why don’t I clear it up? - can’t bring myself to. Wondering whether I need all this to hand (Heidegger) It feels like breaking the process – dissolving the system. I just can’t bring myself to clear up – despite the constant moving around of things – which also reminds me of them.”

Aside from being systemic, two other characteristics of clayful phenomenology distinguish it from other modes of enquiry. First, it relies on sculpting making knowledge directly and second, the quality of the knowledge thus produced is not univocal but simultaneously indeterminate and overdetermined, what Law (2004) refers to as non-coherent (with coherent to one side, incoherent to the other). I begin the introduction with a brief presentation of these three interrelated qualities. Next, I give a general justification for why clayful phenomenology is relevant to the field of cognitive archaeology. I introduce Material Engagement Theory before returning to clayful phenomenology to look in more depth at my

proposal that research may be systemic and sculptural and that the provisional and indistinct ideas such enquiry produces may be useful in the context of cognitive archaeology. In the final section, I summarise the contents of the five chapters that make up the body of the thesis.

Subject to system

Scientific research aims to be objective. Phenomenological narratives are subjective. The account I develop here is neither. It is the voice not of a person but of a creative system. My claim is that sometimes, when the mind realises something, the realisation takes place not as an abstract conceptual change in the brain of an individual, but literally, as material expression in the world. By spreading out thoughts, feelings and sensations in this way I do not want to dilute the concept of mind but to extend it to include non-human entities and reorient it so that it refers to an ongoing temporal process, one that recurrently knits, frays and unravels relationships between activities and entities. Follet (1924) talks about how the mind becomes organised around activity rather than things:

> Consciousness is the living interplay of a self-generating activity. Or, consciousness is the living interplay of myriads of self-generating activities which all generate themselves as a moment of the interplay. The most fundamental idea of philosophy is, I think, the recognition that there is no *Denkform* in which as mould all thought is cast, but rather a constant mode of self-generating as thought, a perpetual law of unifying to which the free activity submits itself, law and freedom each the entelechy of the other (1924, page 75).

So instead of assuming that we have ideas about things, I am wondering whether ideas and things might bring each other about. From the perspective of cognitive science and common sense, this is an odd way of formulating the mind but, normatively speaking, the contemporary, post-Enlightenment, dualist worldview is quite odd itself, one not shared by the cultures and civilisations studied by archaeologists. As MacGregor (2018) points out, "Most belief systems urge a more complex, reciprocal relationship between us and the living

world" (page 66), and he presents the relationship between seals and the *Yup'ik* people of south-west Alaska and the religious practices of ancient Egypt as examples. Gosden (2020) shows the ubiquity of belief in magic and how magic encourages and depends on an immersive and interdependent relationship with the universe. Magic requires sentience to exist relationally, between entities in the universe, rather than being the exclusive and defining quality of living things. I return to a relational understanding of sentience in the second part of the introduction when I compare art with magic.

Sculpting as curious intent

Extending the mind systemically turns artwork from an object of study into a process of learning. Instead of observing how a sculpture takes shape, by going from substance to process and from things to thinging, sculpting is free to make knowledge directly. Hand-held-clay goes from being an expressive medium to becoming an exploratory tool. Turning attention away from the brain of an individual artist and towards the activity of a transient system of creation (image 3) also makes clay-hand movements into epistemological acts, which is I think what Follet means when she writes about abolishing knowledge in favour of "knowing, of an activity, of a process which involves knower and known but which never looks from the windows of either. The knower knows (an active verb) the known; reality is in the knowing." (1924, page 88). We normally think of somebody learning something about something else. I propose instead that a clay-hand system-of-creativity learns itself into existence by dint of the system's emerging curious intent.

I use the three principles of MET – the extended mind, material agency and enactive signification – to describe the development and process of sculptural ideation. Of the three,

enactive signification is crucial for describing exactly what art does. The concept proposes that a sculpture expresses meaning directly, in real-time, by and through its materialisation, rather than indirectly by representing, in symbolic form, a pre-existing meaning to be found elsewhere, such as in the mind of the artist. All this allows me to avoid translating the meaning of artworks into words (Sontag, 2001).

Image 3. A transient system of creativity. Almost everything you see in this photo is performing an active role in realizing a material idea.

Non-coherent knowing

The thesis began with the idea of exploring the learning potential of an artistic mode of investigation but it is not until CHAPTER FIVE that I begin using Law's term "non-coherent" to describe the developing method. Law (2004) asks us to "rethink our ideas about clarity and rigour and find ways of knowing the indistinct and the slippery without trying to grasp and hold them tight" (page 3). Law's description of knowing through "techniques of deliberate imprecision" (page 3) succinctly describes the artistic method but it also creates a conflict between a non-coherent approach and the requirements of an academic thesis. The school of archaeology exam regulations (2021/22) state that an integrated thesis "must address an overarching research question and represent a coherent and focused body of research." How to square this circle?

In two ways. First, whereas I hold that day-to-day artistic activity is non-coherent, my experience of the activity of the workshop over the last six years suggests that regular and consistent patterns establish themselves over time. If you imagine the workshop as an organisation of nested systems, then the degree of coherence experienced depends on what systemic level we choose to assign and follow intention. At the level of an individual art project, intention is non-coherent. A few levels beyond, we find the artist's workshop co-opted into a DPhil research project and there an extended intentional state (Malafouris 2010) establishes itself that includes the framework of material engagement theory (which is intentional by virtue of being a theory) along with the general intentional constraints of academic expectations. Second, and going back to individual project level, as the work of art non-coherently progressed, I recorded the process using images (image 4), film (e.g. video: making roots) and contemporaneous notes (image 4). By transforming sensory experience

into prose, and by choosing certain image/video footage over others, each of the art-research systems that feature in the thesis arranged itself into a narrative about its own creation.

By now you may be wondering what systemically sculpted narratives have got to do with cognitive archaeology. The answer turns on what we mean by the word 'cognitive' in cognitive archaeology which I address in the next section. I follow that with a section on MET after which I return to clayful phenomenology to look specifically at how it fits with cognitive archaeology.

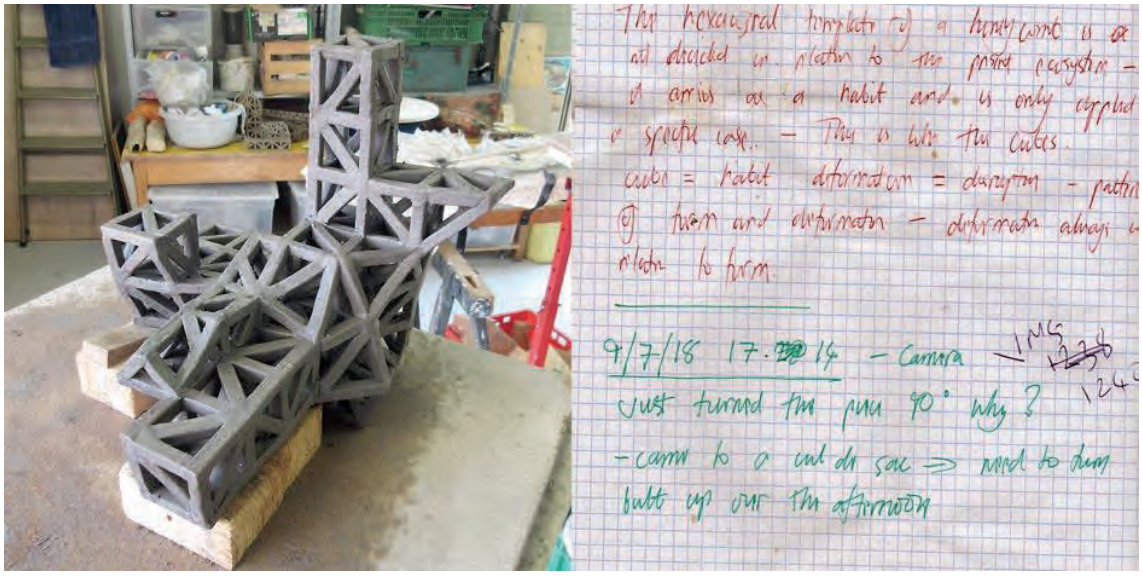

Image 4. Photo taken on 9.7.18. with the following contemporaneous notes. "Just turned the piece 90 degrees. Why? Came to a cul-de sac – need to turn. *The pressure to do so* built up over the afternoon." (*Words in italics added to improve clarity)*

What is the 'cognitive' in cognitive archaeology all about?

I think it is unfortunate that the word 'cognitive' came to describe what might better have been called the archaeology of experience. But it's done now and in their overview of archaeology, Renfrew and Bahn (2020) concisely summarise cognitive archaeology as "the study of past ways of thought through material remains" (page 429). They align cognitive

archaeology with the functional-processual movement which broadly involves using material culture and archaeological context to trace the role of thinking (what thinking did) within specific environmental-societal systems. Of course, the word 'cognition' can be used to refer to what thinking does. It is just that, in cognitive science, it tends not to be used that way and, as I will show, despite Renfrew and Bahn's attempts to realign it, archaeological understanding of the word is skewed by what it means in cognitive science.

Compared with other disciplines – I am thinking specifically here of my original training in psychology – archaeologists have an open, multidisciplinary outlook, seeking and integrating knowledge from a wide range of domains (from material science to the new materialism, from structuralism to molecular genetics) and engaging explicitly with the epistemological and ontological implications that heterogeneity throws up. So, of course, when it came to modelling the mind, archaeologists turned to cognitive science for help. The problem (at least for me) is that the models they found there are created by and for the type of cognition necessary for solving laboratory tasks. How student participants solve mental puzzles does not necessarily help explain the thoughts associated with making the material remains of the past. In the introduction "What would Wundt think?" to their handbook of cognitive archaeology, Henley, Rossano and Kardas (2020) acknowledge the debt owed by cognitive archaeology to psychology, specifying that "Most contemporary psychological work traces its roots to Wilhelm Wundt's laboratory-based models." To understand why I think Wundt's legacy complicates things for archaeologists, I must give a summary of the history of psychology, one that differs from that of Henley, Rossano and Kardas (for more detailed accounts see Wertheimer, 2011, chapters 6, 8 & 10. Chemero, 2009, chapters 1 & 2, March & Glavneau, 2020).

My reading of history has psychology emerging as a scientific discipline in the 1870s from not one but two laboratories: William Wundt's in Germany and William James's in the USA. From the start, Wundt and James held different opinions on the nature of the mind and how best to understand it. Crucially, this led to distinctly different laboratory methodologies which have influenced research in psychology ever since.

For James, the starting point for understanding the human mind was to examine its role in improving wellbeing in relation to environmental conditions: what thinking does. Functionalism, as it came to be called, was influenced by Darwin's theory of evolution, as well as being inextricably linked to the philosophical school of pragmatism of which James was a founding member.

In contrast, Wundt's research programme aimed to understand the workings of the mind by dividing it into sub-categories of simple decision-making roles and building these into larger units that could perform the basic requirements of the psyche: cognition, perception and memory. This modular approach to mapping the mind came to be called structuralism[1] and has its roots in Cartesian philosophy. Structuralism is predicated on the proposition that the mind produces internal models of the world and thinking takes place by manipulating these representations.

During the first half of the twentieth century, Wundt's approach was eclipsed by the

[1] Structuralism in psychology is reductionist. This is confusing because structuralism as it developed in linguistics and subsequently in anthropology and sociology resists reductionism by emphasising a relational and contextual approach to understanding the way humans behave.

functionalism of behaviourism, which went to absurd extremes in the search for a sound empirical basis to psychology, so that in *The Behavior of Organisms* (1938), Skinner ignores the mind altogether, limiting his research manifesto to the manipulation and observation of the relationship between environmental stimuli and the reaction of the organism. Radical behaviourism held sway until Chomsky's (1959) critique of Skinner's model of language acquisition. Chomsky's arguments in favour of an innate language structure fatally undermined the behaviourist position and heralded the beginning of the so-called cognitive revolution.

Twenty years later, two influential books on visual perception were published which, if read in parallel, exemplify the epistemological and ontological divide between functionalism and structuralism. In *The ecological approach to visual perception,* Gibson (1979) considers visual perception in relational terms, as an activity that takes place in direct interaction with the world and for which there is no recourse to internal (that is, neural) representations. At the other extreme, in *Vision: A computational investigation into the human representation and processing of visual information,* Marr (1982) presents a three stage, information-processing model of visual perception. Marr shows how a hierarchical, computational system can achieve object recognition through increasing representational abstraction.

Structuralism is predicated on the notion of hylomorphism, a metaphysical concept we owe to Aristotle who proposed that the form (*morph*) an object takes can be separated from the matter (*hyle*) of which it is made. (Ingold 2010, Malafouris, 2014, March and Glavneau 2020, see also CHAPTER 0NE). Structuralist accounts, as mentioned earlier, assume a capacity to abstract and internalise formal representations and, in this way, hylomorphism prepares the

ground for a model of creative cognition in which an active, human agent imposes his/her will on passive, inert material. The information-processing model draws a clear and direct line of causation from human brain to material environment. For example, in *The Creative Mind*, Boden (2004) describes two different types of creative change. Both are based on the notion of a conceptual space, a virtual area that delineates the limits of a concept – that of a cup for example. Type one involves staying in the concept space and imagining an innovation, a change in the shape of a cup for example. The second type is more radical and involves changing the shape of the conceptual space itself by relaxing the constraints on the concept so that something that would not formerly have been considered a cup can now be perceived as one (March and Glavneau, 2020).

As is the way with revolutions, once radical behaviourism was discredited by academic psychology[2] the pendulum swung well away from functionalist approaches altogether. Cognitive psychologists enthusiastically embraced the information-processing model along with its structuralist epistemological assumptions – as the above examples from Marr and Boden illustrate. Meanwhile, Gibson's ecological psychology was left on the fringe. All this to say that, when 'cognitive' was imported from cognitive psychology to cognitive archaeology, a lot of epistemological and ontological baggage came along with it.

In their *Handbook of Cognitive Archaeology* the editors, Wynn, Overmann and Coolidge (2023), suggest that many archaeologists are attracted to the field in the search of an "implied connection to the minds of now-vanished people through an engagement with art

[2] In clinical psychology, behavioural treatments continue to thrive and show positive, therapeutic outcomes both in pure form and as cognitive-behaviour therapy.

and architecture." (page1). You might think this would have facilitated research that encourages empathic engagement with artefactual evidence but, in a description that mirrors the rise of behaviourism in psychology, Wynn *et al* go on to describe how the opposite happened:

> …with the shift toward more scientific archaeology, archaeologists came to eschew such "soft" conclusions about the past in favor of descriptions of technical and subsistence systems that left a robust and more easily deciphered record. Indeed, the development of processual archaeology, which in the 1970s became the primary theoretical grounding of Palaeolithic archaeology, effectively forbad questions about past minds in favor of materialist and ecological accounts of human culture." (page1)

Like behaviourism, processual archaeology is functionalist. But unlike psychology, where the gap left by the fall of behaviourism was filled by another conceptual monopoly, when their time came archaeologists made use of a whole raft of different theories and approaches (structuralism[3] and critical theory from anthropology, phenomenology, etc. (Bruck 2005)) to dismantle the dehumanising aspects of processual archaeology and return to search for meaning and ways to "enter the mind" of early individuals (Bahn and Renfrew, 2013, page 41). In the post-processual turn, other archaeologists used interpretive methods to undermine the so-called objectivity of the processual approach by exposing the assumptions that underline all archaeological research (Hodder and Hutson 2003, Renfrew and Bahn, 2020).

First-order cybernetics, as I mentioned, became associated with the processual approach. At that time (late 1960s-early 1970s), systems theory was vulnerable to the same criticisms being levelled at the processual approach. In addition, the first-order cybernetic approach placed the researcher outside the system that was the object of research – as is made clear in

[3] As noted earlier, structuralism in anthropology has little in common with its psychological namesake.

the conclusion to *Analytical Archaeology*, Clarke's (1968) influential application of systems theory to archaeology:

> In short, disciplined procedure in analytical archaeology may be adequately condensed in the words of Descartes - 'method consists entirely in properly ordering and arranging the things to which we should pay attention' (Clarke, 1968, page 274)

Kohler (2012) attempts to rehabilitate systems theory by acknowledging that first-order cybernetics was unable to capture the temporal and contextual complexity necessary for an archaeological analysis of material culture. As a result, archaeology rejected systems theory altogether but, even as processual was transitioning into a post-processual approach, Kohler points out that the systemic approach in biology was moving away from the abstractions of general systems theory toward approaches that concentrated on the interactions that take place between specific entities. This shift from first- to second-order cybernetics was precipitated by the work of Maturana and Varela (1980) on the capacity for living systems to create and maintain themselves.

I was introduced to systems theory as a clinical psychologist, working with families in the 1990s. When applied to families, Maturana and Varela's move away from explanations in terms of closed-feedback loops translated into a more reflexive, less mechanistic approach to understanding family dynamics by suggesting that, simply by the act of observing, a clinician joins the system that s/he is treating. For a succinct introduction to the second-order approach in family therapy see Hoffman and Cecchin (1993).

Applied to the thesis, second-order cybernetics suggests that the act of making art synthesises a transient system that includes the artist and the workshop (Image 2) of which

there are four aspects. First, a shifting collection of components come together to produce activity that cannot be explained by summing the contribution of each individual component. Second, the system attributes to itself variable, indistinct and permeable boundaries. Third, not only does the system evolve its behaviour over time but the system evolves itself too. Fourth, the behaviour of the system is emergent, implying controversially that neither artist, brain nor prefrontal cortex exhibit any central executive control. The ongoing process is determined not by human intention but by the transitioning relationships within "extended-phenomenological-cognitive systems" (Silberstein and Chemero, 2015, pages 7-8).

Although the pendulum swung away just as systems theory began to develop into a useful framework overall, ontological oscillations in archaeology have been less extreme but more rapid than in psychology. The most recent has taken archaeology away from the extreme relativism of post-processual accounts towards theories that have (or appear to have) sounder scientific credentials, such as those developed within cognitive psychology. I want to return to cognitive psychology's structuralist assumptions because I think they impede the development of an archaeological (as opposed to a psychological) study of the mind and they may even misrepresent the mind altogether (see CHAPTERS FOUR and FIVE, in relation to Jōmon pottery).

In their review of cognitive archaeology, Currie and Killin (2019) question whether cognitive theories are effective at inferring the thought processes of past societies from their material remains because such theories are not derived or developed from the types of tasks that leave traces on the stuff that archaeologists dig up. Cognitive psychology is interested in the thinking of thinking, not the thinking of making. An effective archaeology of the mind needs a

hands-on approach – which is a good moment to introduce MET. And after I have set out MET's theoretical framework, I will return to consider the role Clayful Phenomenology can play within cognitive archaeology.

A theory of material engagement

In the last section I presented Aristotle's hylomorphic view of the world and its contemporary structuralist counterpart, the information-processing model of the mind. Hylomorphism is consistent with the post-Enlightenment shift towards human empowerment and so, to Western minds, makes complete common sense. The cultural context assumes that our minds are in our brains and that we use our brains to impose our will on the world. But treating artefacts as objects or concentrating on the expressive capacity of static artworks only gets us so far. This thesis explores the proposition that we can go further by following the enactive relationship that emerges between things and humans and by treating cognition as choreography (Image 5, March and Vallée-Tourangeau, 2022). In this section I show how MET takes us away from the idea of mind as structure and towards experiencing it as process. The MET version of the mind is functional and pragmatic (Iliopoulos, 2018). Its philosophical and psychological heritage hails not from Wundt's lab but from James's.

MET was introduced by Renfrew and Malafouris (Renfrew, 2004) with Malafouris giving a full explication in 2013. Since then, there has been a steady flow of theoretical and methodological developments (Malafouris, 2014, 2015, 2018a, 2018b, 2019, 2020a, 2020b 2021a, 2021b, Malafouris & Koukouti, 2022, Malafouris, Gosden & Bogaard , 2021). Each of the following five chapters gives an account of MET and so, in what follows, I say only enough about MET to make the rest of the introduction comprehensible.

The extended mind

In *The Extended Mind* Clark and Chalmers (1998) argue that the brain and the mind do not necessarily share the same space. From the dominant, structuralist, cognitive perspective Clark and Chalmers' arguments were radical and innovative, but this perspective leaves out Gibson's contemporaneous ecological model, a functional account of perception that was extended by default. I therefore think it is more accurate to say that Clark and Chalmers give a description of an extended, information-processing model of the mind. Although Clark and Chalmers extend the anatomy of the mind they leave the modular structure in place. "The brain (or brain and body) comprises a package of basic cognitive resources that is of interest in its own right" (1998, page 10). The extended mind of Clark and Chalmers is not only circumscribed but also centralized. The central executive stays in the brain and the mind extends outwards only when the frontal lobes decide it is propitious to do so.

In contrast, the materially engaged mind extends in a temporal dimension, one that is more akin to Heidegger's world of *dasein* and which I come to later. The MET mind is based not on the processing of information but on engendering a sense-making relationship between human and material– what Malafouris calls the *hylonoetic* field (2013, 2021b) (image 6). By continually arriving in the near future and then moving on the mind creates and breaks habitual behaviour in the present. Seeing the mind from this perspective, as temporally extended with mutable and permeable borders, offers significant advantages for cognitive archaeology over the representationalism of cognitive psychology models. But in any case, to have any hope of understanding thinking in the past, we need to be clear about how we think in the present and by providing an alternative, MET highlights the assumptions on which neuro-centrism depends.

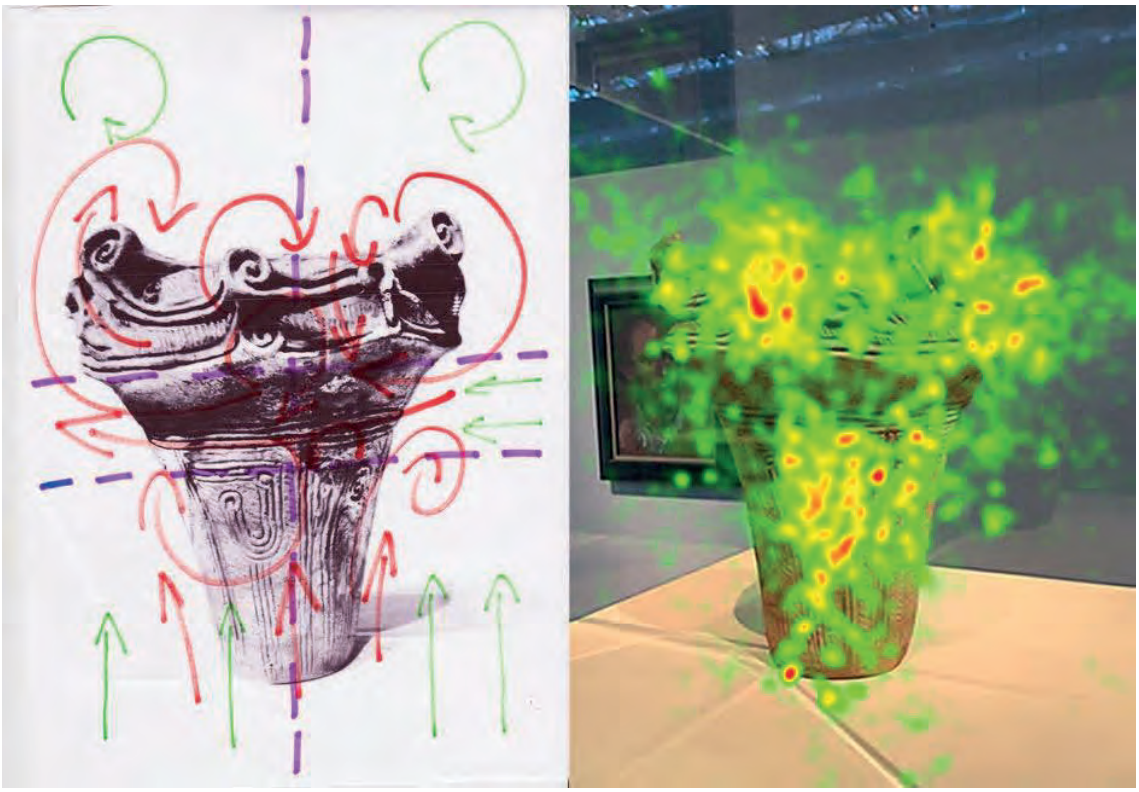

Image 5. The choreography of cognition. Photo left: prediction of how a Jōmon pot and body/eye movements will interact. Photo right: Heat map of eye fixations across 24 viewers of the same pot showing the spiral patterns of gaze. (Photo right from, March and Vallée-Tourangeau, 2022)

The enactive sign

Whereas language and symbols play important roles in representing things, especially things that are not there, a temporally extended mind, the sort described above, suggests how activity can also be directly meaningful and how it can make sense without the requirement to be translated into words nor any other format (Image 7). Enactive signification provides a relational means of analysing the traces of human prehistory. For example, by considering the evolutionary record of Palaeolithic cave painting, Froese (2019) uses the concept of enactive signification to reveal new ways of understanding human cognitive evolution. Rather than being the result of innate pre-existing features of the Palaeolithic brain, the capacity to

make sense of 2D images may have arisen through successive iterations of an indexical relationship between a painter's gesture and the evocative morphology of the cave wall. Over successive generations of painters, the paint-stroke evolved into an iconic gestural reaction to the indexical gestures left by earlier painters on the same cave-wall. A new cognitive system evolves through the temporally and generationally extended self-conscious activity of making. (See also Malafouris, 2007).

Image 6. A freeze-framed, *hylonoetic* field. Human and material, hand and clay make sense together.

Enactive signification describes what I think happens when someone engages with art, whether making or beholding it. For an artwork there is no such thing as a concept or idea that exists elsewhere and before the artwork conceptualises itself as the artwork. The work and the idea of the work are the same thing. (See also Iliopoulos, 2018 on the relationship

between enactive signification and the pragmatic approach of Pierce). An episode of enactive signification can manifest degrees of imprecision and contradiction that are more difficult to achieve with the symbolic specificity of words. For example, in CHAPTERS FOUR and FIVE I argue that enactive signification can express and tolerate the levels of indeterminacy necessary for exploring the relationship between contemporary sculptural activity and prehistoric Jōmon flame pots (Image 8).

Image 7. Enactive signification. The drawing on the left means much the same as the word 'flower'. Word and icon are bound by a concept. But to say the photo on the right means 'five flowers' misses the point. Whatever meaningful experience is possible in the presence of the sculptures the experience will not be captured by the phrase 'five flowers.' Enactive signification is an overdetermined and indeterminate moment of conceptualisation that is beyond words.

Image 8. Photo left. Jōmon flame pot. Middle Jōmon period, about 3500-2500BC, British Museum. © https://commons.wikimedia.org/w/index.php?title=File:J%C5%8Dmon_Pottery_British_Museumo.jpg&oldid=708380467. Photo right. Holocene pottery 4.(2018)

When signification is enacted rather than articulated it breathes life into an artefact, bringing it out of the past and into the knowledge-making present. I think this has important implications for cognitive archaeology. When archaeologists dig up *Jōmon* pots and engage with them they hope to discover something about past ways of thinking and of culturing. For discovery to have an effect, it must act by changing the direction of culturing in the present, giving an artefact from the past a *reprise*, a second go. Whatever we discover about past ways becomes manifest only through changes in our present ways.

Material agency

How do we define agency?

> We define agency as an autonomous organization that adaptively regulates its coupling with its environment and contributes to sustaining itself as a consequence. (Barandiaran, Di Paolo and Rohde, 2009, page 367)

The above quote is taken from a carefully constructed argument for circumscribing agency. But as discussed in CHAPTER ONE the oxymoronic juxtaposition of the words 'autonomous' and 'coupling' warns us that the exercise creates more problems than it solves. In contrast, and consistent with an extended mind, the MET version of agency converts an exclusionary boundary into a permeable border between organism and environment (Malafouris, & Koukouti, 2021, Malafouris, 2021) and identifies the act of coupling itself as agential (Image 9). The autonomous agent is replaced by agency as an emergent property of an ecosystem. Heidegger introduces the notion of inanimate vibrancy in *The Thing* (1975) where he takes the concept of things 'as inert lumps' and replaces it with things as 'loci of thinging activity'. With *creative thinging,* Malafouris (2015) makes the activity of humans and things recursively dependent by locating agency between hands and clay, a point in time and space when mind and matter conflate. In the following chapters I use the process and the concept of creative thinging to construct a series of detailed descriptions of contemporary creative agential ecosystems. By doing this I am not suggesting a process of contemporary creative thinging can provoke traces of the human past into giving access to the phenomenology of prehistorical ecosystems. I am suggesting that if we accept material expression (thinging) as thinking and find that it is possible to follow and analyse the process of thinging in a workshop, then it may be possible to take some of those lessons and extend

them by entering into collaborative, analogical projects with archaeological artefacts. Bailey (2018) does something along these lines by thinking about the Neolithic pit houses of eastern Europe in relation to several contemporary artists whose work focuses on gestures of cutting and of making holes.

Image 9. Another part of the world (2017) Agency in the making. The emergence of a creative ecosystem or *extended intentional state*.

In the following projects, instead of focusing on my brain, personality or past history, I fling a border around my workshop instead. At first sight, migrating agency from brain to ecosystem (a small, autonomous organisation to a larger one) does not appear to be ontologically significant, and from a methodological perspective there is some truth in this. But from a conceptual standpoint, shifting from the hard boundary of the skull to the permeable border of a physical workspace moves mind and agency into a world where nothing is autonomous. Ecosystems are permeably coupled with other ecosystems, the workshop with the clay shop,

with the kiln manufacturer, with the art gallery and with the University of Oxford.

I have slipped into naming places rather than following processes so I will return to the word *coupling* from the quote at the beginning of this section. Coupling helps show agency in other terms; how habitual patterns of erstwhile separate systems (artistic work-patterns and the thinging potential of clay) combine to form a temporary and temporally extended intentional state (see, image 9 and video, messy workshop) whose activity is more-or-less demarcated by the walls of the workshop. Or as Follet puts it, "The will or purpose of a man or group is to be found in that activity which is a constant function, or a combination of such function" (1924, page 79). She goes on to specify that:

> from our concrete activities spring both the power and the guide for those activities. Experience is the dynamo station; here are generated will and purpose. Further, and of the utmost importance, here too arise the standards with which to judge that same will and purpose. (page 85)

When I say *extended intentional state* I am referring to the artistic intent of the workshop, that is, the nebulous array of active and proactive elements that includes the central thread but also swirls around it in both a facilitative and destabilising way. Elsewhere in the thesis I use the phrase *intention-in-action* (image 10), a term originally coined by Searle (1983) to refer specifically to intentions that are implied by the action that immediately preceded them and which Malafouris (2013) generalises by arguing that all intentions are implied by prior experience and cultural norms. Following Malafouris, I therefore use *intention-in-action* to refer to the central thread of activity.

Image 10. Freeze-frame of intention-in-action. The image shows a stem in the making of one of the sculptures shown in image 7. A length of nichrome steel wire has just been placed along a strip of clay mixed with a high concentration of fibre and is being gently pushed into the clay. The action, the materials and the arrangement of the workshop are almost entirely determined not by an artist's will but by the requirements of an ongoing system of creativity.

Before moving on from material agency I will mention the notion of *metaplasticity.* I have described how the concept of permeable borders between systems and subsystems plays an important role in helping to establish an understanding of agency as emergent. Similarly, human culture and the human mind enfold themselves into what Malafouris refers to as a metaplastic relationship (Image 11). In neuroscience, metaplasticity refers to the intercellular signalling processes that regulate the degree to which neurons can exhibit synaptic plasticity (Abraham, 2008). Malafouris (2015) expands the term to include reference to the recursive relationship between cerebral, material and cultural processes. In CHAPTERS ONE, FOUR and FIVE I use it in the workshop context to refer to the variable potential for creative change of hand-held-clay in relation to the facilitating or inhibiting influence of an ongoing culturally embedded mind.

Image 11. Metaplasticity is the enfolding of clay and culture, mind and material, nature and nurtured as performed by this sculpture. *Substantia Innominata IV* (CHAPTER 1) for example.

Clayful Phenomenology and cognitive archaeology

With the theoretical structure of clayful phenomenology now in place I return to look at its role within cognitive archaeology. Wynn, Overmann and Coolidge (2023) define cognitive archaeology by identifying two broad traditions: evolutionary cognitive archaeology (ECA), whose name delineates its territory; and ideational cognitive archaeology (ICA) which refers to research focusing on the meaning of symbols and iconography. Clayful phenomenology has little to say about the evolution of cognition and its iconoclastic remit sits uneasily within ICA. The authors themselves point out that their twofold categorisation excludes a whole range of human activity that many archaeologists would consider to have a strong cognitive component – mourning, for instance. Wynn *et al* also identify the close association between cognitive archaeology and cognitive psychology as the cause of this narrow definition. In the same volume, Malafouris's (2023) chapter *What is cognitive archaeology?* uses MET to extend the definition and the field. Not surprisingly, it is easier to find a place for clayful

phenomenology within Malafouris's taxonomy. In addition to evolutionary cognitive archaeology Malafouris reformulates the role of cognition into four other areas of archaeology which I summarise below, indicating how clayful phenomenology fits within each.

Comparative and anthropological cognitive archaeology is normally concerned with the extent to which human cognition is either biologically universal or culturally specific. However, if as suggested in the last section, cranial function and culture are not separate categories, then from an MET perspective cultural influences do not sit somewhere apart from the processes of the mind that made them manifest. Rather, they are a continuum that extends over time and space. This changes the comparative task from an enquiry into the relative influences of nature and culture, to research into niche construction. MET invites comparisons of different ways of becoming and Clayful Phenomenology provides one way of doing this (Image 12).

Image 12. The developing artwork constructs its niche by pulling in the tools, materials and techniques it needs to realize itself. In turn the tools, techniques and materials determine the artwork. Clayful Phenomenology offers a way of comparing different creative systems.

Experimental cognitive archaeology includes ethnoarchaeological observational studies, actualist studies and procedural attempts to replicate the *chaine opératoire* of specific artefact production techniques, such as stone tools. The goal of all three approaches is to map out modes of production. Enactive perspectives, such as MET, can facilitate such research into the cognition of making, and in the final two chapters I show how the creative thinging of contemporary sculpting can engage analogically with prehistoric *Jōmon* flame pots.

Affective and sensory cognitive archaeology is concerned with the relationship between feelings and material traces of the past, and with ways of integrating sensory experience into archaeological research. That such a theme is identifiable as a separate entity indicates the extent to which cognitive archaeology and the cognitive sciences separate cognition from affect. The following chapters show Clayful Phenomenology to be indivisibly affective-sensorial-cognitive. But it is its focus on the experience of a system rather than an individual that most distinguishes it from other experiential approaches in cognitive archaeology.

Reflexive and semiotic cognitive archaeology considers the development of signs and the relationship between signification and the construction of meaning. The archaeology of semiotics is inextricably linked to research about how human marks and traces evolve into signs and how signs transform in relation to their subsequent use and meaning. A primary interest in archaeology therefore concerns how one thing comes to represent something else and how this process of symbolisation relates to cognitive development (e.g. Henshilwood et al. 2001, Henshilwood et al. 2002), d'Errico et al. 2003). By introducing signification as enactive (e.g. Malafouris, 2020, 2021a, 2021b, Wynn, Overmann and Malafouris, 2021), MET

expands the field of archaeological semiotics considerably (e.g. Froese 2019, Overmann, 2016). Clayful phenomenology contributes in a unique way to the development of enactive semiotics by embracing enactive signification directly as a research tool (Image 13).

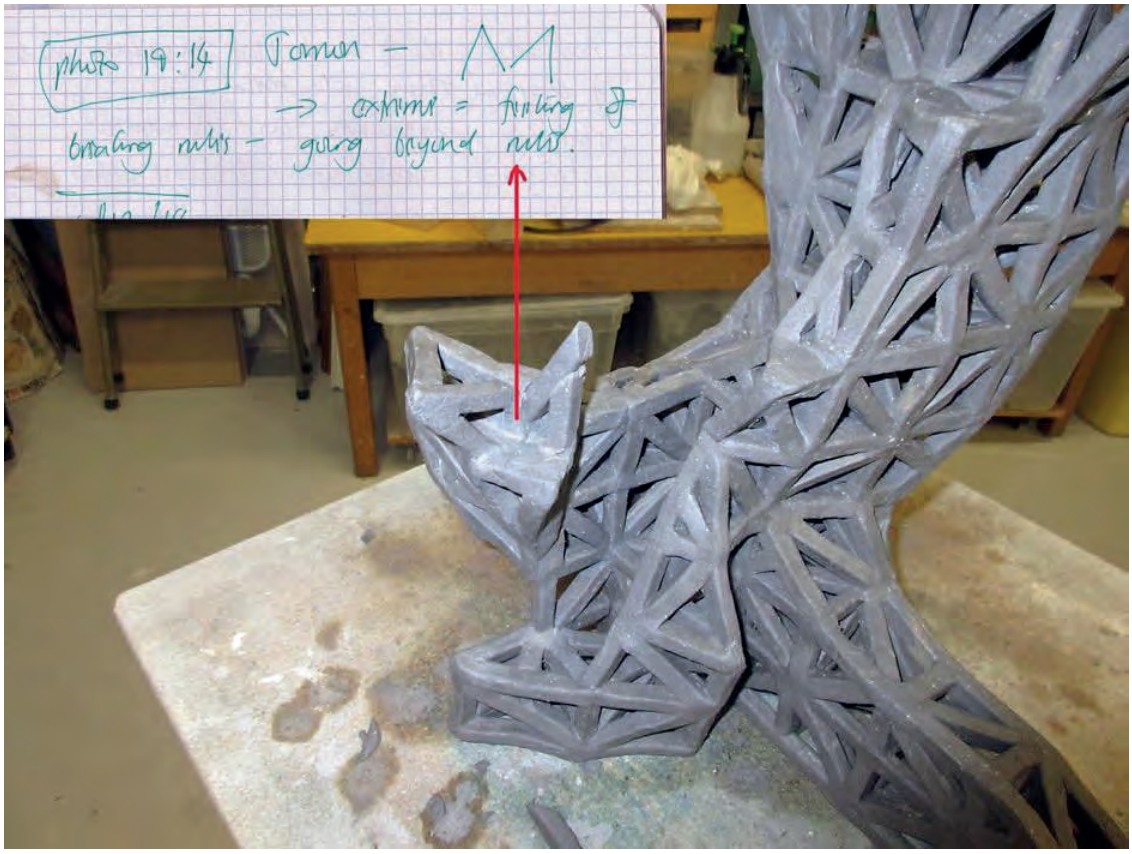

Image 13. Enactive signification: material engagement makes knowledge directly. The experience of rule-breaking during contemporary sculpting is way of thinging about the making and breaking of habitual gestures during flame pot construction. Photo and insert notebook entry from 13.12.18. See also the section on metaplastic rules and habits in CHAPTER 4.

How clayful phenomenology works

So far, I have introduced clayful phenomenology in broad terms, describing its theoretical framework in the form of MET, explaining why I think 'cognitive' spells trouble for cognitive archaeology and making the case for a role for clayful phenomenology within cognitive archaeology. In what follows, I return to the three qualities I used to describe clayful phenomenology at the beginning of the introduction. But before moving on, I want to say

something about language.

The words ‘culture’, ‘mind’, ‘brain’, ‘neurons’, ‘thoughts’ and ‘things’ all describe invented entities that are separated from each other and subsequently re-assembled in different ways to try and explain human decision-making. Then there is the grammatical structure of the English language which requires a subject to act upon an object. All this divisiveness makes it difficult to talk about extended minds, emergent agency and material signs. The convention of separating the world into animate and inanimate objects makes matters worse. The aim of MET and of clayful phenomenology is to avoid teasing things apart and to follow instead the messy, mute, enfolding, unfolding procession of thinging. It is an approach that runs against the tide of language and so is sometimes difficult to express non-materially. With that caveat I move to the second part of the introduction.

Subject to system

The thesis does not consider artistic activity from the quasi-objective perspective of an outside observer, nor with the subjectivity of a participant-observer. Neither does it represent the point of view of an individual artist. Instead it gives voice to a group of elements that coalesce into a system whose activity is described by the concept of creative thinging. Whether the voice is literally that of the system or whether it is better heard as a voice-over for enacted but mute experience is moot, even to the voice itself. Hutchins (1995) addresses the question of whether awareness can cross system borders and I consider his arguments in CHAPTER THREE. I come back to the notion of relational sentience at the end of the introduction. In the conclusion I consider the relationship between subjective and systemic experience and the idea of ownership of emotions. For now, whether the voice is literal or

metaphorical, the account shifts attention away from individual intention and towards the patterns of clay-gesture associations that are brought together in and by an art workshop. In the following chapters I rely on three philosophers to provide the ontological support for my contention that such transient systems are sentient. I now give an overview of each, beginning with James.

I introduced James as the founder of functional psychology and one of the main instigators of pragmatic philosophy. In CHAPTER THREE I look at the way James formulates reality, a version of neutral monism that he calls *pure experience*, a state that is neither physical nor mental. For James, becoming conscious of something is a retrospective operation of abstraction during which the state of pure experience splits into an object and the subjective experience of it. Silberstein and Chemero (2015) point to how our everyday lives are full of examples of pure experiences. Things like rain showers, burnt toast or a clean shirt are neither physical nor mental and therefore constitute what they call "extended-phenomenological-cognitive systems" (2015, pp. 7-8). My notion of what goes on in a transient creative system has a similar ontological status. For example, in CHAPTER THREE I introduce an enactive version of insight, dubbed *outsight* (Vallée-Tourangeau and March, 2019). I describe how a new idea realised itself during the manipulation of a novel clay-fibre composite material. This new idea is simultaneously of matter and of mind, an extended-phenomenological-cognitive system which is visible, in contrast to the internal, unconscious reformulations referred to as *insight*. With outsight, the change does not happen somewhere separately from the gesture-material relationship that precipitated it and that it precipitated. The change takes place in pure experience (Image 14).

Image 14. Outsight. photo left. When these sculptures were fired the clay became so plastic that the stems wilted. Despite trying various solutions the problem persisted. On 26.3.19, staring at the shelf of wilted sculptures, I glanced across the wall of the workshop to where there was an image of a pylon (a photo from another art project). Seeing the wilted sculptures and pylon not in the mind's eye but outside and together in the world was the realisation that a clay version of the pylon could support the sculptures during firing, as in the sketch in my notebook, and followed by the clay pylon containing a fired flower.

I now return to Heidegger, previously mentioned in relation to thinging. I use Heidegger's (1962) concept of *dasein* to support my argument that clayful phenomenology can provide a systemic account. As being-in-the-world, I take *dasein* to capture a process of gathering. I set out the full argument in CHAPTER FIVE , but my sense of what Heidegger means by *dasein* is summed up by his term "readiness-to-hand" which I understand to describe the sensibility arising between an action and an element once they have adapted and habituated to each other. In the thesis, when I talk of a gestural association with clay, I am talking about "readiness-to-hand". This view of *dasein* is a bit of a departure from the way it is normally understood. For example, Gallagher (2012) emphasises the extent to which *dasein* is socially and culturally constructed. He attributes chameleon-like qualities to *dasein* and describes how *dasein* tends to get "lost in the world" (page 107). Whereas I agree that fitting-in involves adapting to an environment in flux, I disagree with Gallagher's depiction of *dasein* as something that is separate enough from the world to be able to turn up and get lost in it. In short, the moot point is whether *dasein* is made up of two parts, a being in the world or

whether it is a single unfolding process of being-in-the-world (see also Verbeek (2005), CHAPTER THREE and the discussion that follows on post-phenomenology). Gallaher ends his review of *dasein* with a description that I think comes closer to that of a single unfolding process.

> Heidegger, in later disagreement with himself, however, considers his analysis of Dasein to remain too Cartesian, in a way similar to the problematic metaphysical views of self that he had criticized. In his later philosophy, Dasein seems to be much less an agent, and much more a plaything of larger forces – or more precisely, the larger force of Being (page 108).

Heidegger is important in four other areas of the thesis. First, in CHAPTERS TWO and FOUR I use Heidegger's (2002) essay on art to help describe how workshop activity turns into artwork. Second, Heidegger's (2002) analysis of the uncanny provides a useful stepping stone for understanding how enactive approaches might deal with non-sense (Cappuccio and Froese, 2014) and the non-coherence of art. Third, in CHAPTER FIVE I explain non-chronological temporal experience in terms of the relationship between *dasein* and time (Heidegger, 1962). And finally, also in CHAPTER FIVE, Heidegger's (1975) analysis of modernist poetry helps me to show the capacity of artworks to spiral forward into the past.

Now to Merleau-Ponty (1962) who, like Heidegger, redraws the perimeter of sensibility to include human and tool and gives us a thought experiment to help us appreciate the implications. He asks us to imagine a blind man gripping a cane and guides us to notice how the sense of touch migrates to the end of the cane, a conclusion that implies that the cane becomes imbued with sentience. In CHAPTER TWO I stretch the implication of extended consciousness further by considering what Merleau-Ponty has to say about the painter Cezanne (1964, 1993). This is best explained here in relation to Dewey (1934), whose attempt

to shift our understanding of art from object to experience is more limited in its scope. Whereas Dewey stresses that an artist must "undergo the effect of every brush stroke" (1934 page 47), as Merleau-Ponty reports it, Cezanne's experience does not in fact begin with the painter's feelings but with the movements of the paintbrush. It is not Cezanne who wields the brush but the stroke of a paint-loaded brush that creates both painting and painter. Instead of attaching subjective experience to the painter, as Dewey does, Merleau-Ponty uses the work and words of Cezanne to describe how phenomenological activity pulls painter and paint into existence, a singularity that I am calling a transient system of creativity. This is a radically different ontology from the notion of a pre-existing, skilled Cezanne painting out his art on a canvas.[4]

Sculpting as curious intent

This research began with the idea that artistic activity can make knowledge directly and that by following the principles of MET, particularly enactive signification, it might be possible to highlight what is learned and the way it is learned. But to begin with I did not know how artwork and MET would achieve this. The projects that follow demonstrate how the activity of art and research became increasingly integrated and evolved into Clayful Phenomenology. This integrative evolution ran in concert with the development of the systemic account described above.

In 2016 I began (see CHAPTER ONE) with a procedure modelled on the sort of participant

[4] From an archaeological perspective, an analysis of Palaeolithic cave paintings that gives ontological primacy to the stroke that applied the pigment rather than the person applying it would be a way of concentrating attention on what is still present, while making fewer assumptions about what is no longer visible.

observation described by Ingold (2014) in which the researcher attends to the topic with the aim of achieving a correspondence between observer and activity that is not…

> …a relation between one subject (such as the anthropologist in person) and others, as the prefix inter- indicates, but one that carries on or unfolds along concurrent paths. And for another, in carrying on, persons and things are not already thrown, as the suffix-ject implies, but are in the throwing. They are not subjects at all, nor objects, nor are they hybrid subject-objects. They are verbs. (Ingold, 2014, page 389)

I took Ingold to mean that I should concentrate on what happens between things rather than to things. Pink (2011) gives a similar steer in her review of qualitative phenomenological methods for multimodal sensory research. She contrasts her methods with those proposed by Atkinson (2005) who (following Geertz, 1973) recommends building a multi-layered arrangement of separate, observational descriptions to arrive at a balanced account. Pink argues that this method of observational research produces a series of detached views which are disarticulated further by the act of cross-referencing. According to Pink, the Atkinson method is based upon an incorrect assumption that the media used to record a cultural act can capture, record and adequately represent its meaning directly. Essentially, what you see is what it means. She argues that there are patterns of knowledge-making that cannot be captured by observation and camera. Keller (2001) makes a similar point when he compares the perspective of watching a craftsperson with that of being one. Pink argues for an approach similar to being an apprentice (see also Marchand, 2010) and describes a form of "sensory ethnography" (page 274) that she uses to shift the focus from "looking at" to "being-in" the work.

The main difference between my initial approach, and those of Pink, Ingold and participant-observation in general was that instead of the tasks being partitioned – with one person doing the work, the other joining in and reporting – there was just me, doing and reporting (Image

15). Although the "first-person experience" (Rigato *et al*. 2021) gives direct access to what it is like "being in" (Pink, 2011) the work, it is treated with a good deal of suspicion, as Rigato *et al.* demonstrate. They conclude that although cognitive science research depends on first-person accounts and that recourse to first-person experience in cognitive science research is ubiquitous, its use is disguised and denied (see also Latour and Midgley in the following section.)

Image 15. Being in the work: a clayful phenomenological approach turns doing and reporting into a single task.

The problem with first-person accounts in cognitive science boils down to a perceived difficulty in establishing them as factual, begging questions like:

> Is Paul March telling us the truth?
> Even if he thinks it's true, is he right?
> Is he confused, unconsciously biased or misled?
> And in any case, does what goes on in Paul March's mind tell us anything about other people's minds?

By aiming for accounts of "being-in" the work, Ingold and Pink are explicit in their wish to avoid objectivity. I too do not present this research as factual, in the scientific sense of it having been judged valid using independently verifiable measures. Nevertheless, the arrangement used by Ingold and Pink – one in which a person/team reports on another person/team's activity – inevitably creates an experiential schism. It is therefore ironic that splitting the task in this way appears to confer a reassuring credibility that a one-person research endeavour apparently lacks.

The fields of auto-ethnography and auto-hermeneutics (e.g. Ellis, Adams, & Bochner, 2011; Adams, Holman Jones & Ellis, 2015; Gorichanaz, 2017) are also confronted by concerns about the credibility of the self-reports they produce. Auto-ethnography aims to give a personal and embedded experience of a cultural milieu. Auto-hermeneutics provides a first-person, subjective account of a specific phenomenon. Despite differing goals they hold similar epistemological positions; both portray themselves as more like autobiographical storytelling than science (Gorichanaz, T. 2017, Adams, Holman Jones & Ellis, 2015). Both fields address concerns about the authenticity that such personal narratives attract, first by challenging the scientific notion of objectivity, especially when it is applied to the study of human experience, and second by making the evaluation itself subjective by turning it into an exercise that occurs experientially, in the mind of the reader-evaluator. For example, Ellis *et al*. (2011) revise the three core indices established to measure the quality of scientific research: validity, reliability and generalisability, so as to make them suitable for auto-ethnography. What follows is my attempt to distil each of Ellis *et al*.'s subjective indices into a single word.

Validity becomes plausibility. It must evoke “in readers a feeling that the experience described is lifelike, believable, and possible, a feeling that what has been represented could be true” (page 7). The criterion is whether the reader can enter the subjective world of the researcher.

Reliability becomes credibility. “Could the narrator have had the experiences described, given available "factual evidence"? Does the narrator believe that this is actually what happened to her or him?” (page 7)

Generalisability becomes embraceability. The reader must be able to make sense of the account and “determine if a story speaks to them about their experience or about the lives of others they know”(page 7).

According to Ellis *et al*, although it is beholden on the researcher to supply the contextual information necessary for a reader to judge whether an account satisfies the above requirements, they hand overall responsibility for evaluation to the reader who, to do the job properly, must therefore make a whole-hearted attempt to empathise with the researcher’s story. There is a clear parallel here between the position in which Ellis *et al*. put their reader and that of a visitor to an art exhibition or a person reading a novel.

Although I appreciate how auto-ethnographic accounts gnaw away at the division between art and scholarship, I think that an auto-ethnographic text written following the guidelines of plausibility, credibility and embraceability must also open debate, not close it down. This requires the reader to approach the text with scepticism as well as empathy, an affective cocktail that is good at creating unease and discomfort. At three points in the thesis, I discuss

the importance of tolerating anxiety associated with doubt: in CHAPTER ONE in relation to the uncertainty of agency, and twice in CHAPTER FOUR. First, I argue that doubt is integral to a non-coherent approach and second, I outline the useful role that doubt can play in facilitating sensorial approaches to archaeology. In a similar vein, McGilchrist (2021) attempts to establish a sound reason to believe in the concept of truth by arguing that, for truth to be credible, it must include a capacity for doubt:

> truth may rarely be pure and never simple … Uncertainty here is not a sign of failure but lies deep in the nature of what we are trying to grasp. Truth is uncertain not because it is empty, but because it is full – rich, complex, manifold. (page 580)

This is not at all the same as saying that there is no such thing as truth. Instead, the open discussion and willingness to tolerate uncertainty makes truth statements provisional and susceptible to contextual change. McGlichrist (2021) clarifies the processual and experiential nature of truth by distinguishing it from:

> 'truth-as-correctness', a thing that can be determined, and into which nothing of us enters; or 'truth-as-unconcealing', a process of something revealing itself to us only through our experience. (Heidegger often used the Greek word for truth, aletheia, which literally means 'un-forgetting', allowing something to emerge from oblivion.) How do we decide which way of conceiving truth is truer? First, notice that a process, unlike a thing, suggests the importance of not just the whatness, but the howness. There are no deep truths that are separate from the manner in which they are expressed. (page 757)

Truth, not as fact but as process, is consistent with the ontological shift promoted by the thesis, away from things and towards thinging.

Feeling doubt (inhabiting the space between acceptance and dismissal) requires there to be a tension between two or more incompatible yet credible perspectives, and I am concerned that the auto-ethnographic method reduces the potential for feeling doubt because the auto-ethnographic evaluation process errs too far towards acceptance at the expense of

scepticism. The auto-ethnographic ethos of inclusivity interferes with the formation of tense paradoxes that I will argue are the hallmarks of successful, non-coherent approaches to research and art.

At first glance, clayful phenomenology appears to be auto-ethnographical or auto-hermeneutical: the sort of first-person account described by Rigato *et al*. But clayful phenomenology departs from first-person subjectivity in a crucial respect, one that makes it more akin to Latour's case-studies or approaches in Radical Embodied Cognitive Science (RECS), both of which I discuss below. Rigato *et al*. equate first-person accounts with introspection, describing them as "private" (page 3) and locating them in an "inner world" (page 4). They assume that the 57 studies that they sample define first-person accounts in the following way: "First-person experience is conventionally defined as the subjective and qualitative phenomena that constitute the inner world of an individual" (page 22).

In line with their inclusive ethos auto-ethnographic and auto-hermeneutic approaches are less determinant than Rigato *et al*. about the meaning of experiential. Nevertheless, their statements also imply a concern with bringing deep (which I understand to mean internal) recollections to the surface. Auto-ethnography, for example…

> …uses deep and careful self-reflection-typically referred to as "reflexivity"-to name and interrogate the intersections between self and society, the particular and the general, the personal and the political. (Adams et al, 2015 page 2)

And

> …a researcher engaging in auto-hermeneutics must have a capacity for self-awareness, have a concrete way to externalize inner experiences… (Gorichanaz, 2017 page 4)

In contrast, and as noted earlier, the enactive perspective of MET offers a mind that is visible and whose activities are tracible. In line with this, each chapter follows the evolution of one or more sculptural projects, with reports based on contemporaneous notes underwritten by photographs and video. By *underwritten* (and heeding Pink's warning) I mean that the images do not capture meaning directly; they provide collateral evidence. I want to emphasise the principle that thinking becomes visible. By moving attention onto a temporal dimension of change with a shifting spatial location, accounts are no longer introspective and narratives do not refer to the inner workings of a conceptual space. Instead they are anchored to the ideational evidence provided by sculptural transformation. In CHAPTER TWO I discuss how the process of creative thinging is traced in and by the clay which, by acting as its own haptic recorder, exposes the workings of the mind which can be tracked, analysed and understood.

In some respects, the above process of knowledge-making is similar to archaeological report-making. It is dissimilar in that there was no pre-established protocol that guided the act of recording. It is more like a diary of a voyage than a methodology. The procedure was simple: whenever something noteworthy occurred, make a record in note form, with or without a photo or video. And do it as quickly as possible, to cause only minimum disruption to the sculpting process.

Like clayful phenomenology, RECS empirical research also flushes cognition into the open. For example, methods developed from dynamical systems theory are used to represent the process of externally distributed cognition (see Chemero, 2009 for a review and Baber, Chemero & Hall, 2019 for an analysis of tool use). Likewise, laboratory-based cognitive psychology experiments that rely on statistical aggregate information are increasingly turning

to how participants make use of artefacts in problem solving tasks (Vallée-Tourangeau, Steffensen, Vallée-Tourangeau & Sirota, 2016. Vallée-Tourangeau, Ross, Ruffatto Rech, & Vallée-Tourangeau, 2021. Ross & Vallée-Tourangeau, 2021. Vallée-Tourangeau & March, 2019).

In parallel, anthropological and ethnographic case-studies have investigated and mapped cognitive ecosystems in various fields of activity, e.g. Hutchins (1995), Keller (2001), O'Conner (2017). Particularly relevant to clayful phenomenology is research from the field of Science and Technology Studies (Latour 1999, 1993 and Latour & Woolgar, 1986). Latour uses a case-study approach to place the process of knowledge-making and the manufacture of scientific facts into a complex disordered web of social/cultural actants and laboratory procedures. He shows how reality is constructed through a series of small exchanges that take place between knowledge and things, which he refers to as, *articulations*.

Image 16. Some of the circulating references of the project Welcoming down the blessings .
1. A mixture of clay and fibre. 2. Blastomeric clay forms. 3. Antecedent artwork still alive 4. Beaker made from fibre clay 5 and 6. Details from two Anselm Keifer paintings, an ancient building and sunflowers. 7. Page of notes doodled with flowers from a meeting at the United Nations, Geneva. 8. A sunken flower meadow near to the United Nations 9. Botanic drawing of iris root 10. Dog cast from the calcified ashes of Pompeii 11. Antecedent artwork *in pulverum speramus*. 12 and 13 Early attempts to model a root 14. An early firing 15. The wilted results of the firing 16. Photo of an ongoing art project Green Walker. 17. Notebook entry: turning pylon into support 18. An eccentric flint seen at the Sainsbury Centre 19. Influence of eccentric flint 20. Reinforced steel stems 21. Porcelain changes shape of roots 22. The mutual influence between thiw projects and Twist and Shout! 23 and 24. The pylon in clay and how it supports a sculpture 25. Close-up Welcoming down the blessings.

During each articulation, scientist, apparatus and material come together to transform the material into a sign which, in the next articulation is used as material for the next sign.

Through this process of significative abstraction, the world and knowledge are recursively transformed by being brought together in what Latour refers to as *Circulating References*. In CHAPTER ONE I analyse an art project using a similar chain of morphic events. And the case study in CHAPTER THREE is constructed as a series of Latourian articulations (Image 17). The two chapters indicate that Latour's method for understanding the construction of scientific facts also provides useful descriptions of key MET mechanisms such as creative thinging and metaplasticity.

As I said, when the research in the workshop first began it was bundled together with art into a hybrid, artist-researcher role during which I observed and participated in my own activity. By CHAPTER THREE there had been an important shift. I increasingly experienced, attributed and described activity as workshop-centric rather than artist-centric and this led to art and research work becoming so intertwined as to be indistinguishable. The sociologist Mills (1959) observed a similar integrative process in his research:

> You do not really have to study a topic you are working on; for…once you are into it, it is everywhere. You are sensible to its themes; you see and hear them everywhere in your experience, especially, it always seems to me, in apparently unrelated areas." (page 211)

Is Clayful Phenomenology post-phenomenological?

Having put the case for clayful phenomenology as a credible way of making knowledge, I now want to consider its relationship with post-phenomenology, which shares common ground with MET (Idhe & Malafouris, 2018). Developed by Idhe (1990, 2009, 2022 and see Ritter, 2021a and 2021b for a recent summary and critique), post-phenomenology is both a criticism and a development of Heidegger's phenomenological approach, as it relates to the relationship between humans and technology. Idhe has two main issues with Heidegger. First,

he draws attention to Heidegger's view that modern technology is alienating and should be treated with suspicion. The second concerns Heidegger's more general formulation of the human-world relationship which Idhe reproaches for being insufficiently co-constituted. Essentially, Idhe thinks that Heidegger views technology as something separate from and harmful to humans. Although it is well accepted that Heidegger was wary of the influence of advanced technologies (I return to this in the conclusion), I do not agree with Idhe's description of *dasein* as being insufficiently co-constituted, as is clear from my earlier use of Heidegger's concept of the readiness-to-hand of manual tools to argue that being-in-the-world is a system and not an interaction between separate entities. So although Idhe's post-phenomenology sweeps aside Heidegger's prejudice about modern technology, I think it achieves this not by reformulating Heideggerian phenomenology but by extending the pre-existing concept of readiness-to-hand from tools to all forms of technology.

Taking Idhe as a starting point, Rosenberg and Verbeek (2015) turn post-phenomenology into what they call an empirical philosophy. They claim that "post-phenomenology does not base itself on the philosophical tradition and on conceptual analysis only, but also on the study of actual technological practices and artifacts" (page 30). They use first-person case studies to map the co-construction of subjective experience between humans and technology. Reliance on case-studies and Verbeek's (2005) alignment with Latour's actor network theory together suggest a parallel with clayful phenomenology, as the citation below indicates:

> This more radical phenomenological perspective, in which subject and object are not merely intertwined with each other but constitute each other, does justice to the contextualism of contemporary philosophy as it is expressed in the linguistic turn, in postmodernism, and also, for instance, in Latour's actor-network theory. I shall call this reinterpretation of phenomenology "postphenomenology." (page 112)

But only six pages later the co-constitution unwinds.

> A postphenomenological "turn toward things" in the philosophy of technology, as indicated above, needs to consist of the analysis of the mediating role of technological artifacts in the relation between human beings and reality. (page 118)

Earlier I complained about how the English language divides the world into subject and object, making it difficult to maintain an account that is consistently systemic, but it is not the limitation of language that creates the contradiction between the above quotes, rather the way language is used suggests an ontological confusion about the implications of co-constitutional operations. For example, the word *mediator* is used in a precise way in postphenomenology to describe the human-technology interface, and when Idhe explains how "technologies can be the means by which 'consciousness itself' is mediated" (2009, page 23) he rules out the possibility of consciousness being co-constituted. Reviewing postphenomenology in relation to ANT, Arzroomchilar (2022) makes a similar criticism:

> While postphenomenology tends to study the mediation of particular technologies on individuals, ANT investigates mediation as a phenomenon emerging out of collectives of technology and humans. (page 78)

And Ritter (2021b) also draws attention to the way technology is assigned the role of mediator:

> such an approach is unable to do something else: to think of technology not only as an object we interact with but also as "something," to use a spatial metaphor, which stays in, or steps into, the background and influences intentionality as neither subjective nor objective. (Page 1513)

Thus, the label *mediator* constrains post-phenomenological case studies to concentrate on how technology influences the user's experiences of the world (e.g. Hasse, 2008, Rosenberger, 2013). Like the blind man's stick discussed earlier, these studies describe how technologies become transparent. The user does not experience technologies directly but

experiences the world through them. The assumption is that technology is an entity, and post-phenomenological research tries to discover how this entity influences human knowledge-making. This means that technology mediates an epistemological change but is not itself changed by it. In contrast, in clayful phenomenology the non-phenomenal (transparent) aspect of technology is understood to occur because human, technology and other elements are fused into a single, transient system of creativity during which the hand-held-clay learns itself into a new, existential state (see CHAPTER TWO). A change in knowing occurs through a change in being. To conclude, despite shared foundations in Heideggerian phenomenology and a desire to provide them with a more empirical footing, post-phenomenology and clayful phenomenology part company when it comes to the question of the sentience of human-technology systems.

Non-coherent knowing

In the second half so far I have used MET, the writings of Latour, Heidegger, Merleau-Ponty and James to blur the boundaries of agency and the mind in order to introduce a research programme that relies more on metaphor and allegory than data analysis. But this non-coherent approach to research. in which making knowledge does not exist outside experience, creates a problem. The further we move away from reductionism and hylomorphism the more we lose the sense of clarity and precision that comes from separating causes from effects. In the previous section I described how this is likely to make us (or at least me) feel uncertain, uncomfortable and a bit lost. In the next section I will try and set out why I think it is sometimes necessary to feel like this.

There are many paths in life that lead to an appreciation of the merits of tolerating

uncertainty. I will track just one of them here, the one I followed. In his *Recommendations to Physicians Practicing Psychoanalysis,* Freud (1912) encourages therapists to develop an attitude of suspended attention during therapy sessions and Bion, an analyst from the Kleinian school, puts a special emphasis on the therapeutic benefits of a free-floating state of mind which he refers to as negative capability, a phrase first coined by Keats in a letter to his brothers:

> at once it struck me, what quality went to form a Man of Achievement especially in Literature & which Shakespeare possessed so enormously – I mean Negative Capability, that is when a man is capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact & reason (Keats, 1814, see Rollins, 1958 pages 193-4)

Bion describes the psychoanalytic application of negative capability in the following terms:

> Any session should be judged by comparison with the Keats formulation so as to guard against one commonly unobserved fault leading to analysis 'interminable'[sic]. The fault lies in the failure to observe and is intensified by the inability to appreciate the significance of observation. (Bion, 1970, page 125)

Anyone with experience of psychotherapy, either as therapist or patient, will remember the anxiety associated with the indeterminate nature of a psychoanalytic session and therapists know that, in the short term, they can relieve themselves and their patient of it by delivering a hastily constructed interpretation that pins something down.[5] Bion uses negative capability to describe the capacity to resist, to withstand this anxiety by staying silent, and to observe what takes place in the atmosphere of discomfort that reigns.

In the four years before his death in 1979, Bion collected a group of manuscripts together

[5] The artistic equivalent occurs in chapter three. "I found the unsettling uncertainty difficult to withstand. Grasping for a resolution, the idea of creating a photo inspired by a previous art project became irresistible." (page 173)

which were published as a trilogy, *A Memoir of the Future*. The title alone creates disquiet, as Sandler describes:

> To some people, this is a thought-provoking title which played a part in attracting them to read the books. To other people, it is a baffling one which played a part in giving them an instant allergy to the same books. Both parties would agree that this title embodies a paradoxical ethos. After all, tolerance of paradoxes—which may be measured by the lack of hasty attempts to solve them—could hardly be seen as a hallmark of the mind in Western civilisation (Sandler, 2015, page 3)

True to its title the trilogy is a strange, indissoluble fusion of fiction, autobiography and psychoanalytic scholarship. The following quotation outlines what Bion understands by negative capability as well as exemplifying non-coherence-in-action. Book one of the trilogy *The Dream* takes the form of a conversation between various characters. The section below features Bion and 'myself', both versions of Bion (or what the language of psychoanalysis refers to as part-objects) and Sherlock (Holmes).

> MYSELF…Imagine the fun that would be made if Bion or I were to announce the discovery of an 'uncertainty principle'.
> BION Keats discovered an 'uncertainty principle' which he called 'negative capability'. The authors of Job, of the Baghavad Gita, to go no further, discovered the presumption of Job, of Arjuna, who thought that what they 'didn't know wasn't knowledge'. Even Mister Toad comes into the same domain of scorn and contempt which, like 'mental or spiritual' pollution, is life that stains the white radiance of eternity.
> SHERLOCK It seems to me that these 'fictitious characters' have a lot more sense than you real ones.
> BION And non-sense[6]. Toad was not, is not synonymous with 'sense'.
> SHERLOCK If he were it would not be necessary for his creator to create him. (Bion 1991, pages 207-8)

A month before the letter to his brothers about Shakespeare, Keats had written to Benjamin Bailey arguing the merits of the sort of non-linear way of writing that we meet in *The Dream.*

> I have never yet been able to perceive how any thing can be known for truth by consequitive [sic] reasoning … can it be that even the greatest Philosopher ever arrived at his goal without putting aside numerous objections – However it may be, O for a Life of Sensations rather than of Thoughts!'. (Keats, 1814, see Rollins, page 185, 1958)

I refer to negative capability in CHAPTERS ONE and FIVE. In those two chapters, as well as

[6] I look at the relationship between non-sense and non-coherence in chapter five.

CHAPTER FOUR, I draw support for the important role of uncertainty in the artistic process from another psychoanalyst, Milner (1951). She describes the anxiety experienced whenever she engaged in creative activity. The aim of psychoanalysis is to delicately expose the workings of a dynamic unconscious which is concealed in a mind that is itself hidden in a head. Milner's account of trying to paint provides a conduit between this internal unconscious and the exposing potential of art. Whenever she takes up a paintbrush Milner discovers a tension between two kinds of thinking. The first is…

> …the kind of thinking that makes a separation of subject from object, me from not-me, seer from seen…We know a lot about the first kind of thinking, we know its basis in the primary laws of logic, which say that a thing is what it is and not what it is not, that it cannot both be and not be. (page 251)

Milner acknowledges that thinking based on the this sort of "formal logic" (page 251) can resolve the problems of an inanimate, material environment but she finds it does less well in the world of feelings and this takes her to the second kind of thinking, a vulnerable state of mind that is important therapeutically for her patients who, she says, find in psychoanalysis a process where it is "safe to indulge in reverie, safe to permit a confusion of 'me' and 'not-me'". She goes on to add that "painting likewise provides such a setting, both for the painter of the picture and for the person who looks at it" (page 256) and is achieved…

> …by continually breaking up the established familiar patterns (familiar in his particular culture and time in history) of logical common-sense divisions of me-not-me, he really is creating 'nature', including human nature. And he does this by unmasking old symbols and making new ones, thus incidentally making it possible for us to see that the old symbol was a symbol; whereas before we thought the symbol was a 'reality' because we had nothing else to compare it with. (page 256)

I return to these two modes of thinking and the tension between them in the conclusion.

Breaking up familiar patterns and disrupting established perceptions of reality are themes taken up by Eco in *The Open Work* (1989), an analysis of late modernist developments in

literature, arts and music and their relationship to contemporary scientific advances. For Eco, pre-modernist representational art confirms conventional views of the world whereas those that followed the impressionist movement, open or informal works as he calls them, create experiences that are unstable and dynamic.[7] What he means is that an open work does not present a task of perceptual decoding but an encounter whose signification is imbued with the knowledge that it is only one of several possible truths. Eco links the modernist evolution in the arts to the paradigm shift that took place in physics in the first half of the twentieth century, a shift from understanding the universe as determinable to realising that it is intrinsically unpredictable. Eco describes this shift as a "discontinuity of phenomena" (page 90) and believed that art has an important role in helping us come to terms with and thereby inhabit this new universe of disorder:

> contemporary art can be seen as an epistemological metaphor. The discontinuity of phenomena has called into question the possibility of a unified, definitive image of our universe; art suggests a way for us to see the world in which we live, and, by seeing it, to accept it and integrate it into our sensibility. The open work assumes the task by giving us an image of discontinuity. It does not narrate it; it is it. It takes on a mediating role between the abstract categories of science and the living matter of our sensibility; it almost becomes a sort of transcendental scheme that allows us to comprehend new aspects of the world. (page 90)

In Eco's terms, an open work does not illustrate what a discontinuous universe looks like but gives us direct experience of discontinuity. In this way art facilitates a cultural change made necessary and possible by advances in scientific knowledge. "Informal art calls into question the principles of causality, univocal relationships, and the principles of contradiction" (page 87), an interrogation "acquired from contemporary scientific methodologies" (page 87). Despite ascribing an important social function to the open work, Eco assumes a

[7] Modernism introduced a self-conscious approach to artmaking which continues to this day. Like craft, contemporary art makes things, but unlike craft art often incorporates an analysis of its own activity into the act of making. We could call this auto-reflective potential *meta-making*. I believe it is this capacity which turns art into a powerful epistemological tool. I explore this more in chapter five in relation to Heidegger's analysis of modernism.

unidirectional, causative relationship that runs from physics to art. He does not allow that specific developments in the arts may also facilitate scientific progress or, more generally, that the methods used in art and science may have more in common than scientists are willing to admit. He does not consider the extent to which mythical thinking may underwrite creative scientific ideation. Other writers do and I turn to them next.

Midgley (2004) argues that metaphor and mythical thinking play essential roles in generating and structuring scientific ideas but are written out of scientific methodology. Likewise, Latour (1987,1990, 1993) outlines how the process of scientific research progressively removes the messiness of laboratory activity, the alchemy that transforms materials into signs. Latour maintains that the sciences are made more credible by abolishing their modernist constitution so that, instead of being taken in by…

> … their objectivity, their truth, their coldness, their extraterritoriality – qualities they have never had, except after the arbitrary withdrawal of epistemology – we retain what has always been most interesting about them: their daring, their experimentation, their uncertainty, their warmth, their incongruous blend of hybrids, their crazy ability to reconstitute the social bond. (1993, page 142)

McGilchrist (2021) too argues that we grasp a new idea by analogy to something already understood and that scientific knowledge therefore advances through the subjective experience of metaphoric transformation. If Midgely, Latour and McGilchrist are right, which of course I think they are, this reliance on metaphor makes scientific claims to objectivity a bit suspect. Gosden (2020) goes further by arguing that Newton's interest in magic may have had a role in helping Newton to think thoughts that would have been unthinkable within a scientific paradigm. Gosden supports his proposal by comparing Newton's work with that of the magician John Dee, Newton's elder by a couple of generations.

> Out of the eclectic mix of thought and influences that made up the Renaissance we have tended to

> choose a few strands we feel are ancestral to the present, with the origins of modern science primary in this choice, and magical thought relegated to the weird and anachronistic. Newton is a treasured scientific ancestor; Dee pursued the dead-end that is magic. However, within the brains and bodies of both Dee and Newton were beliefs and hypotheses that mingled science and magic in ways impossible to disentangle. (page 378)

> Newton's more magical pursuits do not reveal an eccentric hinterland to his real thought, but rather a central arena in which all of Newton's enquiries met and mixed. The combination of old and new ideas, initially incompatible, may have spurred Newton on to theories of gravity, motion and optics that became so fundamental to science before Einstein…Alchemy and magical thought formed the framework Newton used to try, unsuccessfully, to create a fully holistic understanding of the universe. Dee's and Newton's thought may not have been as far apart as commonly supposed. (page 385)

In an interview, Latour makes a similar argument sound different by collapsing magic into science and equating it with animism:

> Animation [*sic*] isn't magic, it's science…Magic is not magic…But for agency and the transformation of agencies, you cannot do without it if you are a scientist. That's why when people say Newton is simultaneously an alchemist and a physicist, it doesn't mean much, because, on the contrary, he is doing good physics because he is doing alchemy. It's not that he is divided; he is not a divided soul, half-modern and half-archaic. He is doing transformations of agencies…And that's what scientists have always done. (2012, page 92).

I will come back to Gosden's argument about the ubiquity and importance of magic but first I want to take a closer look at what Law (2004) means by *non-coherence*. Like Midgely and McGilchrist, Law is concerned about how and why flights of fancy are left out of the serious business of science. Intuitions and hunches are relegated to the arts and imagination is proscribed in the service of a science methodology whose goal is to deliver an unambiguously coherent picture of reality.

> Poetry or painting or novels may escape the requirements for coherence and consistency because their 'out-there', the absence that they enact, is not taken to be 'real'. It is not 'really out-there' – and in the imagination non-coherence is allowed as a possibility. So individuals are authorised to dream without any requirement of consistency. But realities are more serious. They demand singularity, and singularity demands experts, a single point of view. Non-coherent realities disappear into art, or the realm of the personal. (page 98)

Law goes onto argue that neat methods are unsuited to capturing the messy and

contradictory realities of social life: “if matters are non-coherent, then to try to describe them as non-coherent may miss the point since it insists on generating a form of coherence” (page 93). Rather than aiming for clarity, indeterminate realities are better described allegorically by…

> …ambiguity and ambivalence. To work in allegory is to see and to make several realities at once. It is to see and make several different realities in the same presence... Allegory is necessarily, then, about piling different realities up on top of one another. It is about the apprehension of non-coherent multiplicity. It is about split vision. Or ways of knowing in tension….

Having defined non-coherence, I come back to Gosden’s proposition that a magical worldview facilitates thoughts that are unthinkable from within a scientific paradigm. Gosden differentiates magic from science in three, interrelated respects. First, magical thinking uses a different logic from science to forge links between things, one based upon resemblance. Whereas science aims for a universal description of the relationship between matter and energy, the world of magic is linked, enchanted and animated by spirits. Second, science promotes a neutral, impersonal, we might say, uncaring account whereas magic humanises the universe, giving it the capacity to feel. Third, science is concerned with gaining an intellectual understanding from an exterior perspective by dissecting the world into comprehensible units. Magic is immersive. It brings us into emotional contact with the universe by weaving human and non-human affairs into a complex web of interdependence. The world of magic is vibrant. The world of science is rational.

The magic of art

Next I want to draw a parallel between what magic does and the experiential possibilities offered by contemporary art. I will begin with Gosden’s description of Scythian material culture and the composite, organic patterns that decorate, or perhaps better to say, animate its surface. Gosden points out that when we consider the complexity of these zoological

forms today, we find ourselves trying to work out what they represent by separating each chimeric image into its individual elements. In Gosden's view, this manoeuvre is probably very different from how such artefacts would have functioned in the hands of their makers and original owners:

> Scythian art is not an attempt to represent the world so that it can be contemplated, as might happen today in an art gallery; rather, gold or bronze artefacts, forms of clothing or horse gear, were a series of experiments with reality, attempts to understand and to change it. Art alters perceptions and actions, allowing people to act in the world in new ways. (2020, page 151)

It is true that galleries like to encourage an attitude of quiet passivity between visitor and exhibit, but some contemporary art resists domestication and, against the odds, succeeds in offering surreal, boundary-breaking composite experiences that, like Scythian artefacts, have the power to alter perceptions and change behaviour. Renfrew (2003) for example, talking about the parallels between the activities of artists and archaeologists, describes how his perception of prehistoric landscapes and his experience of archaeological digs were transformed by seeing the installations of the artist Richard Long:

> One experiences the work of Long through the senses…This and other encounters with contemporary art have led me to seek to include more deliberately, in my view of the experience of excavation, the various sensory impressions that one undergoes in the process. (pages 39-40)

Making contemporary art also transforms experience. The artist Rebecca Méndez describes how the process of making a video installation about the arctic tern, Circumpolar Migration, created a composite consciousness:

> When I find myself waiting in this very quiet being, what I'm looking for is a dissolution of my sense of self, the sense of my identity, the sense of my boundaries. So, I end up 'becoming with' right? Becoming with a landscape, becoming with the wind, becoming with the birds, becoming that which I study. So, waiting, waiting, being there, I dissolve…" (Buchman 2021, page 59)

I have used non-coherence to highlight the epistemological parallels between art and magic and to show that art shares a similarly powerful explanatory potential to the one magic

formerly enjoyed in the West and still does in other cultures. By doing so I wished to demonstrate that the power of both magic and art is diminished by the misplaced view that understanding is found through the abstraction and purification of thought and that truth owes nothing to the mess and uncertainty of contradiction, ambiguity and metaphor. I end the introduction by presenting what I think is a beautiful example of how an art project finds truth, not as an absolute but as a complex ongoing negotiation.

The project in question is a video installation that I saw at the 2017 Venice biennale, *In pursuit of Venus (infected),* by New Zealand artist Lisa Reihana. Although viewed as art, the installation provides a fine example of the sort of approach to anthropology and archaeology that I am trying to promote. The video footage is a digital re-interpretation of twenty panels of wallpaper, *Les sauvages de la mer pacifique* (Charvet, 1804-5). The wallpaper depicts scenes drawn from contemporaneous illustrations of the Pacific voyages of Cook, de Bougainville and de la Perouse. Cook's first voyage was commissioned by the Royal Society of London to track the transit of Venus, hence the title.

The original 1805 wallpaper already presents us with a culturally manipulated, composite world, a romanticised vision of the Pacific that invites the viewer to bask in the achievements of the European Enlightenment against a backdrop of largely manufactured primitive exoticism. For example, the panels feature anachoristic plant species from the Americas and the eponymous savages are dressed in a manner that has more to do with ancient Greece than it does to the indiscriminate mix of Tahitian, Australian, New Zealand indigenous cultural objects that are portrayed across the panels. Reihana describes the wallpaper as "a concoction, a fabulation invented in someone else's elsewhere" (The Guardian, 15 October

2018).

In Venice the video was projected onto a 23-metre-long screen. Although you can see an excerpt of the installation online, the experience is not at all like seeing it in the *Arsenale*, the thirty minute footage scrolling slowly from left to right across the vast screen. Unlike a normal projection, in which the action plays out directly in front, this lateral flow offered a viewer, strolling from left to right, an opportunity to accompany a particular scene as it unfolds, before walking back to follow other scenes. The flow did two other things to me. First, it disrupted the temporality of the experience so that, either I felt that everything was happening at once and/or, that I could walk backwards and forwards into and out of time. Second, it lulled me into the wallpaper and implicated me in the action.

I have spent time in castles, country homes, museums and galleries and so I was no stranger to the scenes and aesthetic style depicted in the video; yet the familiar became uncanny before my eyes. At the time I was so absorbed by the whole experience that I did not even try to get to grips with what was so strange. Later, after listening to interviews with Reihana, I understood how the video-wallpaper shifted my perspective. The primary perspectival manoeuvre was to amplify the significance of the activities of the depicted indigenous people so that they became central, rather than auxiliary, to the European-indigenous exchanges – what Reihana calls "Nativizing the point of view" (2020). This included for example, detailed research into the construction and use of *Waka*, Māori watercraft, so she could show them with a similar degree of accuracy as Cook's ship is depicted in the original wallpaper. Similarly, in an interview in 2020, Reihana suggests that, when looking at the original wallpaper, non-Māori viewers slip into seeing Māori and other tribal artefacts as objects,

whereas for Māoris these *taonga* make precious links with ancestors which Reihana tries to enact in the video.

The perspectival reconfiguration experienced in front of the screen is matched by the formation of important social and cultural links behind the scenes. Reihana is of mixed descent, an English/Welsh mother and a Māori father. *In pursuit of Venus* is a way for her to bring consistency to her cultural heritage. To achieve this, and to disentangle the original wallpaper's composite mishmash of indigenous culture and fantasy, Reihana set about "Re-making the real" (interview, 2020), as she called it. She contacted different indigenous communities and cultures across the Pacific and negotiated their involvement in creating and enacting the various tableaux in the video. In turn, this facilitated new pan-Pacific connections between groups of different cultures who found they shared similar post-colonial concerns. In addition, Reihana collaborated with European institutions. She visited the Royal observatory in Greenwich to film one of the telescopes used by Cook, which then appears in the video. She also recorded the tick of the clock used by Cook during the voyage and this too is woven into the soundtrack along with the sound of Pacific bird calls and indigenous musical instruments. The installation does more than provide visual entertainment or social commentary. Reinhana's efforts to remake the real succeeds in remaking herself by re-making the world (De Marrais and Robb, 2013).

I present *In Pursuit of Venus (infected)* as an excellent example of a process of knowledge-making and truth appraisal that is sensitive to the context in which the making and the appraisal takes place, a process which encourages feelings of discomfort, ambiguity, contradiction and paradox and one that reveals the magical potential of contemporary art

and the role it can play in anthropological and archaeological action research. By ‘magical potential’ I mean more than merely the capacity to delight. I am referring to the transformative power of magic. When she was asked what the word ‘infected’ was doing in the title Reihana replied that although ‘infected’ normally refers to pathogens…

> …to me it also relates to the idea of knowledge. Once you know something you can't un-know it and so I like to think that I'm infecting the rest of the world with …our (Māori) cyclical way of looking at the world. (interview, 2020).

By cyclical, I take Reihana to be referring to the same symmetrical relationship that for Gosden defines magic and for Latour defines science, a relationship of inseparable interpenetration between human and world affairs animated not by humans but the act of relating. The controversial claim, that sentience belongs not to living things but emerges from relational activity is central to clayful phenomenology.

CHAPTER Summaries

The first three chapters develop the method by detailing five contemporary examples of creative thinging.

CHAPTER 1. Playing with Clay (March, 2019).

Three case studies explore what it is like to collaborate with the creative plasticity of clay. The chapter focuses on material agency in the context of the other two tenets of MET (the enactive sign and the extended mind) and introduces two of the principal themes addressed in subsequent chapters: from subject to system and sculpting as curious intent.

CHAPTER 2. Art through material engagement (March & Malafouris, 2023)

Based on a project from 2015-2017, the chapter continues the development of sculpting as

an exploratory tool. I begin with a systemic reformulation of Dewey's argument that aesthetic experience, like everyday experience, is purposeful (pragmatic). I then argue that, by concentrating on the activity of a creative system rather that of an individual artist, hand-clay transactions become epistemological: clay as a sensory tool as well as a medium. This shifts the focus away from space towards what goes on in time, from things to thinging.

CHAPTER 3. Briefing for a systemic dissolution of serendipity (March & Vallée-Tourangeau, 2022)

The chapter considers the behaviour of a clay-fibre composite material. Unlike work featured in the first two chapters this project (2018-9) is precipitated and directly influenced by and is an explicit study of MET. Unlike a typical research programme, it begins not with a set of goals but with an experiential-material blend of fibrous-clay wonderment, what in the conclusion I refer to as *affective intention*.

Serendipity is often used to describe how an unpredictable environment can disrupt human decision-making in a creative way. The chapter considers what happens to serendipity if decision-making is seen to arise from an auto-generating creative system and argues that – if there is no-one making plans, if there are no prior intentions – then the extent to which events are experienced as unpredictable (accidental) decreases

The last two chapters introduce a form of experimental cognitive archaeology during which clayful phenomenology is used in a diffractive way to explore the enactive signification of a prehistoric artefact, in this case a *Jōmon* flame pot. This analogic, experimental approach does not attempt to uncover past meanings but to make sense of the archaeological record

by creating new ways of experiencing its traces in the present.

CHAPTER 4. The Clayful Phenomenology of *Jōmon* Flame Pots. Part 1. (March, 2021).

Drawing on material from *Project Holocene* (2015-2018) the chapter does four things. First, it shows how spatial experience develops within a transient system of creativity. Second it considers the liminal quality of temporal experience in relation to indexical and iconic signs. Third, it returns to the concept of agency, identifying it as an enactive, systemic force that undermines the apparent unity of subjective experience. Fourth, it provides a systemic analysis of the tension in artwork between reliance on habitual behaviour and compulsion to disrupt it.

CHAPTER 5. The Clayful Phenomenology of *Jōmon* Flame Pots. Part 2 (March, 2023)

The chapter begins by introducing the third theme of the thesis, the concept of non-coherence (Law, 2003) and makes the case for embracing the messy, epistemological and ontological consequences of taking a non-coherent attitude towards archaeological research. I describe how non-coherence reveals the knowledge-making potential of artwork and suggest that, whereas feelings are assumed to undermine the coherence of objective accounts, they are central to a non-coherent approach. I then present Heidegger's concept of *dasein* as a possible mechanism by which a "self-organising process" (Kirchhoff and Kiverstein, 2018, page 20) such as a creative system might exhibit consciousness. Next, I describe how the perspective of the creative process changes in Project *Holocene* and *Jōmon* flame pot production technique when they are diffracted (Barad, 2007) through each other and finally, how the act of sculpting can upset the chronological experience of time.

Chapter 1. Playing with clay

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Playing with clay and the uncertainty of agency. A Material Engagement Theory perspective

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Abstract I describe how close attention to the process of sculpting clay from the perspective of Material Engagement Theory can create a detailed description of a mutable sense of agency and of self. First, I show that sculpting is associated with a loss of sense of agency and self. Second, that to sense agency as a systemic phenomenon (rather than a personal attribute) creates anxiety. Third, that meaning in an art encounter develops in association with an anterospective viewpoint. Fourth, that within the logic of the extended mind, emergent meaning becomes openly available for further exploration (meta-cognition). Fifth, that artistic creativity is not an opaque process. It proceeds in a similar manner to other forms of human, sense-making activities. Finally, that playing seriously with clay can be used in an investigative manner—as a tool for material conceptualisation.

Keywords Material engagement · Agency · Enactive signification · Art · Extended cognition

1 Introduction

In this paper, I describe how close attention to the process of sculpting clay from the perspective of Material Engagement Theory (MET) can create a detailed description of a mutable sense of agency and sense of self. I do not claim that a single, subjective account can be generalised to say anything directly about the nature of agency *per se*. My aim is rather to describe my sense of self whilst sculpting in order to explore and test some key concepts from MET.

In part, this is an attempt to resolve two contradictory personal experiences. As a former clinical psychologist, trained during the post-behavioural, cognitive revolution

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and specialising in neuro-rehabilitation, I understood perception to involve the construction of internal representations of the world (e.g. Palmer 1999 for a full account of this view). I assumed that creativity was explained by the mapping and manipulation of internal conceptual spaces (e.g. Boden 1994, 2004). And I held agency to be the triumph of mind over matter. "Through cognitive self-regulation, humans can create visualised futures that act on the present; construct, evaluate, and modify alternative courses of action to secure valued outcomes; and override environmental influences." (Bandura 2006 p. 164). Now a sculptor who works with clay I find these information processing models of the mind incompatible with the process of making. Sculptural forms seem to arise directly from the interaction between my body (eyes, arms and hands) and the clay. It feels like the clay and I create something together.

I will begin by describing how the information processing account determines our view of agency and creativity. I will then consider an alternative formulation using MET (Malafouris 2013). A key aspect of MET is the proposition that sense and form are recursively co-dependent, creating an experience that is unmediated by language—what Malafouris (2013) calls "enactive signification". I will explore the importance of enactive signification for art-making using three case studies. By doing so I wish to show first, that on occasions of intense engagement with clay, the boundaries of what I consider to be myself become uncertain or permeable. There no longer appears to be a sharp division between what is me and what is not me. From a MET perspective, we could say that the mind extends to include the clay in its act of plastic deformation. Malafouris refers to this as "Creative Thinging" (2014). But this growing awareness of the mind's plasticity undermines the notion of a stable self. Second, that meaning in an art encounter emerges in association with an anterospective viewpoint. Third, if the brain and the mind do not inhabit the same space; if the mind extends into the world of material things, then the activities of the mind become visible to us. In short, we can see ourselves thinking. (Malafouris 2007). Malafouris calls this "metacognition (thinking about thinking)" (2013, p.77) Fourth, by drawing a parallel between a MET-informed analysis of sculpting and Latour's (1999) analysis of scientific advancement I show that making art is not a special case of creativity but proceeds in similar ways to other forms of human, sense-making activities. And finally, by looking carefully at the way sculptures come into being, I want to show that sculpting can be used in an investigative manner—as a tool for material conceptualisation.

2 The hylomorphic model

From Aristotle, we inherit the notion that a thing consists of the matter (hyle) of which it is made and the form (morphe) that matter takes. If form and matter are separated in this way, the creation of new forms requires an active agent to conceive of an idea and then to impose it on passive matter. This view of agency is succinctly summarised by Barandiaran et al. (2009, p. 370).

The first condition for the appearance of agency is the presence of a system capable of defining its own identity as an individual and thus distinguishing itself from its surroundings; in doing so, it defines an environment in which it carries out its actions.

To illustrate the hylomorphic model, Ingold (2010, pp. 22–23) describes how the role of the architect has changed since medieval times from one of master builder

working in concert with materials, to becoming an expert in the manipulation of precise but abstract geometrical forms. The true creative locus becomes located in the mind of the conceiver. The doer takes instruction from the conceiver rather than guidance from the material. This view—consistent with Boden—finds its apotheosis in the development of conceptual art. Sol Le Witt, one of the movement's pioneers, described it in the following terms

> "In conceptual art the idea or concept is the most important aspect of the work. When an artist uses a conceptual form of art, it means that all of the planning and decisions are made beforehand and the execution is a perfunctory affair." (Le Witt 1967, p.79)

But the neat split between important idea and perfunctory execution is blurred if we explore how the planning and decision-making actually comes about. When the contemporary conceptual artist, Damien Hirst recounts the origins of some of his most famous works they turn out to be, not abstract reflections, mechanically rendered into material form, but embedded in the physicality of his artistic practice. Here, for example, he describes the inception of his series of butterfly paintings:

> "I was priming a canvas and flies were landing in the paint. I remember thinking—again like an imaginary painter who'd be trying to paint monochromes and insects kept screwing it up and then they became the work. And I thought wouldn't it be brilliant if they were butterflies. So, the by-product of something horrible happening—like an insect in the paint—became a great thing." (Hirst 2012, 15–15.30 mins)

If we go beyond conceptual art into the milieu of art in general, the hylomorphic model appears even more unlikely. Here is how Francis Bacon attributes agency and creativity.

"I foresee it in my mind, I foresee it, and yet I hardly ever carry it out as I foresee it. It transforms itself by the actual paint… I don't know very often what the paint will do and it does many things much better than I could make it do." (Sylvester 1975, p. 16).

Returning to Barandiaran and colleagues, they concede that the neat agent-environment split that they propose is challenged by questions of co-dependence between the two.

"How does niche construction (for example) relate to agency? Should those environmental features that recurrently depend on the agent be considered as part of the agent? What is the status of tools as mediators between agents and environments?" (2009, p. 381.)

One solution to the dilemma is to take a more reciprocal view of agency and extend and distribute it throughout the environment. This is essentially the position taken by Gell and Latour. In brief, Gell (1998) proposed that we exhibit primary agency and the materials we use derive a secondary agency from our interactions with them. Gell suggests that the act of making something breathes agency into it. This, in turn, influences the development, culture and lives of humans.

For Latour (e.g. 1996) the world contains the constant potential for the formation of networks of action between humans, artefacts, things, ideas and cultural constructions. Agency emerges only when these elements come together to form actual networks and becomes distributed symmetrically across those networks.

Ingold has questioned the value of agency as a concept, (2010, 2013) pointing out that the approaches of Gell and Latour perpetuate a linear model of causality in which, irrespective of the nature of the agent, action is divided into cause and effect. I am not sure the criticism is warranted in the case of Latour who sees agency as an emergent property of a network in formation rather than something to be partitioned. Both Latour and Ingold wish to reunify the act of creation first by changing "form" and "matter" from nouns into verbs—"forming" and "mattering"; and second, by suggesting that each engenders the other. This dynamic ontological position in which agency does not exist independently of action is similar to that proposed by MET.

3 Material Engagement Theory

Developed within an archaeological context by radically re-framing the ontological status of artefacts, Malafouris (2013) describes how things and thinking are related. Instead of using a stone axe, for example, as a clue to the structure of the mind of Palaeolithic man, Malafouris suggests that we view the axe as an active and indispensable part of the cognitive architecture of the maker. And rather than seeing creation as the imposition of a preconceived internal image onto a lump of flint (as with hylomorphism), he proposes that the materiality of the flint not only actively shapes a specific tool but is ontogenetically and phylogenetically inseparable from the mind and body that made it. (Malafouris 2013, 2015).

As with Ingold and Latour, the fundamental shift here is away from perceiving artefacts in terms of forms and shapes, and towards experiencing them as a series of gestures and actions – what Malafouris calls, "the *hylonoetic* field of human becoming" (2014 p. 142). Not only does this mean that we humans literally have a hand in our own ontological development but this development is visible to us in the interactions between our hands and the materials in front of us. By taking notice of the unfolding action, we take a meta-position with regard to our experience of the world. With regard to thinking, Malafouris (2013, p. 77) calls this "metacognition (thinking about thinking)" Taking a meta-position can apply equally to feelings. Malafouris (2014) notes that the interactions between potters, the clay and the wheel are expressed as a "feeling of and for clay". Here the word feeling means something different from its normal use in day-to-day language. A feeling is typically understood to be a consequence of something, e.g. "I feel sad and upset because you rejected me." But in the context of engaging with clay, a feeling is an expression of the dynamic co-created energy of the ongoing activity of modelling. The work of sculpting proceeds with a "feeling of and for clay" which emerges in the activity between my hands. The feelings are simultaneously both conceived and experienced by this manufacturing system. In addition, they are available for examination. I want to call this "meta-emotion" (having thoughts and feelings about feelings).

4 Enactive signification

From the perspective of understanding art-making, perhaps the most important aspect of MET is its reformulation of the relationship between things and meaning.

Malafouris (2007, 2013) uses the cave paintings of Chauvet to question the notion of representation and to demonstrate that there is nothing about a painting of a rhinoceros that should lead us to assume that it is standing in for a real rhino in the way the word "rhinoceros" does.

"To say that a painting from Chauvet "resembles" or "looks like" a rhinoceros does not necessarily imply that the painting also represents a rhinoceros in a concept-mediated manner…I am not questioning that the picture can be taken as evidence of seeing a rhino; I am, rather, questioning that it can be taken as evidence of a consciousness that represents or stands for something to be found beyond the depicted thing itself." (p. 199).

Malafouris (2013, p. 90) refers to the translation of material expression into language as "the fallacy of the linguistic sign". In art appreciation, it is this automatic, unnoticed transformation that prompts questions such as; "What does this sculpture mean?" or "What are you trying to say?". Such questions reveal the agency of representation to be linear, unidirectional and retrospective—brought about by the division of the world into stimulus and response. Malafouris' contention is that material signs are not symbols that represent or stand in for a concept. Rather, the concept is conceived at the moment of materialisation. The signifier and the signified arise simultaneously. Malafouris (2013, p.99) calls this "enactive signification". With this view, art is liberated from its representative role. It can no longer be held up to the world as a mirror. Art becomes simultaneously part of the world and an expression of the world.

5 Playing with clay

Over the last 3 years two tonnes of clay have passed through my hands, taking on various shapes and sizes before being heated to around 1200 °C. I mention the weight of the clay and the temperature of the kiln to emphasise that what I will go onto say about experience is related to physical and material transformations. The physicality of sculptural experience can be felt by comparing two different clays: stoneware and porcelain. Metaphorically speaking, stoneware is dynamic, generous and forgiving—confident in its plastic potential. Porcelain is intransigent and full of inertia. With porcelain, the act of creation and the outcome of the engagement with my hands take place within boundaries set by the clay's limited elasticity and excessive friability. Sculpting with porcelain is a tense negotiation.

Before continuing I want to describe why I think "playing" is a good word in this context. Memories of playing as a child and my experiences of making clay sculptures bear certain strong similarities. Playing, like making sculptures, is a way of exploring the world in which, within the constraints of the game, the signification of things is enacted in unusual and metaphorical ways. Like creative thinging and unlike traditional theatre, play does not reach for a resolution. Like creative thinging, time and space are brought under the command of the game and expand or contract according to the requirements of each playful moment. Like sculpting, I can accept the incompleteness of play even as I am lost in the act of make-believing.

I will now present three examples of playing with stoneware in order to explore how sculpting clay also traces its own actions.

6 The *Substantia Inomminata* series

Here are three possible ways of describing how this series of sculptures (2013) came into being.

(i) For 9 months, I took lumps of clay, pushed them together, pulled bits off, squashed them and coaxed them into changing their form.
(ii) For 9 months, lumps of clay pushed against my hands and each other, coalescing and fragmenting, taking and changing form.
(iii) For 9 months, lumps of clay and my hands danced together in response to shapes left in the clay by previous dances.

There are many more versions of what took place during those 9 months. But simply comparing these three demonstrates how description defines agency. Each description is validated by changing either the perspective or the starting point of the narrative. Let us call the first description the normal (hylomorphic) one: human agency as it is mythologised. The second, whilst not explicit, is difficult to read without concluding that the author was an animist. The third has the metaphorical ring of an artist's reflections. It is not as troubling as the second because the existence of metaphor allows us to believe that the artist thinks that s/he remains the agent.

Giving an account of what it is like to play with clay is not going to be easy. Even "playing with clay" as opposed to "reacting to form" defines both the doer and the done-to. Part of the problem, as Ingold notes (2014a), is linguistic. We are obliged by language to divide the world into active and passive elements. Ingold refers us to the work of linguist Benveniste:

> "…in the history of the Indo-European languages the active/passive opposition emerged through a decomposition of what ancient Greek grammarians called the 'middle voice'. It was this decomposition that put agency, as it were, out in front, separating the doer from the deed. In the middle voice, by contrast, the doer remains inside the process of his doing; "he achieves something", writes Benveniste, "which is being achieved in him" (Benveniste 1971, p. 149).

In the absence of a middle voice I will sometimes make recourse to metaphor. In order to speak without prejudice, it is sometimes necessary to ascribe life-like qualities to inanimate clay.

The *Substantia Inomminata* series (Image 1) was an attempt to create highly structured yet perceptually indeterminate forms in order to explore the extent to which structure and indeterminacy can co-exist. The aim was to arrive at a tight, coherent sculpture that gave the impression that there was something to recognise without it ever settling into an acceptable thing in the eye of the beholder. We might call this overarching aim a "prior intention". But as Malafouris argues (2008a, b, 2011, 2013), if we take context into account, in this case a series of antecedent projects,

Image 1 *Substantia Inomminata IV (2014)* 0.35 × 0.35 × 0.25 m. (For the whole *Substantia Inomminata* series, see www.paul-march.com/section/403550-substantia-innominata-series.html)

prior intention becomes embedded in prior action—what Gallagher and Miyahara (2012) call "enactive intentionality".

The simultaneous development of structure and indeterminacy requires a particular sort of awareness, which I will discuss later in relation to the poet, Keats's notion of 'Negative Capability'. For the moment, it is enough to say that this awareness involves two, related tasks. The first is the usual one of sculpting during which a lump of clay and I engage in creative thinging. The second involved paying attention to the emergence of agency and the intentional origins of sculpting. Defined thus, sculpting becomes an act of participant observation "…knowledge…consists not in propositions about the world but in the skills of perception and capacities of judgment that develop in the course of direct, practical, and sensuous engagements with our surroundings. "(Ingold 2014b, p. 387). Milner (1950) calls this process of realisation though doing "contemplative action. The act of monitoring makes explicit a metacognitive/ meta-emotive position that is implicitly present in exploratory art-making. As Malafouris & Koukouti, put it, "The feeling *of* and *for* clay designates, on the one hand, the experience of absorption in and submission to the material, and on the other the parallel active exploration of an ongoing improvisation with the material." (Malafouris and Koukouti 2017, p. 297).

The requirement to pay attention to the emergence of agency had a profound effect on me. The emerging *Substantia Inomminata* sculptures challenged the ubiquitous separation of the world into nature and culture. The strange, developing shapes paradoxically suggested that they could also have been thrown up by a process of ossification, fossilisation or non-human, animal activity. The act of monitoring blurred the distinction between my repetitive movements and so-called natural phenomena such as, bees making nests or plants growing leaves. Others have had similar Damascene experiences. For Bennett (2010 pp. 4–6) a chance encounter with some debris in the street lead her to experience the vibrancy of matter. Renfrew (2003) describes how he positively reappraised a Richard Long installation (Chalk Line, 1979) when he remembered a particular archaeological dig. His re-evaluation recursively convinced him to see his own, experiential reactions during excavations as an integral part of archaeological exploration. For these authors, as for me, a material encounter created a new ontological experience.

Hogan and Pink (2010) and Renfrew (2003) suggest that art does not resolve anything. It replaces certainty with doubt. It was certainly the case here. Contemplative action called into question, not only the nature-culture distinction, it was also dismantling my sense of self, replacing it by the notion that I was a typical brain and body, following the laws of the universe like any other system—organised by the universe like everything else. In this state, language becomes less important—unnecessary or even unhelpful. I am reminded of Humphrey's (1998) paper in which, by comparing the cave art of Chauvet and Lascaux with the drawings of Nadia, a young autistic girl, he argues that the symbolic nature of language interferes with direct visual experience. For example, at certain moments during sculpting, my sense of self is aphasic. I do not mean that I have lost the capacity of language, rather language ability is not co-opted into my sense of self. We can understand this strange state of affairs by sidestepping the assumption that it is the self that determines the morphology of artistic activity and considering instead the view that it is the arc of activity itself that constructs a transient sense of self adapted to the task at hand (see also Malafouris (2008a, b) notion of tectonoetic awareness).

The clay-in-formation felt like it was both of the world and of me. The boundaries of my haptic self expanded to include the changing clay form and became indistinct, making it difficult to distinguish me from not-me. My eyes however lagged, still tending to see the clay as something beyond me. Hodder (2012) presents a view, originally formulated by Alois Riegl, that the history of art from ancient Egypt to late antiquity is characterised by a change in the primary mode of perception from haptic to visual. This view implies that the contemporary prohibition on touching art creates inflexible boundaries between people and art, leading to an impoverished experience.

Pink (2011) suggests that the five senses are not biological givens but constructs that define perceptual limits. If taken separately, each sense presents a different world view. She goes on to describe how alternative or amalgam senses might be constructed—a sense of freshness, for example. Likewise, Bäckström (see Fors et al. 2013) provides descriptions of multimodal perception in skateboarders. When sculpting, the senses of touch, movement and proprioception become effectively inseparable. Modalities and experience are blended and it becomes impossible to act uni-modally.

Hodder (2012) describes how, in Hegelian terms, a subject becomes aware of his/her existence by becoming aware of things that s/he is not. It is the perception of things beyond the self that creates the sense of self. According to Bion (1967), the capacity to think co-evolves as the self separates from the world. Winnicott (1953, 1960) adds that the development of this thinking-self is provoked by the frustration of need. This is like Dewey's view, "Not without resistance from surroundings would the self become aware of itself" (Dewey 1934, p. 62).

For Thompson, the construction, maintenance and regeneration of boundaries (autopoiesis) is the hallmark of living things. "A physical autopoietic system, by virtue of its operational closure, gives rise to an individual or self in the form of a living body, an organism." (2004, p. 387) The sensational quality of the world is determined by the quality of these boundaries and the nature of the interactions that take place across them. The separation of organism from its environment in turn gives meaning to elements in that environment. Thompson uses bacteria as an example. The sensing capacity of bacteria transforms the molecule sucrose into food. In a positive cycle—having a sensation reinforces the sense of self. Thompson equates this emerging quality of lived experience with the mind.

Thompson's formulation (as with Barandiaran et al. 2009) implicitly assumes that the body and the mind share the same boundary. Not so for Dewey. "The epidermis is only the most superficial way of indicating where an organism ends and its environment begins…there are things outside that belong to it…that must be taken possession of if life is to continue... whether the pen of the writer or the anvil of the blacksmith." (1934, p. 61) Likewise, if we follow the logic of Clark and Chalmer's (1998) extended mind hypothesis, the self also becomes mutable, determined by the material culture that makes up the sensing mind at that moment—the swinging of an axe, the panning of a video camera or the pressure of clay against the palm. Malafouris refers to this continual un-ending reconfiguration and resampling of a plastic mind within a plastic culture as "Metaplasticity". (2015, p. 358).

Metaplasticity undermines any notion of a complete, finished mind or self. My contention is that the plasticity of clay helps to exposes the metaplasticity of the mind-material relationship in a way that is less accessible with other materials. When modelling clay, my sense of agency becomes inseparable from the changing form of the clay—the mental and the physical become blended. I watch, feel, smell and participate in an uncertain and unpredictable, physical process. When fully engaged in modelling I get a sense from the clay of the form it is about to take at the moment it takes it. It seems like the act of creation pushes the present into the future. It is like searching for an interesting pebble on the beach. Without a preconceived idea, I imagine the pebble only as I find it. In Hodder's complementary description, the pebble draws the human towards it:

> "…the object pebble has been made a thing, it has been connected to humans by the process of gazing, noticing, recognising, comparing…It is the human that has been added to the pebble…" (2012, p. 24)

Derrida refers to a similar process when he talks of how the drawing hand overtakes the thinking head, the hand does not re-present an internal image, "it traces its own actions." (1993 p. 4).

While this is exciting, the level of uncertainly created by the unstable sense of self also provokes anxiety. The artist Markus Karstieß (unpublished interview, March 2015) refers to the need to accept this state of uncertainty and the unsettling sensation that accompanies it.

> "…if you work into the open field it's like walking up…stairs and you think there is a fifth stair coming and there isn't and you step into this nothingness and this is the feeling that you have…this is what I think we should work towards when you want to succeed in creating a new artwork…"

Keats (1817) called the ability to withstand uncertainty "negative capability… being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason." Bion (1970), p. 125) subsequently used 'Negative Capability' in a psychoanalytic context to describe the capacity of the analyst, during a session, to tolerate the anxiety arising from not-knowing and to resist transference and counter-transference pressure to bring ambiguity to an end by introducing false certainties. Bion's understanding of

'negative capability' serves as a good description of what it is like to tolerate the anxiety related to these emerging sculptures.

Karstieß (March 2015) talks about the discomfort viewers felt in front of his series of ceramic sculptures, "*Fetishes*"[1]*;*

> "…people are very disturbed by the *Fetishes* and I think that it is because… they look at the sculpture and they have no idea of what that could be—it's not really a puppet, not really figurative, but it is a bit figurative, not really abstract...They don't know what it is but they know it has something to do…with themselves as being a human… so they are disturbed because they don't know…"

The visitors to the *Substantia Inomminata* (2014) exhibition were similarly disturbed by the indeterminate nature of the works. Somewhat anxiously, they explored each sculpture seeking a resemblance to something known. Almost all searched for a name for each sculpture and showed visible relief when they came up with one. Naming may play a dual task in the viewer's attempt to engage materially with these indeterminate works. Naming translates an uncomfortable expressive experience into a more manageable designative one (Malafouris 2013, p. 96). But naming may also be the linguistic expression of a process of enactive signification in which associative connections are made between an unfamiliar material sign (the sculpture) and more familiar, pre-existing concepts—a womb, dolphin, radiator etc. This is not to say that the sculpture came to represent a womb. Rather, there was a moment when a phenomenological feeling of "wombness" emerged from the beholder's engagement with a sculptural form which was neither a womb nor a symbol of one (Image 1). Malafouris refers to this process as "metaphoric projection" (2013, p. 102) and proposes it as a way in which conceptual possibilities can become substantiated. Significantly, there is no role for the imagination in metaphoric projection. It is a creative, physical/ mental act that happens, not in the head, but in the unfolding of the world.

7 The *Matrices* series

I want to explore further the mutable sense of agency and of self by describing the making of another series, *The Matrices* (2016). These sculptures were created by the repetitive addition of diagonally intersected cubes. This would normally create an ever-increasing cuboid form but, in some places, an edge or a diagonal was made shorter than it should be, causing a deformation. I am interested in the nature of the disruptive agency that brings about this deformation.

Matrix 1 took the predictable form of a symmetrical cuboid structure during the first 12–16 h of work. Thereafter, while continuing to grow cube-by-cube, it started to become asymmetrical. (see Image 2) This deviation did not come as a surprise to me because I was intimately implicated in the action. And yet I had little sense of agency.

During the next 30 h of work, the sculpture took on an increasingly organic form despite its basic geometric structure (see Image 3). To make the cuboid subcomponents my hand/body/eye gestures needed to be exact and deliberate. In contrast to the

[1] www.karstiess.com/index.php?/work/fetish/

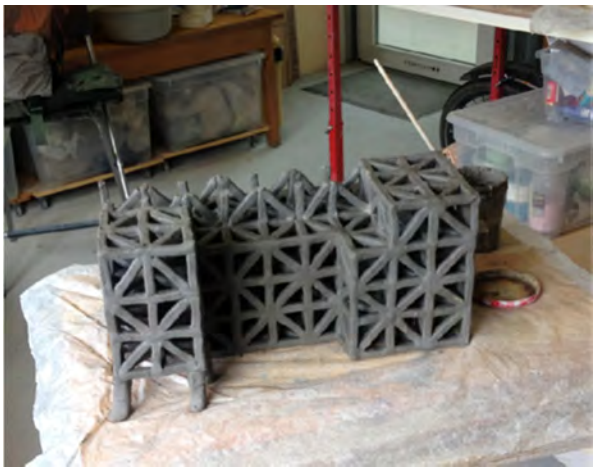

Image 2 *Matrix* 1, showing asymmetry

Substantia Inomminata series, making the *Matrices* was like working in slow motion. Smooth, sculpting gestures were replaced by a cube-by-cube freeze-frame advance. There was a stark contrast between these regular, precise and invariant gestures and the increasingly chaotic growth of the work-in-progress. Despite the chaos, there was rarely any doubt about where the next cube was to be placed. It was decided from within the hands-eye-clay-sculpture system. (See Image 4 for finished piece).

The dexterity of the cube-making gesture came from having repeated it hundreds of times during a previous project. Dow (2017) suggests that such continuous and expert bodily gestures contain an implicit awareness of self. There was certainly a mild sense of mastery that went with these gestures. Indeed, it was quite disconcerting to experience purposeful action in the absence of a sense of personal agency. Malafouris (2014, p. 151) refers to such paradoxical situations as "the sense or consciousness of making in the absence of *telos* (in the sense of a complete given)" I

Image 3 Matrix 1, The beginnings of organic development

Image 4 *Matrix 1* (2016) 0.6 × 0.25 × 0.25 m

felt a clear inclination to bring forth form from clay but I do not think it is accurate to describe it as *my* inclination. It was something I was a part of.

To be engaged purposefully in unintentional activity reminds me of Bateson's notion of "The Double Bind"—an injunction to comply with two contradictory commands (1973, pp. 142–9). Bateson positively connoted delusional madness as a creative response to the trap of a double bind. With the *Matrices*, the injunctions are imposed, not within the troubling confines of a disturbed family, but in the calm of an artist's studio. Nevertheless, the anxiety the injunctions provoked was real in terms of the perceived threat to the self. For Milner, painting was associated with similar emotional turmoil. "In one part of the mind, there really could be a fear of losing all sense of separating boundaries…in fact a fear of going mad" (1950, p. 16). I therefore think it is useful to consider these injunctions from Bateson's perspective. The sculptural substantiation of the crazy premise—to engage purposefully in unintentional activity—makes it conceivable. The clay ignores the fact that the two injunctions are linguistically inconsistent and illogical and goes on to take a physically coherent form anyway. There is certainly a tension in the sculptures between structure and indeterminacy (*Substantia Inomminata* series) and form and deformation (*Matrices*). But the tension is incorporated and stabilised in the making. The clay, working in concert with my hands, acquires an enactive sense of material agency that bypasses the simultaneous affirmation and denial of personal agency that is the lot of the linguistically formulated double bind.

Until now I have emphasised the anxiety associated with the dissolution of self and the uncertain sense of agency. But there is also an exhilarating feeling of integration

with the materials around me. I am not referring to a transcendental or mystical experience here—quite the opposite. I do not leave the material world. I become integrated with it. Milner (1950 p. 142) describes a similar experience whilst painting:

> "…there occurred, at least sometimes, a fusion into a never-before-known wholeness; not only were the object and oneself no longer felt to be separate, but neither were thought and sensation and feeling and action. All one's visual perceptions…, ideas about the object and action towards it, the movement of one's hand together with the feeling of delight in the 'thusness' of the thing, they all seemed fused into a wholeness of being which was different from anything else that had ever happened to me."

Bennett (2015) shows how art can provide a different perspective on the relationship between the self and the world. In her encounter with irreparably damaged artworks, she notes the hold that these "art-things" still have over her. Their damaged nature reveals something that Bennett says we normally overlook—the power of attributes that belong to the thing itself—colour, shape, texture, rhythm, temporality and materiality. Drawing on her concept of "vibrant matter" (2010) she argues that these broken things have a life-force which is independent of their human makers. Instead of supporting the view that art-works have human-like personalities, they emphasise that humans have thing-like properties. "The idea is not that things are enchanted with personality but that persons *qua* materialities themselves participate in impressive thing-like tendencies, capacities, and qualities." (p. 96). In these terms, the loss of sense of self might be reformulated as an increasing sensitisation to the thing-like qualities of the body and mind. Art-making as an expression of humanity is also a confrontation with the material nature of humans.

8 *In Pulverum Speramus* and the pedocomparator

As we have seen, the hylomorphic model suggests that an artwork is the physical realisation of an idea or 'visual mental representation'. I have described how, in my experience, art-making does not begin with an idea but is part of a tumbling, rolling hairball of impulses which gathers feelings, memories materials and disruptions to it. Most of the stuff that sticks is indecipherable in the abstract. The factors that may have precipitated art-making activity only become apparent in the course of the activity. I will illustrate this by describing the making of *In Pulverum Speramus* (2015, Image 5).

Here are some associations that became apparent during the making:

1) A push-puppet in the shape of a dog and/or possibly "Spotty Dog"—a puppet from the UK 1960's children's television series "The wooden Tops"
2) The memory of large, smooth, slate pebbles on beaches on the south coast of England—how each one is simultaneously an individual stone and one of a pile of stones.
3) Previous art-works assemblages. e.g.

Image 5 *In Pulvurum Speramus* (2015) 0.35 × 0.60 × 0.45 m

Haploid, Diploid, Polyploid, Mongoloid (Everybody Talkin' 'bout Pop Musik) (2010)[2]
Jomon Spider Kit (2013)[3]

4) Life drawing classes during which, the act of drawing the model would paradoxically and disturbingly collapse the Gestalt of the whole body, creating the perception of the model as a series of body parts.

In the context of the above associations (which, as I have said, manifested themselves only later) I made some sketches. The goal was not to create an external reproduction of an internal visual image. If I already had an image I would not need to draw it. The function of sketching was exploratory—like the search for an interesting pebble or Derrida's drawing hand overtaking his thinking head.

In the next stage I made a clay maquette of each piece. The forms were partly defined by the sketching, but the transformation from 2D to 3D provided another opportunity for creative exploration. If I keep clay humid I can work indefinitely with it until the piece has found the shape it needs. This project was an assemblage of six, separate pieces but, once made, the pieces did not seem to fit well together—experienced as "did not like being together". As a result, I re-modelled several of them until they felt more comfortable in each other's company.

The final assembly is about five times the size of the maquette. Scaling up requires no dimensional transformation but does demand a change in definition. The maquette is like a 3D sketch. It is only as good as is necessary to expose the overall formal relationships, leaving the details and the juxtaposition of sub-parts unresolved. The final pieces are therefore not slavish reproductions but reactions to the experience of modelling the maquette.

There were two final transforms. Once assembled, I found that that, by removing one of the legs, the work became literally and figuratively more open. But while

[2] www.paul-march.com/artwork/3042788-Haploid-Diploid-Polyploid-Mongoloid-Everybody-Talkin-bout-Pop-Musik.html
[3] www.paul-march.com/artwork/3303823-jomon-spider-kit.html

looking at the work with a fellow artist we agreed it remained too linear. After a few moments, my colleague bent down and moved the head from the front of the body to the back. With this simple gesture, the work came into its own. She had found the pebble for me.

I now want to show how Latour's description of the transformational powers of the pedocomparator may help us to understand the artistic process better. In "Pandora's Box", Latour (1999) shows how science proceeds by a series of consecutive transformations of matter into concept. He illustrates this by describing the nature and function of the pedocomparator—a tool for charting soil samples.

The pedocomparator is a flat case divided into a grid of cubic containers, each destined to hold a single soil sample. The samples are organised vertically in terms of depth of origin and horizontally in terms of geographical location. The transposition of soil from the ground to the relevant cube corresponds to a transformation of material to sign. The systematic arrangement of samples reveals gradations in colour and shade across the samples. The pedocomparator turns soil into a chart, creating meaning by defining the nature of the interaction between soil researcher and soil. This embodied act of charting helps the researcher choose where to search next.

The soil samples are subjected to further abstractive transformations. A standardised colour coding system (the Munsell code) converts the soil chart into serial numbers. Each number is linked to a location/depth coordinate which can be transposed onto a map of the original terrain. Through this series of transformations, the researcher arrives at a linguistic/numerical description and explanation of soil variation across an area. The emerging words do not resemble or represent the soil or the terrain. The discontinuous series of transformations causes the "transubstantiation" (Latour 1999, p. 64) of a thing to a sign.

By recording the pathway of transformations, it becomes possible to retrace and reproduce them. Scientific knowledge is thereby rendered credible. But Latour points out that, once scientific knowledge is established, it becomes detached from the pathways of its acquisition, thereby separating knowledge from the matter and activity of its making. Instead of remaining part of the world, knowledge ends up reflecting it. Latour concludes:

> "We have taken science for a realist painting, imagining that it made an exact copy of the world. The sciences do something else entirely—paintings too, for that matter. Through successive stages they link us to an aligned, transformed, constructed world." (1999, p. 79)

Latour's conclusion is consistent with artist Anslem Kiefer's view of the relationship between art and life.

"The artist always takes objects from… the world and transforms them. Once transformed they are no longer there. That is the relationship between life and art." (2016 interview with Laure Adler, 24.45–25.00).

Comparing Latour's description of the transformational powers of the pedocomparator with the making of *In Pulverum Speramus* highlights three common threads. First, both are defined by a series of clearly definable transformations characterised by the interplay of material and experiential progression. In neither case

can the process of transformation be described as one of objectification. Second, successive transformations are not re-presentations of antecedent materialised concepts. Despite clear associations with the previous manifestations, each transformation is diffractive rather than reflective (Barad 2007). Third, both transformational pathways occur under certain constraints. In line with the generally accepted view that science proceeds within an explicitly operationalised framework, the pedocomparator directs and delimits the behaviour of the soil scientist. What may be more surprising is that, contrary to the popular, romantic view that art proceeds by rejecting prosaic modes of operation, these three case studies show that art-making too can be highly constrained, for example by the requirement to create structured indeterminacy, or to work purposefully in the absence of a specific directive, or to create an assembly of things that expresses and remains faithful to a theme that is only apparent as the theme becomes expressed.

But there are also two important differences between the pedocomparator and *In Pulverum Speramus*. Firstly, the pedocomparator facilitates a process of increasing abstraction and reduction through material transformation. The making of *In Pulverum Speramus* involves no abstraction, no reduction—only iterative re-materialisation of experience. Secondly, using the pedocomparator does not encourage the user to take a meta-cognitive or meta-emotive stance and his/her subjective experience has only an implicit presence. With *In Pulverum Speramus* the re-materialisation of experience is, by definition, subjective and meta-emotive.

In Dewey's (1934) view, a living organism finds harmony in the world through the rhythmical and predictable interplay of activity and environment. Disruption to harmony presents the organism with a creative possibility. We have seen a similar dynamic regarding Winnicott's (1953, 1960) views on the development of thinking. Malafouris (2014) describes how creative opportunities occur as the mismatch between expectation and experience increases. In Dewey's view these mismatches provoke an emotional and cognitive reaction focused on the restoration of harmony. Scientific endeavour thrives on the manufacture and resolution of such points of disruption. In order to find solutions, scientists concentrate on situations where the "tension between the matter of observation and of thought is marked" (p. 14). Artists, on the other hand, are interested, not in solutions, but in "the phase of experience in which union is achieved" (p. 14) Thus, according to Dewey, artists seek situations of tension and resistance for their own sake. Or perhaps we do it for the sake of creating opportunities for meta-cognitive /meta-emotive diffraction, both for ourselves and for the viewer.

It follows from this that a successful artwork invites the viewer to join and continue the entanglement of mind and matter. It orients the viewer forward in time not backwards. A fired clay sculpture loses the plasticity that gave it such dynamic creative potential in the hands of the artist. To continue working as art, it must find a way of creating a metaplastic relationship with the viewer. A finished artwork is at grave risk of being separated from its generative process. Removing art from the workshop and displaying it in a gallery (perhaps even on a pedestal!) is not conducive to the continuing process of enactive signification. Instead it encourages what Ingold calls a retrospective view (2014a) in which the sculpture is taken as a clue to the nature of the mind of the artist. I wrote this paper, in part, as a way of trying to avoid this. By becoming case studies, the ceramic lumps I describe undergo yet another transformation. This time, like the soil samples in the pedocomparator, the transformation is abstractive.

9 Conclusion

Whilst sculpting it feels to me that agency and creativity are not personal attributes but emerge out of the act of sculpting. When I monitor my sense of agency closely I get a confused, conflicting picture, but the overall sense is one in which I am in a creative partnership with clay. This sense is consistent with the creative process proposed by MET but is at variance with the hylomorphic model. The experience of sculpting is a disturbing one because the boundaries of the world and myself become transient, unstable and incomplete. I suggest that disturbing emotions may be an inevitable part of a process of enactive signification—part of the pleasure and of the pain. Extending Malafouris' notion of meta-cognition, I suggest that the sensuous plasticity of clay invites me to take a meta-emotive position and that playing with clay has the potential to be used as a tool to investigate the emotional parameters of material engagement.

I have described how enactive signification is associated with an anterospective viewpoint. By attending to the emerging sense of agency I feel on the cusp of—almost tripping into—an unfolding future. There is more work to do here in relating this sense of being implicated in the creation of *durée* with Chemero's (2016) notion of sensory motor empathy (an implicit, synergistic motor and perceptual linking between things and people) and Malafouris' notion of 'creative thinging'—"a species" capacity for inventiveness that is inseparable from the capacity to affect and be affected through movement and sensation from the phenomenal qualities of the materials that surrounds us." (2014, p. 144).

In particular, I think it is worth investigating the connection between creativity and surprise. As long as I remain within this "unfolding, future-durée" my expectations disappear to be replaced by materially-anchored predictions. By this I mean that the recognition of creative change becomes embedded within the act of creation itself and so is no longer experienced with surprise. Within this regime, the experience of surprise (even delightful surprise) becomes a sign that I have moved out of the creative flow in order to observe it. In practical terms this means that these days I stop sooner that I would have done in the past. I used to think that, by pushing things a little further, I would finish something. Now, if the clay and I are working well together we tend to have already stopped before I have thought of doing so.

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Chapter 2. Art through material engagement

33

ART THROUGH MATERIAL ENGAGEMENT…AND VICE VERSA

Paul Louis March and Lambros Malafouris

Introduction

In this chapter, we think through art, not about it. We call this way of engaging with the activity of making "creative thinging" (Malafouris, 2014). Instead of taking artistic practice as an object of study, we make use of its gestures to explore and describe what it is like for a human to be creative, or more exactly, what it is like to be part of a creative process. By suggesting an artistic approach, we appear right from the start to define our methodology as unscientific, and by describing creativity in relation to the externally visible activity of material rather than in terms of internally invisible cognitive processes, we depart from the representational perspective of mainstream cognitive science. However, one of the aims of this chapter is to introduce a position that is not defined by boundaries, such as the one that is actively maintained between art and science. We are not trying anything as ambitious as a rapprochement between art and science. Our aims are more specific and modest. We limit ourselves to establishing a functional link between the academic domain of archaeology/anthropology and the activity of art. Archaeologists and anthropologists have always conducted research into how things are crafted. They do this through the analysis of the artefacts themselves, and their academic output may take the form of ethnographic fieldnotes based on the observation of expert practitioners, participant- observation or quasi- experimental attempts to reproduce hypothesised *chaine opératoires*. Aside from making art, artists too (especially since the modernist movement) may use the creative possibilities of their chosen medium to explore in a direct way the nature of that medium. Renfrew, for example (2003, pp. 8– 9), describes how art has transformed itself over its history from something obsessed with beauty into a radical exploratory methodology, offering not answers but paradoxical experiences that highlight some of the misconceptions we have about our relationship with the world. In this chapter, we use the capacity of art- making for s elf-r eflection to dissolve the boundaries between archaeology, anthropology and art- making, allowing the creative and the academic to amalgamate. We look at creative activity, not as perceived through an ethnographic study of how things get made but in processual terms (Gosden & Malafouris, 2015), by experiencing how creative activity 'things' itself into existence.

Boundaries are not immutable features of the environment. They are cultural constructs, erected to divide the world into comprehensible bits according to certain concepts or

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assumptions. Boundaries, therefore, constrain as much as they contain, and, by their nature, they encourage categorical thinking. By taking an artistic approach, we do not intend to remove division altogether but to convert exclusionary boundaries into permeable borders, to extend the no-man's-land between domains in order to create sites of exchange and passage (Sennett, 2009; Malafouris, 2016, 2019). The approach comes with a price.

Scientific reductionism creates sharp and clinical distinctions that are supplemented with some degrees of freedom to manage and reduce uncertainty. The reliance of archaeology/anthropology on data obtained through observation and participation is predicated on concerns about whether objective validity is an effective measure of quality control. While less reductionist, the aim is to use the data obtained from observational and participatory studies to create clean, coherent, unambiguous arguments. In contrast to both, an artistic approach is simultaneously the tool and the medium, both overdetermined and indeterminate, and comes with a requirement to embrace messiness and confusion rather than to reduce them.

We will focus on the process of sculpting. Paul March is an artist who works mainly with clay. His hands provide access to the messiness of the artistic method. In turn, through his anthropological approach to the activity of potters and his research into the material ecology of the mind, Lambros Malafouris has found the plastic qualities of clay to be the ideal medium through which to study how the recursive, cognitive coupling between people and things-in-the-making is played out on a potter's wheel. By combining these two positions, we aim to engender an exploratory relationship between clay and gesture as it becomes manifest in the act of sculpting.

This chapter is organised as follows: we begin by introducing MET, developed by Malafouris to be an ecological description of the mind as a process at the interface of material and human activity. We show how key concepts of MET can be used to develop a framework for studying the creative process. Next, to illustrate the phenomenological approach, especially as it relates to the conversion of boundaries into borders, we borrow the well-rehearsed example of Merleau-Ponty's blind man's cane to challenge the structural assumption that the epidermis defines the limit of sensory experience. We then extend the argument by suggesting that the liminal interface at the cane's tip can be considerably extended by substituting the stick's rigidity with the plasticity of clay. This introduces the notion of clay in the hand as an organ of sensation. From this position, we present a case study in which the clay-in-the-hand transforms itself into the skull of a unicorn, creating a semiological rift between the linguistic phrase "unicorn skull" and the signification enacted by the materially unequivocal but ontologically ambiguous skull sculpture. The case study demonstrates that, although we have to start the story somewhere, it is difficult to locate exactly where and when an idea begins and to describe its initial form, physical state and even its temporal direction of travel. Instead of trying, we focus instead on the MET notion of 'creative thinging' – a process of enactive discovery in which ideas evolve smoothly by material transformation and change discontinuously by material substitution. The skull sculpture was not created to represent, symbolise or illustrate the meaning of the phrase "unicorn skull". We argue that the significance of sculpture is not linguistic but enacted. Nevertheless, in order to refer to this specific sculpture in writing, we must give it a name, and by calling it "skulpture", we aim to emphasise that the emerging thing and the sign of the thing are one and the same. Phenomenologically, the process of creative thinging feels more like 'learning the skulpture into existence', and it is this nascent awareness of its own becoming that we identify, not as a first-person perspective but as a systemically organised, phenomenological work of art.

Material Engagement Theory and the Mind-Matter Singularity

MET was introduced by Renfrew and Malafouris (Renfrew, 2004) in an archaeological context and has since been considerably developed by Malafouris (see Malafouris, 2013, for a detailed description, and Malafouris, 2014, 2015, 2018a, 2018b, for further elaborations). In parallel, Malafouris has used MET to study the process of creation in contemporary pottery making (Malafouris, 2008, 2014; Koukouti & Malafouris, 2020). MET links three overarching hypotheses.

1 *The extended mind:* The idea that the mind extends outwards into the environment in order to co- opt inanimate objects into the cognitive process was proposed by Clark and Chalmers (1998). Although they argue that artefacts can play a determinate role in cognition, whether and when the mind is extended is, according to them, under cortical control. With the brain as chief executive, Clark and Chalmers succeed in maintaining a neat distinction between what is human and what is not. In contrast, from a MET perspective, the extended mind is seen not so much as something that ventures outwards from its cranial headquarters but rather as an interactive process of extended activity between a person and his/her environment. The MET concept of the extended mind traces the borders of the self along functional rather than anatomical lines. The distinction between Clark and Chalmer's extended mind and the MET version has important consequences for how we conceive of agency, as we will see below. It also raises questions about the extent to which phenomenological experience is first- person or systemically organised. Too big to tackle here, this question will hover, present but unaddressed, in the background of this chapter.
2 *The enactive sign:* The MET version of the extended mind, as described above, provides a mechanism for a sensemaking experience that is unmediated by language. It allows for the process of engaging with material to be meaningful in itself, obviating the need for any interpretation of symbolic content. Seen this way, the enactive sign throws light on how an artistic encounter (whether as viewer or maker) becomes an integrated experience.
3 *Material Agency:* The above two hypotheses have important implications for agency. If cognition is orchestrated in partnership with material change and signification takes place through the strategic, localised dissolution of the human-environment boundary, then agency must also be seen in such terms. Instead of humans as the sole vectors of change, an extended intentional state is woven from the threads of preceding human–environment interactions. This view is similar to the concept of 'skilled intentionalities' (Rietveld, Denys & Van Westen, 2018) and is consistent with the radical embodied cognitive science approach taken, for example, by Baber, Chemero and Hall (2019).

Searle (1983) broadly accounted for intention along internalist lines but nevertheless understood patterns of habitual activity to be intention-forming in themselves. Malafouris generalises Searle's concept of *intention-in-action* by arguing that all intention is embedded in an arc of ongoing activity.

The activity considered in this chapter concerns the sort of work done by art, which is often viewed as explicitly disconnected from the work of the quotidian. But, in his analysis of "Art as Experience", Dewey (1934, 1984) provides two reasons to suggest that aesthetic[1] actions are no different from more clearly functionally oriented activity. First, Dewey identifies aesthetics as a wholehearted engagement with the environment and artwork as a prolonged interaction

with a medium. The implication of Dewey's formulation is that the origin of purpose develops from and through the medium of expression and therefore drives activity in a more diffuse way than human agency alone. We can use i ntention-i n- action as the mechanism by which artwork and the medium collapse themselves into the wholehearted engagement that Dewey proposes. In addition, by making purpose central to aesthetic experience, Dewey undermines the definition of art as something devoid of utility. Once again, i ntention-i n- action describes how this may take place by relocating judgements about goal-oriented behaviour away from a causal intentional self, towards a recursive intentional (semi- permeable) system.

Second, although not couched in these terms, Dewey suggests that naturally occurring human-e nvironment dynamical systems influence c ultural d evelopment a nd t hat h uman nature is recursively shaped by these emerging patterns of activity. Yet again, i ntention-i n- action shows how the rhythms of nature and culture may become aligned, integrated and indistinguishable. Dewey's position makes art and human development phylogenetically and ontogenetically inseparable, integrating human becoming and aesthetic experience. This means, as Shusterman (2010) points out, that rather than existing as an esoteric concept of little relevance to ordinary life, the wholehearted nature of aesthetic experience offers a measure by which all human experience can be understood.

There is another MET concept that is key to the materially embedded phenomenological approach that we will develop in the second part of this chapter and that brings together the three hypotheses outlined above.

Creative thinging: Heidegger took a particular ontological view about the status of things: he saw them existing not as inert substances but as bundles of s elf- affirming, "t hinging" activity (Heidegger & Hofstadter, 1975). In "creative thinging" (Malafouris, 2014), human behaviour is brought into interactive contact with thinging. However, it is important to note that, in creative thinging, it is not the human who supplies the creative ingredient, but rather, it is the i ntention-i n- action of human gestures, interacting with thinging that enables human becoming. By joining 'creative' and 't hinging', Malafouris focusses the effects o f t he t hree material engagement hypotheses at the same t emporal-s patial point: when- where movement makes mind and matter indistinguishable. In order to emphasise the radical nature of this mind- matter singularity, let us return to Dewey and compare creative thinging to his position. Although Dewey accepted the mutability of the self, he continued to formulate art as the experience of something by someone. For example, when Dewey (1934, p. 47) writes, "[A] painter must consciously undergo the effect of every brush stroke or he will not be aware of what he is doing and where he is going", he emphasises the sensorial and emotional importance of the brushstroke to the painter. We think his use of the word "undergo" is exactly right, but we suggest that it is not the painter that undergoes the emotions; it is the stroking of the brush that is emotional: collapsing material and feeling into a single dynamic, aesthetic gesture.

The shift from individual experience to mind- material movement is methodologically significant because brush strokes, unlike cortical consciousness, can be seen, tracked, judged and debated. Let us take the simple action of wrapping a parcel as an example. This should be done in a manner that ensures that the parcel's content arrives at its destination safely. It is this primary task that organises the extended intentional state, which is expressed by the visible gestural pattern of activity. Safe arrival does not require a parcel to be wrapped in an aesthetic manner, but we argue that the primary task can be supported by taking such a wholehearted approach: an attention to the choice of wrapping, the cutting of the paper, the quality, position and execution of a fold, the tying of a knot or a bow and so on. Each gesture can thereby manifest aesthetic intention, distinguishing it from gestures promoted by prosaic intention alone.

In this section, we described how art-making can be understood as intention-in-action. In the next section, we demonstrate that sculpting with clay can be used as an exploratory tool. We take Merleau-Ponty's description of the ontological status of the blind man's cane and apply it to a ball of clay in the hand of an artist.

From Cane to Clay

When a blind person uses a cane to find his/her way around the world, the sense of touch substitutes for vision. But where is this sense of touch located? In the somatosensory region or the visual cortex? At the fingertips? At the end of the stick? In the roughness of the kerbstone as the stick traces its course? From a phenomenological perspective, Merleau-Ponty (1962) argues that the cane drops from awareness as the individual's sensory frontier extends to incorporate it. The stick ceases to be an object to be sensed and becomes a way of sensing the world. Does this mean the stick moves inside the boundary that separates the self from the world? We argue that the important lesson here does not concern location but the quality of separation, which reveals itself to be a permeable and negotiable one. The cane teaches us that the human mind is mediated through objects whose material qualities are phenomenologically and functionally constitutive (Malafouris, 2019).

Now, if we take the lesson of the blind man's stick and try and think in a similar way about a ball of clay in the hand of a sighted sculptor, we are immediately confronted by an obvious difference. Whereas the cane-in-hand becomes an extended sensory organ, the hands of a sculptor appear to have a motor role, while vision retains its position as the primary sensory pathway. As the sculptor's hand reaches out into the world and grasps the clay, there is no sign of a mediating object blurring the boundary between person and world. But what happens if we understand the goal of the grasping action differently? What if the intention-(in-action) is not to make the ball of clay into a new shape but to allow the process of sculpting to deconstruct the relationship between shape and identity – to undermine the intransigence of form? We shape something by drawing a boundary around it. We create an object by dissociating it from the shapes of objects that surround it. By focussing on its shape, we recognise an object, capture it and get the impression that we know it. By emphasising, in this way, the stability of form, we fail to notice and experience how bits and pieces of the world temporarily bind together, not to make a shape but to make a transient common cause.

The contrast between perspective as shape and perspective as an alliance of ephemeral assembly is vividly brought to life in Merleau-Ponty's analyses of Cezanne's approach to painting (1964; Merleau-Ponty et al., 1993). Cezanne did not compose a landscape painting using contours. His aim was not to make a picture of a landscape. Cezanne understood painting to be a process of nature that grows organically from within its own origins. He applied paint to the canvas, unbounded by lines, allowing the painting to emerge through the melding and merging of colours on the one hand and their differentiation on the other. Importantly, by not separating a landscape on the basis of shape, Cezanne made himself phenomenologically continuous with both landscape and painting, hence his famous quote, "The landscape thinks itself in me and I am its consciousness." (1964, p. 17) For Cezanne, the work of painting was a gathering of itself, which Merleau-Ponty et al. call 'autofiguration', describing how the paint-loaded brushstroke grows outwards to generate both the painting and the painter (1993, p. 141).

> …it is the painter to whom the things of the world give birth by a sort of concentration or coming-to-itself of the visible… by breaking the "skin of things" to show how things become things.

In what we would describe as a process of creative thinging, there is no clearly defined Cezanne and no landscape that are separate from the painting strokes that join and create the two on the canvas. Later, Cezanne and landscape go their separate ways, or rather, they become separated and are drawn into other transient alliances of assembly.

Let us return to the ball of clay in the hand of the sculptor. If we ignore shape and focus on the movements of sculpting as exploratory gestures, then the clay ball becomes ontologically ambiguous. While remaining a part of the world that is available for exploration, it also becomes a cognitive organ of exploration. In this way, the clay-in-the-hand becomes a sensori-motor tool within a phenomenological system. As it takes up the role, the sculpting system loses awareness of the clay in a way that is analogous to the cane becoming a sensorial conduit. This highlights an important area of possible confusion. Creative thinging, as an act of material engagement, is not about experiencing materiality. Material properties are integrated into a system of creation, and so, during the act of creative thinging, the sculptor does not experience the clay separately from the process or from him/herself any more than he/she experiences his/her cortical activity as separate from what the neurons are firing about.[2] Clay, gesture and cortical activity come together to be **about** something. Merleau-Ponty described Cezanne and paint to be engaged in a phenomenological activity. We think that sculpting clay can be seen similarly. Indeed, without the intermediaries of canvas and brush, clay and hand make the interdependence between gesture, material behaviour and the emergence of material ideation even more stark.

We propose to consider sensations as acts of discovery rather than signals about the state of the world. Sensations teach us about ourselves in relation to our environmental activity, or, put systemically, they provide a perspective from within the system of the moment. If this is the case, we cannot jump out of the system and see it from outside. What we can do instead is follow the developmental trajectory of a sculpture as it sensorially influences its sculpting human partner towards making specific gestures that, in turn, bring into existence gestural patterns that were previously unconceivable.

In describing the 'aboutness' quality of consciousness, Merleau-Ponty (1962) points out that it is difficult to have a sensation while simultaneously being conscious of doing so.

> In so far, then, as there is consciousness of something, it *is* because the subject is absolutely nothing and the 'sensations', the 'material' of knowledge are not phases or inhabitants of consciousness, they are part of the constituted world.
>
> *(p. 127)*

If we expand the "subject" of Merleau-Ponty's sentence and use phenomenology as a method for understanding consciousness in systemically intentional terms (in the sense of both being directed towards and including something in the world), then we can argue that, during the process of sculpting, sensations leave a trace of aboutness in the clay. The trace provides a way of making a temporal separation between sensation and the awareness of being part of a creative sensorial system. By following the sculptural traces of creative thinging in slower time (through notes, photos, video recordings, etc.), we can track changing patterns of awareness during a sensorial act.

By introducing a temporal separation, we are not advocating studying sensation separately from experiencing sensation, quite the reverse. As we see it, the final sculptural form is a material vestige of a sensorial-emotive-cognitive process that was constituted within the activity of clay and mediated by its vicissitudes. We are suggesting that intentionally directed consciousness manifests as visible traces. Sculptural change is not the result of putting an idea into practice; sculptural change **is** ideation. In order to show how all this gets acted

out materially, we now present a case study from the perspective of a system of creation that included Paul March, who, for want of a neat, verbal conjugation that expresses systemically embedded, phenomenological experience, will speak in the first person.

Skull - Rupture- Skulpture

In a museum one day, I came across a 6-million-year-old fossilised horse's skull (*equus stenonis*). Recalling it weeks later, I was not sure exactly what I was remembering – not the skull itself, but more like standing in front of the vitrine and being drawn towards its contents. Intrigued, I went back to see it again and found that, as fossils go, the skull was not a good example – broken and twisted, discoloured and deformed (Figure 33.1). But it was its damaged status as a fossil that made it appealing as a sculpture. The twisted way the bone had turned to stone gave it a touching expression of vulnerability. My first impulse was to make a sculpture of it, as though, by doing so, I could bring the expressive powers of the fossil into my creative possession. But I have learned that the outcome of acting on this impulse is usually disappointing because the sculptural power I wish to create already exists. It cannot be shared or transferred into something else; the attempt only produces a tame version of the original. Nevertheless, a few weeks later, I returned to take detailed photographs. Any onlooker might reasonably have assumed that I was preparing to ignore my own advice.

About a year later, towards the end of 2015, I came to the end of a big project and found myself in my workshop feeling listless. By definition, a workshop imposes the requirement to work, but I had nothing to work on. I opened a bag of clay and pushed its contents around

Figure 33.1 Fossilized horse skull (equus stenosis), Museum of Natural History, Geneva, Switzerland

Figure 33.2 Skull of a modern horse in the workshop, Geneva, Switzerland

in a desultory way. After a while, the gestures became more purposeful, and I realised that a specific intention was forming to make something – a thing-in-itself – something that was indistinguishable from a fossilised unicorn skull. At this point, I fetched and spread out the photos of the fossilised skull to serve as anatomical guides, along with the skull of a modern horse, which was already hanging in my workshop (Figure 33.2).

To explain the presence of the horse's skull, about two years before seeing the museum skull, I had spent several months creating a series of skulls of imaginary horned animals. (*Le Troupeau*, Figure 33.3). The work on *Le Troupeau* had developed, in turn, from an earlier project that explored the concept of the "extended phenotype" (Dawkins & Dennett, 2016, Figure 33.4). In making *Le Troupeau,* I was interested to see how fantastical a skull could become and yet remain perceptually believable. The next step in exploring believable fantasy beasts was to create a pair of unicorn skulls. (*Juments Dizygotes*, Figure 33.5), for which I needed the skull of the modern horse as a guide.

The above summary illustrates that when the "idea" for a sculpture is considered in the context of a long-term, ongoing art-making process, it becomes much more difficult to identify a single conceptual moment in time and space that could be called "prior intention". In a similar manner, both Keller (1996) and Baber, Chemero and Hall (2019) describe how the organisation of a workshop, the arrangement of tools, the positioning of the craftsperson, etc. are all causally implicated in creative making.

> …our view of creativity is one in which human-technology relations create an interplay between the state of the material and the action of the jeweller. In contrast to the idea

Figure 33.3 *Le troupeau* (2013)

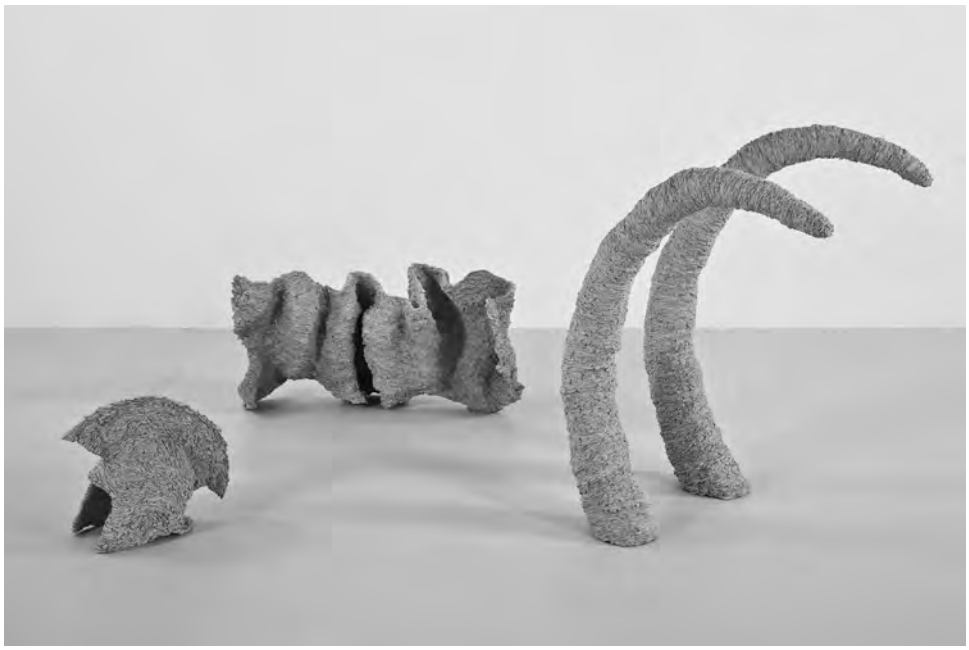

Figure 33.4 *Extended phenotype* installation (2010)

> that creativity begins with an end in mind, we argue that it involves the discovery of the end.
>
> *Baber, Chemero and Hall (2019, p. 300)*

Although these antecedent projects came to mind during work on the fossilised unicorn skull, I did not experience the start of the new project as a simple, linear progression of previous work. Whereas the semantic, perceptual and contextual evolution of the work is, as I have just laid it out, pretty obvious and presumably valid, it nevertheless feels like

Figure 33.5 *Juments Dizygotes* (2013)

these types of interpretive connections come from another perspective: that of a "system of beholding" – a systemic extension of Gombrich's (1961) notion of 'the beholder's share'. Inside the system of creation, things feel different. Previous projects certainly came to mind while making the sculpture, but the memories of the projects themselves did not feel like they were causally related to the action of sculpting. The development of skull-making felt more like it was recursively associated with the emergence of the clay-gestural memories of previous projects. What I mean by this is that, during such an act of creative thinging, a thought or memory is difficult to separate from the material and difficult to distinguish, on the one hand, from the clay-gesture that preceded it and, on the other hand, from the clay-gesture that develops from the previous gesture-memory association. In the language of cognitive psychology, these clay-gesture-memories might be said to be on the cusp between episodic and procedural memory. In mainstream psychology, episodic memory is viewed as representational, in the sense that a record or image of an event is stored neurologically. Procedural memory – for example, the way finger movements remember a four-digit code at an automat – is more easily translated into interactional terms. A clay-gesture-memory gathers a specific historical context around itself, which differentiates it from gestural memory (AKA "implicit knowledge").[3] As outlined above, I had already sculpted a number of skulls using the same clay, and so when I started this work, each new sculpting gesture was informed by previous gestures, bringing their history into an extended, creative mind, not as a memory of past events but by becoming gesturally present. As emerging gesture memories were worked and reworked into, by and through the clay, they combined with structural information from the skull of the modern horse as well as the manifestations of destruction,

erosion and deformation captured in the photos of the museum skull. In a similar vein, in his chapter on tool use, Baber uses the notion of 'grip' both literally and metaphorically to describe the gathering together of a creative system. What I am trying to get across here is how ideas in various states of materialisation jostle and juxtapose themselves along an ongoing creative-temporal thread. In this sense, an idea is a physical gesture that stands in relation to an arc of morphological change – here manifested by the plastic qualities of clay. By moving ideas out of the head and into the world like this, it is easier to see how they rub up against each other, transpose themselves from one material to another and, in doing so, change their signification and learn something new into existence.

The Material Sign in Action

You may think it is easy to imagine what a unicorn skull looks like – a horse's skull with a horn emerging from the forehead. It is certainly easy to draw a recognisable picture of such a thing (Figure 33.6). Shapes are not the only things that beguile us into thinking that we know what the world looks like; signs and language do so too. Merleau-Ponty's analysis of Cezanne's oeuvre and Malafouris's notion of enactive signification both point to the difference between drawing a pictorial sign of a linguistic concept and being in the world (Heidegger, 1967) until the sculpture emerges from the clay. By following the sculptural process, we want to show that the only means of knowing what the world looks and feels like is to be in a synergistic relationship with it.

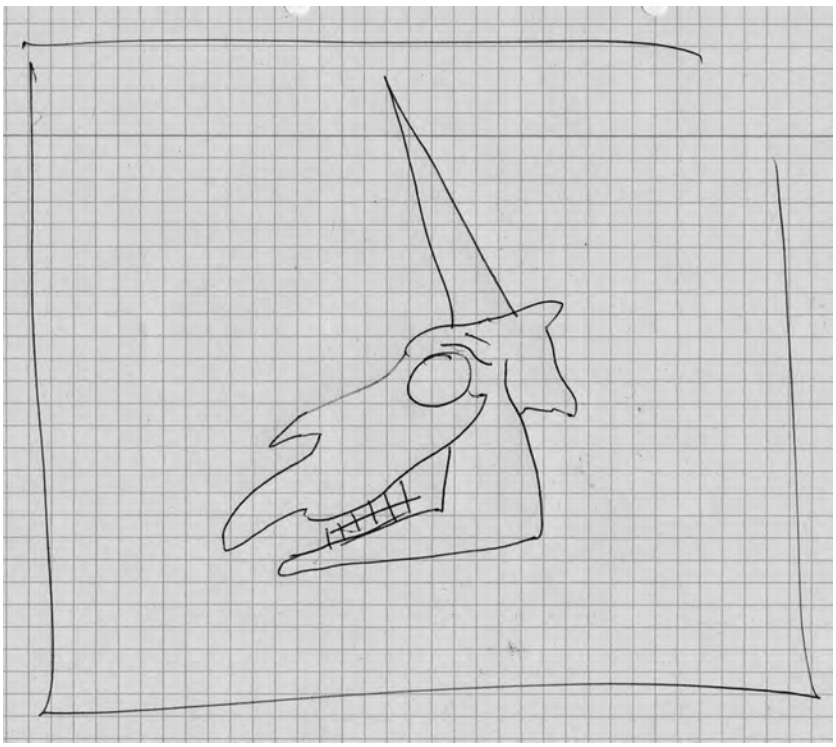

Figure 33.6 Drawing of a unicorn skull

Consider the modern horse's skull, left in my workshop from a previous project. In the centre of its forehead, just above the position from which a unicorn horn would emerge, there is a hole from the bolt gun used to slaughter the beast. The hole shows the bone to be barely 2 mm thick (Figure 33.2). Such a fragile base could never support a horn, and this anatomical incoherence can be sensed when looking at Damien Hirst's *Skull of a Unicorn* (2017, Figure 33.7). The bone of the skulls of cattle, sheep and antelopes is reinforced around the horns (Figure 33.8); unicorn skulls would be similarly adapted.

In addition to the issue of reinforcement, a judgement was needed concerning the dimensions of the horn and its exact position on the forehead. The three variables – reinforcement, dimensions and position – are interrelated and cannot find their equilibrium without being brought into dynamic relationship with each other. To do this, I followed a method I developed during the *Juments Dizygotes* project. I made a number of cardboard horns of variable dimensions and tried each against the skull of the modern horse. By varying size and position, it was possible to arrive at a reasonable approximation for both while also providing an idea about reinforcement structure. The final resolution took place by fine-tuning the morphology of reinforcement in relation to position and then readjusting the size of the model horn in response. It is important to emphasise that this decision-making process did not occur within some internal conceptual space but in direct relation to the physical presence of these variables. This was not an uncertain process of weighing up pros and cons or making compromise judgements. When the relationship was correct, it felt obvious. The decision took place in front of me through a process that Vallée-Tourangeau and March (2019) call "outsight". What made the procedure aesthetic was not the exact specifications of each of the three parameters but the ways they combined to reach agreement (Malafouris, 2011). For Heidegger and Hofstadter (1975), the aesthetic outcome is brought forth from within the work itself, and what distinguishes an artwork from other works is when "createdness is expressly created into what is created, with

Figure 33.7 *Skull of a Unicorn*, Damien Hirst's *Wreck of the Unbelievable* at the Venice Biennale 2017
Source: https://www.shutterstock.com/image-photo/view-san-giorgio- cathedral-venice-terrace-644071798-

Figure 33.8 Skulls hanging in the workshop, Geneva, Switzerland

the result that it expressly rises up out of the work" (p. 39). The work of art is a process of restructuring material in such a way as to express the restructuring process in the work of art; it is this that we refer to as 'learning into existence'. Efficient, day-to-day work is characterised by smooth transitions from one activity to the next, whereas artwork exhibits a paradox: the work of art advances by creating ruptures that expose and undermine the well-worn paths of habit.

Having presented the relationship between reinforcement, position and size as an aesthetic process, I finish this section with a final example of material ideation by describing how the horn came to know its character by translocating from wood to clay, via plaster of Paris. The horns of cattle, sheep and antelopes consist of a bony core covered by a visible keratin sheath. However, skulls are often found without this sheath, revealing the pitted and striated surface of the bony interior (Figure 33.9). This was to be the case for the sculpture. This pitted aspect is difficult to model in clay but easy to carve from decayed, denatured wood. So I took an old branch and carved it into the shape of a horn. I took a plaster mould of the carving, from which I cast a version in clay.

Clay in Transition

The sections above describe how various material ideas met during the act of sculpting and synergistically transformed each other. To paraphrase Gosden (2005, p. 766): the clay made use of my muscles and skills to bring about its final form. A point arrived in the process when I began to experience the resulting sculpture as a fossilised unicorn skull. The work became the skulpture by circling round and around, pulling some activity towards itself while letting other actions spin away: finding its resolution by disengaging from those bits of me that were not essential to the autogenetic creative system. I experienced this separation as a diminution in my sense of self (March, 2019), but the separation occurred with other parts of the system too: the images of the fossil, the modern horse skull, sculpting gestures, the material plasticity

Figure 33.9 Subfossilized horn, Museum of Natural History, Geneva, Switzerland

of clay and so forth. Merleau- Ponty had Cezanne to help him understand. What is astonishing about Heidegger is that, despite never having explicitly linked his understanding to any direct experience of material engagement, he clearly grasped the process of becoming an artwork, even if the clarity of his expression leaves something to be desired:

> In the work…the fact that it is as such a thing, is what is unusual. The happening of its createdness does not simply reverberate through the work; rather, the work casts before itself the eventful fact that, as a work, this work is, and exhibits this fact constantly. The more essentially the work opens itself, the more luminous becomes the uniqueness of the fact that it is rather than is not. The more essentially this thrust comes into the open, the stranger and more solitary the work becomes. In the bringing forth of the work there lies the offering forth of the "that it is."
>
> *(1975, p. 40)*

A qualitative leap has been made from a prior verbal description and the experience of the skulpture as a thing-in-itself. It is possible to express the resolution of an artwork in advance because language offers only broad constraints on the concept: the phrase "fossilised unicorn skull" describes a multitude of physical possibilities. But the enacting signification of the skulpture is a very different matter. It exists, not as a copy or representation of an original that exists elsewhere (even as a Platonic ideal), but only as the material sign of itself. Deleuze's subversive reversal of the meaning of the term simulacrum expresses this well. Rather than being ontologically dependent on original versions…

> Things are simulacra themselves, simulacra are the superior forms, and the difficulty facing everything is to become its own simulacrum, to attain the status of a sign in the coherence of eternal return.
>
> *(Deleuze & Patton, 2001, p. 67)*

As sculpting proceeds, symbiotic exchanges create material constraints that close down certain possibilities within the creative system until, with no further change possible, the skulpture brings itself and the creative system to an end, only to immediately regenerate by facilitating the emergence of a system of beholding in which the finished artwork and the network of associated memories begin to create a different relationship with each other. (See also Keller, 1996, on the different perspectives between maker and observer.) Although the memories and associations were kneaded into existence and linked by, to and through clay during sculpting, when I looked at the newly configured thing-in-itself, the associations rearranged themselves from a moving-into-the-future, creative perspective towards a chronological, historical and narrative perspective. It felt as though these memories travelled backwards in time, transforming themselves as they did so into causal events. The end result was that I experienced the skulpture, as any spectator might do, in relation to meaningful and relevant personal experiences – even if the experiences themselves were not explicit in the work.

There are two subsequent stages in the making of a ceramic sculpture that highlight the passage between the creative and the beholding systems. Once the form has found its resolution, it must be left to dry before being fired. As the clay body loses water content, its aspect changes. The surface becomes flatter and less nuanced, leading to an overall deadening effect: loss of humidity leads to an inevitable, if temporary, loss of vitality. In contrast, the next stage, firing, is more unpredictably dynamic, being associated with four transformative possibilities. First, there are potential problems arising from poor technique. Pieces that are carelessly constructed are more likely to crack or explode during firing. Second, fired ceramic can reveal certain gestures or decisions that were invisible in raw clay. Third, the ceramic that emerges from the kiln is a chemical transformation of the clay that went in. Fourth, firing takes ceramic close to its melting point. At this temperature, the sculptural body becomes malleable and therefore susceptible to deformation by gravity. When the kiln has cooled and is opened to reveal a newly fired sculpture, it unveils something that is simultaneously recognisable and unfamiliar. There is a heightened sense of perceptual awareness, which is both precipitated by and results in the piece appearing familiar yet uncannily transformed: a rift that for a while simultaneously holds the past and the future within the awareness of the present. This sensation is similar to what Wittgenstein calls "noticing an aspect" (1953, p. 193) – the sort of perceptual reconfiguration that occurs when you bump into an acquaintance in the street who you have not seen for 20 years.

From Skulpture to Model

The drying and firing stages emphasise the change of role from maker to spectator, and 'noticing an aspect' describes the paradoxical juxtaposition of experiencing the transient coexistence of past and future in the course of an abrupt rupture between the two. The transition of clay to ceramic is a further, particularly vivid, demonstration of the capacity for ideas to migrate across materials, mutating as they proceed towards their next material manifestation. The raw sculpture had resolved itself into the sculpture, but when I opened the kiln, I saw at once that the fired piece was on the move again (Figure 33.10). Extreme heat undid the raw skull's resolve and replaced it with intentions of grandeur. No longer content to remain a skull, it presented itself as a model for a unicorn skull landscape.

The horn, cast from a carved, decayed branch, now displayed its intention to become a blasted and petrified tree trunk. A similar attitude of self-aggrandisement emanated from the front of the skull, and the projective process spread across the skull. The point where the

Figure 33.10 Fired Skulpture (2016)

fossilised bone disappeared into rock became a potential rock outcrop, cracks became chasms and the buccal cavity – a cavern. I did not experience this massive scaling up as something I wanted to do, and although the desire appeared to emanate from the sculpture, I think the intention to become a landscape was inseparable from and equivalent to the act of gazing on the fired sculpture for the first time.

This declaration of intent by the skulpture[4] evoked the memory of a detail in the painting *Two Men Contemplating the Moon* by Caspar David Friedrich (1825–1830, Figure 33.11) of a tortured and fissured tree emerging from a rock outcrop at a similar angle as the horn from the skull. Or perhaps the projective aggrandisement was provoked by the painting and was an attempt to align the skulpture with the landscape. Whatever the direction of causation, the association between skulpture and painting changed the emotive quality of intention: the skull quickly became imbued with the same melancholy romanticism as the painting. Two years later, in 2017, the unicorn landscape had become a physical reality (Figure 33.12). One day I was retrospectively writing up some notes about the project. While doing so, I received an email from one of the editors of this book, Frédéric Vallée-Tourangeau, in which, in an unrelated context, he mentioned Mary Shelley. Turning from the email back to the notes and an image of the work, I re-experienced the final, large sculpture as an outsized, unwitting monster. In *Frankenstein* (1818 – the book is contemporaneous with David Friedrich's painting), Shelley gives a description of the monster's walk across Geneva – his despair, loneliness and bitter feelings of being misperceived. This morbid atmosphere transferred itself retrospectively to the finished unicorn installation, dragging in its wake the still-life curiosity of Victorian natural history collections and the

Figure 33.11 Two men contemplating the moon (1825-30) Casper David Friedrick — Wi-kimedia commons

Figure 33.12 Final installation. *Another part of the World* (2017) at Trésor, Basel

hopes and fears of scientific progress. The process of creative thinging does not stop when the system of creation becomes the system of beholding but continues to spin, transforming materials and ideas as it does so.

Discussion

In this chapter, we used the plastic quality of clay to turn the boundary between what is human and what is not into a permeable border. For the most part, humans are oblivious to the workings and physiological processes of their internal organs (including the brain). We suggest therefore that our sense of self comes not so much from inside the body as from our membership in and quality of engagement in a series of transient systems that include somatic activity but which also lie beyond the body itself. When bodily functions run smoothly, we do not notice them. The same applies to these transcorporeal systems. A tool in the hand of an expert becomes lost to conscious experience when it is systematised along an arc of intention-in-action. Expert tool use (and smooth-running activity in general) is predicated on habit and implicit knowledge and operates below the radar of awareness (Baber et al., 2019 and Baber chapter here). In addition, as Merleau-Ponty points out, it is difficult to simultaneously experience a sensation and experience awareness of having a sensation. A ball of clay in the hand of a sculptor pinpoints this ontologically ambiguous moment. The ball and hand exist within the creative environment of the workshop while simultaneously being part of a sculpting system that busies itself exploring the environment in which it exists. If clay is allowed to act both as a tool and as a medium, then sculpting clay can turn the tacit into the explicit, transforming the role that implicitness plays in human action into something paradoxical and inconsistent. The ontological duality of clay during sculpting is what distinguishes 'creative thinging' from 'thinging'. Thinging, as we have seen, refers to the vitality of things in themselves. Creative thinging refers to the capacity of a system to investigate its own vitality by creating itself – what we have called 'learning itself into existence'. The skulpture could not exist without the knowledge of its existence. And could not know itself until it existed.

The above formulation – that being and knowing are existentially interdependent – was not made from the position of an observer. Rather than engaging in an anthropology of art (in which the practices of the former are used to study the practices of the latter), we began by using MET to highlight the enactive significative possibilities of art-making before showing, via the case study, that the materialisation of these possibilities during art-making is able to explore and describe the process of enactive signification, as well as other key features of MET, directly. The case study describes a process of auto-generation by concrescence. Events, materials and habitual practices coalesce and organise themselves into a series of clay-memory gestures, learning a skulpture into existence. But, no sooner conceived, the concrescence disperses, releasing elements, some of which reconfigure as past events and arrange themselves along a pathway with the skulpture at its end, giving the impression that the process was under the control of a linearly directed agency, such as the one often attributed to the human brain. The post-hoc historical reorganisation obscures the experience of being within a system of creation that existed as a transient, gestural and materially mediated conceptual process. Creative intention was not born in a conceptual space, separated from the world, but in a messy and confusing physical system of materials, artefacts and human activity. Ideation and materialisation occurred within the same system of activity, and neither existed anywhere else.

Notes

1 We use « aesthetic » to refer to an engagement with the world that focuses on the sensorial qualities of an action; be it making, looking, touching or other sensation-seeking activity.
2 This relates to the question we raised, in relation to the extended mind, concerning the limits of equating phenomenology with a first-person perspective.
3 See also Baber's Chapter where he addresses the shortcomings of procedural knowledge in more detail.
4 I ascribe intentional feelings to the sculpture, as a figure of speech – as a way of expressing that the intention did not appear to belong to me. It could reasonably be argued that this comes about through projection on my part space prevents me exploring the issue further here.

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Chapter 3. Briefing for a systemic dissolution of serendipity

Briefing for a Systemic Dissolution of Serendipity

Paul L. March and Frédéric Vallée-Tourangeau

No sooner had Horace Walpole invented the word "serendipity" in a letter to his friend Horace Mann, he split the concept in two, describing it as a combination of "accident and sagacity". The interplay between chance and wisdom underpins the concept of serendipity to this day and provides the basis for research into the role of accidents in scientific discovery and the place of the unpredictable in creative activity in general. Later in the letter, Walpole offers another, much less cited definition of serendipity: "accidental sagacity". The subtle, syntactic recombination of "accident" and "sagacity" belies a substantial semantic

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and ontological leap which may explain why the second definition is passed over in favour of the first. Although in common parlance, "accidents" and "sagacity" are loosely defined concepts, operationalising them is a usefully rigorous first step in a research programme aimed at considering how they might be recombined to create positive outcomes. That is how science proceeds, through a process of reduction, abstraction and recombination (see Gilhooly, Ross & Simonton, this volume).

"Accidental sagacity", on the other hand achieves such delightful levels of ambiguity that it fails even to attain the paradoxical certainty of an oxymoron. It is therefore no surprise that research projects do not queue up to be launched under its quixotic ensign. But we are drawn to "accidental sagacity" precisely because it does not immediately seek to capture and compartmentalise the concept of serendipity. It manages instead to maintain, cherish and even extend its mystery. In particular, we like the way the self-deconstructive notion of accidental sagacity widens the agential possibilities of the serendipitous process. In her encyclopaedia entry on serendipity, Ross (2020, p. 8) points out that, despite the relational nature of the term, existing models of serendipity tend to describe agency in individual human terms.

> There is an ever-present tug toward a human-centric model of action, even in a concept such as this one which is, by its very nature, enmeshed and entangled. What is possible in serendipity studies is constrained by the way it is approached.

From the perspective of an individual human, serendipity can be understood to be marked by four features: first, an unexpected event occurs beyond the agent's intentional ambit. Second, the agent finds the event surprising and thereby notices the experience. Third, the event gives the agent a new idea; a moment of insight.[1] Fourth, as a result of the idea, the agent changes his/her intentions which eventually brings about a positive result (Copeland, 2019). An individual experience of serendipity depends upon there being a good outcome requiring an "ah-ha!" moment to be temporally retrofitted to a past event. The "ah-ha"

[1] We call these moments "outsight" see below, p. 12.

must be exclaimed anachronistically in relation to the memory of a past event whose significance can only now be appreciated. In her analysis of the discovery of penicillin, Copeland (2019) makes a similar point.

> Rather than a moment of "eureka" upon making what has been deemed a serendipitous observation in light of the exceptional value it is now known to have had, Fleming is reported to have said something more like "That's funny". (Hare, 1970, p. 65, cited in Copeland, 2019)

The retrospective coronation of serendipity requires the individual to use hindsight to draw a direct causative line from the outcome towards its putative determinant. By using "accidental sagacity" as a working definition for serendipity, we hope to avoid being tugged into explanations that divide the world into human agents and environmental contingencies. We will concentrate instead on the entanglement itself and explore what happens to the concept of serendipity if we consider the origin of intention to be not the product of an agent but of a process—that of getting tangled up.

We begin with a brief introduction to Material Engagement Theory (MET): a methodological approach that we will use to help prevent us straying too much onto the straight and narrow. MET was developed within archaeology and it focuses attention, not on the relationship between humans and things per se but on the exploration of relational processes over time and their influence on human-thing becoming in systemic terms. We focus on the MET notions of "extended intentional state" "intention-in-action" and "creative thinging" to develop the notion of accidental sagacity in terms of an ongoing experience that accompanies an unpredictable pattern of creative activity which simultaneously and interdependently creates knowledge by making things and creates things by making knowledge. We refer to this process as "learning into existence" (see March & Malafouris, forthcoming). We accept that the chaotic nature of the entangled descriptions that we are embracing make it difficult to grasp when described in these abstract terms and so we present two case studies to exemplify the apparently haphazard but inseparable ontogeny of things and ideas. The bulk of the chapter is devoted to the first of these case studies. It describes a programme of activity

that, while taking place in an artist's workshop, is experienced as being of uncertain artistic purpose. The report is given by the artist, Paul March (PM). We describe it as phenomenological and whereas it is certainly not an objective account, it is not, strictly speaking, a subjective account either (see Le Hunte, this volume). We will go into this in more detail later but for now it is enough to say that the case gives us a glimpse of what it is like to be inside one, specific system.

The second case is drawn from the experimental psychology of creative problem solving. We give a briefer summary because, given the constrained nature of laboratory, problem-solving tasks, they have a short timescale and are considerably less complex than the problems faced by the artist. More importantly, the laboratory case reports the movement of artefacts that correspond to features of the problems to be solved. Unlike the workshop case, it does not draw on the phenomenological experience of the participants as they work on the problem and produce new ideas. The experiment we report captures the process of problem solving as it takes place in, with and through the world (as opposed to in the head, via the putative manipulation of mental models of the world). This view from beyond the problem-solving system, provides a way of triangulating the phenomenological account and making activity visible, recordable and in some sense, verifiable. It shows that the path to the solution takes a haphazard, unpredictable course and the solution, if it is reached at all, happens through a change in the pattern of activity that does not reflect the premeditated implementation of a problem-solving strategy. Put another way, the systemic reorganisation of movement patterns heralds a solution which the participant realises only when she sees it. We close the chapter by considering how a phenomenological analysis of a specific creative process which is partially scaffolded by an empirical study of problem solving can inform our understanding of serendipity.

Material Engagement Theory in Context

MET was introduced by Renfrew and Malafouris (Renfrew, 2004) and the concept of the extended intentional state by Malafouris (2010). Malafouris (2013) further developed MET into a detailed methodology with the addition of important concepts (Malafouris, 2014, 2015, 2019). MET is founded on the work of Whitehead, Merleau-Ponty, Husserl, Heidegger and Bergson, to name some of the more important influences, and MET shares these foundations with other approaches from within archaeology and anthropology (e.g., Hodder, Ingold, Hutchins) as well as ecological psychology and the recent 4E (embodied, embedded, enactive and extended) movement in philosophy and cognitive science alongside the influential work of Latour (e.g., 1999). Silberstein and Chemero (2015) argue that these 4E, phenomenological and ecological approaches are underpinned by James's philosophical views: a version of neutral monism that James called *Radical Empiricism* (1905). We would argue that MET fits comfortably under the same umbrella (see Gosden & Malafouris, 2015). Whether or not neutral monism resolves the immiscibility of mind and matter is beyond the scope of this chapter (see Silberstein & Chemero, 2015 for a discussion and Seager, 2016, chapter 15, for a review of neutral monism) but we will briefly describe James's ontological position because it provides a philosophical basis for the argument that we employ in this chapter, namely that things (matter) and ideas (mind) are existentially interdependent to the point of being inseparable.

James makes no distinction between the physical world and our experience of it: there is no bedrock of objective reality over which a layer of subjectivity is more-or-less accurately stretched. The objective and subjective are analytical abstractions derived from a single, fundamental substrate called "Pure experience"—termed neutral because it is neither mental nor physical. It is important to emphasise that pure experience is not a heightened form of first-person experience because, within pure experience, there is no personal self any more than there are material things. James (1904, p. 484) describes pure experience as follows.

> In its pure state, or when isolated, there is no self-splitting of it into consciousness and what the consciousness is 'of.' Its subjectivity and objectivity are functional attributes solely, realized only when the experience is 'taken,' *i.e.*, talked-of, twice, considered along with its two differing contexts respectively, by a new retrospective experience, of which that whole past complication now forms the fresh content. The instant field of the present is at all times what I call the 'pure' experience. It is only virtually or potentially either object or subject as yet. For the time being, it is plain, unqualified actuality, or existence, a simple *that*.

Our interest here is to highlight James's contention that the division of the world into subject and object occurs through retrospective analysis and that by remaining within the experience of the present, neutral monism provides a basis to extend a phenomenological account beyond the subjective (first person), making it possible to conceive of what Silberstein and Chemero (2015, pp. 7–8) call, "extended-phenomenological-cognitive systems":

> Events, such as everyday experiences of flat tires, concerts, conversations, etc., which are neither essentially physical nor mental, are fundamental and exhaustive, and they are grounded in and one with the neutral "Presence"—what James calls the "instant field of the present".

The Theory of Material Engagement

MET, as laid out in Malafouris (2013) contains three, interrelated concepts.

The Extended Mind

Unlike Clark and Chalmers's (1998) original description, Malafouris views the extended mind, not as a network of objects co-opted into a cognitive system by a central, cranial executive but as a process of

extended activity that evolves over time between person and environment (see also Glăveanu, this volume). In Clark and Chalmers's version, the mind is extended in space from an anatomical centre, its extracorporeal borders delimited by functional requirements. In the MET version, the mind is more usefully conceived of as inhabiting a temporal dimension, anchored spatially in the present at the point of a specific human-material interaction, it extends retrospectively to engulf habits and cultural patterns through which the ongoing activity finds its rhythm and anterospectively by anticipating the variations, improvisations and ruptures of habit necessary to create a viable future.

Enactive Signification

With the mind as an emergent property of temporally extended material engagement, prospective activity becomes the motor, both of making and of signification; with no need for meaning to be experienced through the interpretation of symbolic content nor action in the world to be converted and represented into another format in order to make sense. This is important for understanding how art *works*: enactive signification provides a mechanism by which the process of making and beholding art becomes a direct, active, integrated experience, unmediated by language.[2]

Material Agency

Malafouris's concept of the extended mind makes it difficult to pinpoint a single source of agency. If the mind is a temporally extended process that finds a transient home on earth exclusively during the making-thinking-sensing activity of the moment, then agency too is best seen as similarly extended—within a work in progress rather than a person. In this way, and as described above, preceding patterns of worldly activity develop auto-genetically into an *extended intentional*

[2] We are not arguing that symbolic content does not exist—only that it is not an exclusive or essential pathway to meaning.

state that predicts and creates a future state. The temporal extension of the intentional state occurs within and between shifting, recursively intercalated systemic configurations that operate along different time scales—cultural-phylogenetic, ontogenetic, task-related—all of which are expressed in a spatially and materially specific extended present moment of action: what Malafouris refers to as the *hylonoetic field* (2013, 2019). Malafouris (2013) subsequently developed the concept of the extended intentional state by aligning it with Searle's (1983), concept of *intention-in-action* which points to the essential intention-forming nature of habitual activity. We use *extended intentional state* here when we wish to invoke a wider network of intentional genesis than a single, ongoing thread of contingent action.

The above themes are usefully integrated, particularly in relation to the experience of art, by Malafouris's concept of *creative thinging* (2015). The word *thinging* comes from Heidegger who used it to underline the proposition that things were not passive, immutable objects but forcefields of continuous, active transition. Consistent with the neutral monism of James, *creative thinging* invites us to consider the development of mind and the mutability of things to be recursively interdependent, focusing attention at a point in time and space where movement makes mind and matter indistinguishable (see also Le Hunte, this volume). From the perspective of this brief summary of MET, it makes no sense for Walpole to separate sagacity from the exigencies of the environment nor to excise Pasteur's "prepared mind" from the web of historical and prehistorical cultural-evolutionary influences that connect it to humanity (see also Ross, Copeland this volume).

Having presented MET and before going onto the first case study, we want to return to our hesitation, voiced earlier about referring to PM's report as a phenomenological account. Our problem is with a first-person experiential perspective: reporting the experiential corollaries of individual intention, personal agency and the private content of internal representational models, does not fit well with the ontological implications of MET. The phenomenology of *creative thinging* requires a description of what it is like to be part of an extended mind with an extended intentional state in which the experience of meaning is enacted through material. We need a phenomenal construction more similar to

Heidegger's concept of *Dasein* (being in the world). We maintain that PM's account cannot be called subjective because it gives voice to the experiences of an extended-phenomenological-cognitive system which by implication manifests a form of extended consciousness. We accept that the chapter introduces a complex and controversial concept with little space to elaborate but we think it important to make clear that the notion of an extended form of being constrains the way we approach serendipity in what follows. Finally, given the phenomenological ambiguity that we have just outlined, we find it unfortunate that we have to rely on a first-person account, but we lack the language structure for a first-system account.

Case Study 1: Fossilized Flowers Reified

Most of the action of the case study takes place in a ceramic workshop in Geneva before moving briefly but dramatically a few kilometres down the road to the United Nations. I am an artist who works mainly with clay. For most projects I mix the clay with small quantities of paper and flax fibre. For 10 kg of clay, I usually add 25 g of flax and 50 g of paper—about the maximum recommended (Reijnders, 2005). The addition of fibre makes a composite material which increases the strength of raw clay while maintaining its plasticity and helps prevent cracking during the drying process.

About five years ago while mixing paper and flax into a batch of clay I tried adding a little clay at the stage when I was mixing the fibre and water to see if would make it easier to mix all the ingredients together later. Kneading clay is hard work, and I was keen to avoid unnecessary physical labour. As I mixed clay and fibre together, my attention was caught by the odd, slimy, fibrous substance that was forming between my hands and I began wondering what would happen to the workability of clay and its fired visual aspect if the ratio of fibre was markedly increased.

I continued to add fibre to clay until the mixture became more-or-less unworkable. I squashed it into a plaque, and once dried, I fired it. The resulting material was surprisingly light and had the intriguing aspect of friable rock but, given that I had made an unworkable material, it was

ludicrously inevitable that I could find nothing do with it except put it on the windowsill where it stayed for a couple of years (see later reference to Keller about stuff lying around in a workshop).

In 2017 I spent six months modelling a tonne of clay into a large ceramic sculpture, the construction, drying and firing of which was a significant technical challenge (see March and Malafouris, forthcoming; and *Another Part of the World* [artwork by the first author]). Before beginning the project, I considered increasing the fibre-clay ratio to gain strength, decrease weight and stabilise drying but decided against doing so, partly because of received wisdom and partly because of the experience, just described of trying to work with high-fibre clay.

Once the sculpture was finished, I was in my workshop one day reviewing the struggles of the previous months and, with the view of the sample from the windowsill acting as an idea-catalyser, I wondered whether I had misremembered the sensation of working with heavily fibred clay. I picked up the sample and was once more drawn to its feel and appearance. I started work on a second sample but approached the task more empirically this time. I began with a very high ratio of dry-weight fibre (50%) adding more clay until the mixture approached workability. I stopped at a ratio of 10% fibre at which point the material was not at all elastic, tore easily, was unresponsive to the touch and had a tendency to resist all modelling gestures (see Fig. 1). However, since the last encounter with this intransigent material, I had begun a doctoral research project focusing on sculpting in relation to MET. The experience of being thwarted once again by the fibre-clay but this time in the context of MET, confronted me with the obvious fact that, on the last occasion, I had engaged with the material as though I was already familiar with it. Instead of seeking a relationship with the clay-fibre, instead of exploring its qualities with a view to discovering what we were capable of together, I had tried imposing well-learned but ill-adapted sensory-motor habits onto it. Normally we call these sorts of moments of realisation "insight". But in this case, the change of view was quasi-literal. It did not take place in the obscurity of an internal conceptual space of abstract reflection: it occurred in the visible and touchable external world during specific, gestural activity. We have therefore coined

Fig. 1 Fibre-clay thwarted all attempts to engage with it as though it was normal clay

the term "outsight" to refer to such events (Vallée-Tourangeau & March, 2020).

We can look at this episode of outsight in two different ways. First, from the perspective of a mind-material separation, it appears as though my decision to change the nature of the task from making art to making academic ideas transformed my view about the clay, but did not change the clay itself—how could it? But from the perspective of enactive signification, the sensorial qualities of fibre-clay **are** manifestly different. The moment of outsight arose from material engagement, transforming the material quality of the clay by this act of realisation.

From the perspective of serendipity as accident and sagacity, we have the following so far. A technical innovation in mixing clay and fibre leads to the accidental formation of a novel material. The wise artist recognises this and explores its potential which leads to a dead end—not so wise after all. At this point, there is no happy ending and so no serendipity. Two years later, the epistemological environment has changed. MET has

prepared the artist's mind to see a dead-end as a research opportunity. If the final outcome (that is, the point where we decide to stop the story and from the perspective which the story is told) turns out to be a happy one, then we now have all the elements in place to be able to look back from the future and see serendipity at play. In our view, such a perspective—one that separates entities and ideas from themselves and from each other and then lines them up by cause and effect avoids the very complexity that it is necessary to protect if we are to appreciate the nature of serendipitous experience. But let us continue with the case.

Outsight shifted the haptic signification of the slimy, fibrous mass away from being a source of creative frustration and towards becoming a research opportunity. The extended intentional state stopped seeking mastery and began an attitude of free-floating sensory attention which was, in turn associated with a change in gestural intention. By massaging and kneading the fibre-clay in an exploratory fashion, the gesture-fibre-clay system began to learn that, unlike ordinary hand-clay interactions which encourage the whole hand to be involved, fibre-clay demands only the fingers to be engaged. It is completely unresponsive to large movements, yielding only to a sliding pressure between the thumb and a finger. This gesture of sliding clay and fibre together has the effect of cementing the components into layers a few millimetres thick. Any attempt to work with thicker sections ends in tearing. We argue that, in learning this technique, the gesture-fibre-clay system learned itself into existence (see also Piňeyro, this volume). From a phenomenological-systemic perspective, by extending into the future, the activity of the present is positively affirmed, not retrospectively but in real time. If we can refer to it as such without reaching the semantic limits of the word, we might say that serendipity is synchronically enacted and habitualised. In her analysis of the practice of science, Copeland (2019, p. 2389) concluded serendipity to be "more ubiquitous than momentous". We certainly found this to apply to the fibre-clay system. In contrast, I (the individual artist) only became aware of this episode of implicit learning two years later, when I wrote those words. This underlines our earlier point concerning the anachronistic nature of an individual retrospective perspective. We will return to the notion that systemic learning can take

place without the awareness of the individual when we look at problem solving in the lab.

While kneading clay, I began thinking about my morning coffee cup—rather, not the cup itself, but drinking coffee from it. Although a memory, it was not a memory of a specific, past event. It was the evocation of a habitual activity, made present in relation to the restricted behaviour of the novel clay.[3] As Malafouris and Koukouti (2018, p. 161) put it,

> re-experiencing events from the past are increasingly recognized as forms of context-dependent embodied simulation and re-enaction: a person remembering an event in the past re-enacts similar visual, kinaesthetic, spatial, and affective aspects to the original experience.

I began encouraging the clay to make the form of a vessel. By that action, the morning coffee cup was drawn into the story as a stepping stone in the fibre-clay's journey.[4] Gestural activity was subverted by the evocation of coffee drinking and reoriented away from open exploration, reverting to a well-established ceramic construction technique known as coiling. The method involves rolling the clay into long, sausage-shapes and coiling them into the desired form before smoothing the walls to form the sides of the vessel. But here, the fibre-clay immediately resisted being rolled; the fibre mitigated the clay's plasticity, preventing it from sliding along itself. By adjusting the technique, by combining rolling and coiling with the method I have described of pinching-sliding the clay flat between finger and thumb I did manage to make two beakers, but the work was clumsy and unsatisfying (see Fig. 2).

Chastened, I returned to making what was possible using the pinching-sliding technique alone—small plaques of clay—about 2–3 mm thick and 60 mm diameter. Beyond 60 mm the plaques began to tear or disintegrate. Once they had dried a little, the small pieces could

[3] Word limits prevent us exploring the reasons why fibre-clay and morning coffee came together—even a systemic account must be hacked away from the rest of the universe. But a sequel does exist (March & Glaveanu, 2020).

[4] If I were telling a story from the perspective of a transformation in my coffee drinking experience then the cup-to-be would be the principal character, with the fibre-clay taking the role of material stepping stone.

Fig. 2 One of the beakers: the form was determined by the mismatch between the rolling gesture and the material possibilities of fibre-clay

be joined and shaped into hollow lumps around the internal support of a screwed-up ball of paper, but the fragility of the clay-fibre also limited these lumps to a diameter of 60–70 mm (see Fig. 3, left panel). However, by sticking several of them together, individual lumps could grow, blastomerically into a larger form (Fig. 3, right panel). Within the gesture-fibre-clay system the decision to grow in size took place without reflection: as intention-in-action linked separate units of gestural patterns to make something bigger and, in so doing developing the extended intentional state of the system. Once again, only in retrospect did I

Fig. 3 A selection of lumps (left panel); Blastomeric lumps (right panel)

consider that the intention to grow was linked rather more to a system of sculpture than it was to a system of research.

By this stage I was unsettled, perhaps in part because of the unrecognised mismatch between the system and the individual epistemic positions just mentioned. I wrote in my notes "Difficult to describe the extent to which I am lost - unsure why I am doing this - what is happening" (19.9.18; see also Sneddon, this volume). Before starting the PhD, I would have launched into an investigation of fibre-clay for a specific artistic reason and the learning-into-existence of clay-fibre possibilities would have occurred, probably un-noticed in the margins of more explicitly creative aspects of the workshop routine. But now, in the context of doctoral research, the primary task became to monitor the quality of engagement between the hand-fibre-clay system and an unfamiliar material and this had the disturbing effect of removing the assumption that an artwork would develop from process. The intentions associated with the new activity became obscure and destabilising. The experience bears some parallels with Kirchhoff and Kiverstein's (2020) analysis of culture shock as a breakdown of phenomenal attunement (see also Sneddon, Turner & Kasperczyk, this volume).

Obscured from intention, I had a vivid memory of my childhood efforts at flower arranging. As long ago as I can remember, my mother would arrange flowers and put them around the house. At the age of five or six, I started arranging flowers too. The trouble was, I did not really have a notion of a flower arrangement. I did not understand why I would place the flowers one way as opposed to another. I used my mother as a model but rather than pay attention to the aesthetic effect of the arranged flowers, I copied her actions as though they were ends in themselves. "Arrange" the flowers, stop, step back and look, rearrange, step back again etc. take some flowers out, put others in and finally add a few leaves. Stepping back, I had no idea that I was supposed to be making a judgement about beauty.

In the workshop, the sensory-motor feeling of arranging flowers with no guiding aesthetic intention came back with a shock. As the lumps piled up, engagement between material and gesture improved but the sculptural form of this engagement seemed to hold no relevance for the developing choreographic pattern of the gesture-fibre-clay system.

With no aesthetic traction, no "kinetic melody" (Luria, 1973, p. 73), the system felt limp and exhibited no intentionality. Individual lumps were unforthcoming when it came to exhorting some sort of differential sensation. As a group, they did begin to interact but the presence that developed between them was feint and gave no discernible direction to gestures which either ground to a halt or were thrust forward—away from the fear of touching a void of inactivity. Swirling in contradictory directions, a miasma of agency gave only a tenuous sense of purpose and I found the unsettling uncertainty difficult to withstand. Grasping for a resolution, the idea of creating a photo inspired by a previous art project became irresistible (see Figs. 4 and 5).

I began experimenting but soon found it impossible to ignore the growing conviction that the activity was motivated by the wish to escape

Fig. 4 *Still Live* (2003) one of two photos printed on aluminium (1.0 m × 1.0 m)

Fig. 5 The blastomeric lumps following *Still live*, shown in Fig. 4

a sense of self dissolution[5] (March, 2019). Milner (1950, pp. 75–76) describes a similar situation during certain drawings:

> They were the kind in which a scribble turned into a recognisable object too soon, as it were; the lines drawn would suggest some object and at once I would develop them to make it look like that object. It seemed almost as if, at these moments, one could not bear the chaos and uncertainty about what was emerging long enough, as if one had to turn the scribble into some recognisable whole when in fact the thought or mood seeking expression had not yet reached that stage. And the result was a sense of false certainty, a compulsive and deceptive sanity, a tyrannical victory of the common-sense view which always sees objects as objects.

Despite recognising the impulse as a defence, more ideas came piling in, all trying to attenuate the anxious sense of dissolution surrounding the act of modelling clay in the absence of intention. The activity continued in this desperate mood and a work-rhythm eventually established itself as, one after another, lumps emerged with the form and regularity of dung, with nothing to distinguish one from another.

[5] To complicate matters, once this project was finished a new project, Sending the Blessings Back, did develop from Still Live.

Fig. 6 At the bottom of the notebook page my mind wanders back to the preoccupations of the workshop (left panel); the enclosed basin of the Musée Ariana (middle panel); a systemic call for action provokes further doodling (right panel)

A week later, I was at a meeting at the United Nations in Geneva as part of my work with an NGO. After about 20 minutes of careful concentration, my mind began to wander as we can see in my notebook (see Fig. 6, left panel). At the foot of the page, I am doodling lumps while thinking about the Swiss Ceramics Museum, an ostentatious building set in spacious grounds just beyond the UN conference hall. Earlier that summer, while wandering the museum gardens I came across a cloistered area containing a rectangular basin. Perhaps a former water basin, it was now beautifully planted with wildflowers and grasses (see Fig. 6 middle panel). Someone on the podium said "… call to action… systemic response…". In my notebook, I wrote these words at the top of the next page where there is also a recognisable sketch of a flower and the word *Hortus* (Fig. 6, right panel). Latin for enclosed garden, I had learned the word a few weeks earlier when the theme for a biannual ceramics competition was announced—"*Hortus*. The Garden Invades the Table". Perhaps it appears here because of the proximity to the cloistered area in the museum gardens.

As the doodle creatively thinged about *hortus*, it provoked a memory of two themes in the paintings of Anselm Kiefer; ancient landscapes and sunflowers (see for example Osiris and Isis [1985–1987] and Morgenthau Plan [2013] at the Royal Academy website, London). The memory led in turn to thinging-through-doodling about whether it was possible to conceive of something that was both a flower and a landscape. As the doodle conceded with disappointment that it was not, the possibility of fibre-clay developing into flowers did become a thingeable idea.

Fig. 7 Detail from the installation *Welcoming Down the Blessings*, 2019

Back in the workshop that afternoon, I returned to the familiar gesture of pressing fibre-clay between thumb and forefinger but now the gesture enacted a different significance—a damaged, desiccated petal was learned into existence in front of me, one that suggested a fossilised flower or one that had been petrified by the ash of Pompei (see Fig. 7).

Interim Summary

The story places the thingeable idea (thingeable idea—a novel possibility that inhabits the cusp between material and epistemic transformation) "fibre-clay as flowers" within a network of events and processes: remembering a flower-arranging past while pressing fibre-clay into the form of dung, doodling while attending a UN meeting adjacent to the garden of the ceramics museum, the use of the word *hortus* in a competition title, the work of Anselm Kiefer etc. If the thingeable idea comes good, we might be tempted to make a link to a moment of serendipitous reverie at a conference by taking the knotted gathering of the doodle and disentangling it in the belief that some threads will lead to wisdom and others to chance. But we suggest that the idea became thingeable because of the messy process by which events and processes became entwined within and along the trace of a doodle. By drawing a unidirectional causal link we fail to see that it was the entangling act of doodling that

created the memories of things in a form that was uniquely related to the doodle. The doodle can do this because memories and the experience of things occur in the present, not in the past. In "*On not being able to paint*" Milner (1950, p. 24) describes her discovery of two different experiential states which seem to correspond to the above two perspectives on serendipity: one is experienced in the present, the other only in retrospect.

> One way had to do with a commonsense world of objects separated by outline, keeping themselves to themselves and staying the same, the other had to do with a world of change, of continual development and process, one in which there was no sharp line between one state and the next, as there is no fixed boundary between twilight and darkness but only a gradual merging of the one into the other. But though I could know, in retrospect, that the changing world seemed nearer the true quality of experience, to give oneself to this knowledge seemed like taking some dangerous plunge; to part of my mind the changing world seemed near to a mad one and the fixed world the only sanity.

Interim Conclusions

The case study highlights a problem with the adjective "accidental" in "accidental wisdom (or sagacity)". Despite beautifully capturing the essential muddle of the process, "accidental" suggests that events have escaped the influence of human agency in favour of chance. But if we focus, not on the individual human agent but on an extended intentional state then the concept of accident is undermined because agency is not connected to an individual but is an emergent property of activity in the world. Put simply, whether something is viewed as accidental depends upon where we choose to draw the limits of our agential process and how permeable we choose to make that border (see Ross, this volume). For example, the separation of human agency from environmental accident appears more pronounced from the perspective of an observer as opposed to a practitioner (see Lock & Sikk, this volume), as Keller (2001) demonstrates in his comparative account of the two. He argues that whereas the observer has access only to the single, final, visible production pathway,

practitioners sense a wide network of potential influences on workshop activity and can:

> …make us aware of the many factors that influence production. These insights argue against deterministic or single causal accounts of what only appears to be linear sequences in production. Instead, practitioners can point to the sundry ties among ideas and artefacts deriving from their complex reciprocal relations. (Keller, 2001, p. 35)

Thus, from an observer perspective, what appears to be the accidental presence of a piece of scrap is, from the practitioner perspective, a systemic part of workshop activity.

> The tendency of blacksmith's shops to be littered (to the eyes of some) with scrap and other odds and ends is explained by the potential of this "debris" for application to particular tasks. (Keller, 2001, p. 37)

Guided by MET, the case of the fibre-clay makes manifest this messy process that resists linear and reductive explanations; first and foremost because the account is generated and communicated from *within* a creative system (a human-centric model would call this a subjective description). We argue that this sort of intra-systemic tale is uniquely capable of providing an answer to the question "what is it like?". However, an answer from the inside cannot be used to make claims about activities that lie beyond the system from which it was generated. It provides weak evidence that other phenomenologically active systems behave and exist similarly. In contrast, whereas a scientific perspective can tell us nothing of what a system feels like, it can monitor and generate a view of the system from the outside which can be shared and tested. By transitioning from a phenomenological report of the trajectory of a creative system to recording the trajectories of participants solving problems in a psychology experiment we hope to demonstrate that the experiential phenomenon "learning into existence" also leaves traces that are visible from outside the experiencing system. Despite the simplicity of laboratory-based problems, by taking an enactive perspective of participant behaviour, we think it is possible to reveal something

of "the sundry ties among ideas and artefacts deriving from their complex reciprocal relations" which Keller finds in workshops and we described in the fibre-clay case study.

Movement Is Thinking

In many respects, this transition must bridge a chasm. For one, the artist's case study narrates a trajectory that spans years, crosses places, continents, and lifespan periods; the trajectory is populated with a multitude of characters, both human and non-human. The artist has a level of expertise, professional motivation and meta-reflective training that is simply absent in the typical, university undergraduate participant in a psychological experiment. While the artist creates and solves a problem that arises within a creative trajectory that may stretch back decades, in the laboratory, we observe the participant for a few minutes as she tackles a small, well-defined problem from outside her own life trajectory. It might appear that any attempt to bridge the chasm is foolhardy, if not downright dangerous but we believe that, although lab-based problems and solutions are normatively pre-determined, the participant still has to discover the solution, to learn it into existence, and this offers some common ground between workshop and laboratory that has further implications for the concept of serendipity. Before we sketch out these parallels, we provide a brief introduction to the research methodology employed by psychologists working on problem solving.

The Laboratory Approach

Approaches taken to study creative problem solving in the psychological laboratory take one of two broad routes, let us call them the sequestered route and the enactive route. The sequestered route employs a methodology where the problem solver (the agent) reads a problem description or inspects a static, schematic representation of a problem. The agent may be presented with a series of letters and asked to generate as many words as she can in a given time period. Or she may be asked to solve

a verbal riddle (a stumper).[6] Or she may be asked to figure out how to re-arrange the elements in a visuo-spatial problem to reconfigure one shape into another. Crucially, the agent is not embedded in a physical environment where she can think with and through the world. Rather, solutions must be internally cogitated in the absence of interaction with the world. This methodological sequestering (Vallée-Tourangeau & Vallée-Tourangeau, 2014) is motivated by an implicit allegiance to good old-fashioned Cartesian dualism (GOfCD).

Methodological sequestering aims to reveal the purity of mental processes. The data obtained are lean: Solution rates and latencies are recorded, but trajectories towards new thoughts are not because, since the work is all done in the head, there are no material traces of thinking to record. Psychologists have several techniques for filling this evidential gap. Crafty neuroscience procedures may map different areas of the brain that are selectively correlated with solutions (Kounios & Beeman, 2014). Or researchers may solicit verbal protocols from their participants (Fleck & Weisberg, 2013), or record the participants' eye gaze to trace the allocation of attention to different problem elements (Bilalić et al., 2019). But the evidence produced by these techniques is circumstantial. More importantly, in our opinion, this form of research proceeds from a category mistake; the purification process transforms the mental into something quite different from how the mind manifests itself in the world. (Here is not the place to expand this argument; see Vallée-Tourangeau & March, 2020; Vallée-Tourangeau, forthcoming). By assuming an orthodox GOfCD perspective, the sequestered procedure constrains the agency (and intentionality) of problem solving and idea generation to a single source—viz. the mind of the agent—which, in turn, determines the path and direction of the problem-solving effort.

In contrast, the enactive route blurs the boundary between the participant and her environment. The focus of problem solving moves from the head to the manipulation of physical artefacts that correspond to

[6] A big brown cow is lying down in the middle of a country road. The streetlights are not on, the moon is not out, and the skies are heavily clouded. A truck is driving towards the cow at full speed, its headlights off. Yet the driver sees the cow from afar easily, and avoids hitting it, without even having to brake hard. How is that possible?" (Bar-Hillel et al., 2018, p. 112). Answer: it's daytime.

features of the problem to be solved. Thinking materializes with and through the world. Actions change the physical environment which in turn offers new perceptions and triggers new actions and, in so doing, the problem-solving system brings itself into being. Thus, the emergence of agency and intentionality follows similar lines to those found in the artist's description of how the flowers became a thingeable idea. We will illustrate the enactive route using a short case study drawn from an experimental procedure in which participants were asked to solve a simple problem by manipulating artefacts. The experimental procedure was instrumentalised to produce data that afforded a granular coding of the iterative relationship between actions and visible changes in the problem which, in turn, allows the psychological researcher to trace the route along which new ideas emerge. Indeed, we would argue that the emerging routes are the new ideas, the gradual reification of the solution to the problem. The case study will be illustrated through the schematized animation of the physical transformations of the problem over time.

Learning a Solution into Existence

The case study is taken from a problem-solving experiment where participants were given 10 minutes to solve the triangle of coins problem. The problem start state was shown as 10 coins arrayed in a triangular shape pointing down (see Fig. 8). The goal is to identify three coins, and only three, that can be moved to transpose the orientation of the triangle. The goal state is a triangular shape that points up and the solution involves the transposition of the three corner coins—the vertices. The 10 coins were labelled with individual letters; each coin occupied a cell on a 9 × 9 grid (with numbered columns and labelled rows). Participants were filmed in an observation laboratory with overhead cameras; the problem was presented on a computer tablet, and coins could be dragged across the grid. Participants could reset the configuration to its initial start state (triangle pointing down) at any time by pressing a reset button on the interface.

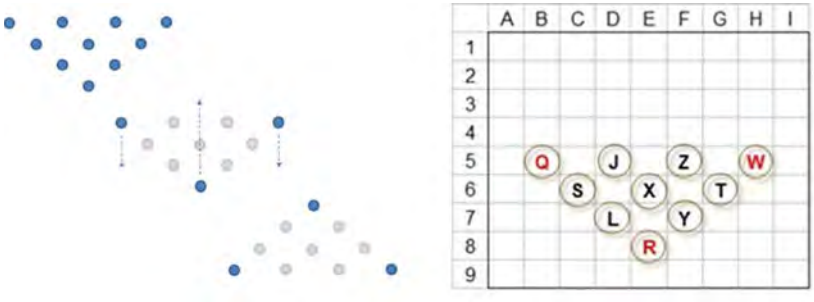

Fig. 8 The triangle of coins problem (left panel: start state at the top, goal state at the bottom); the problem as presented to participants (right panel; the vertices are colour coded here, but they were not for the participants). See Vallée-Tourangeau et al. (2020) for further details; on the importance of instrumentalising the procedure, see Vallée-Tourangeau and Vallée-Tourangeau (2020)

From the video data, the granular coding of movement was then transcribed, each new move and the resulting change in the configuration of the triangle was captured. We could thus create a schematic animation of the unfolding trajectory from start state to goal state for the successful participants (and indeed map all the other unproductive trajectories that did not eventuate in a solution in the time allocated for the unsuccessful participants). In the animation presented below the coins are shown with the letter with which they were labelled. On the right is plotted the move latency (red data series) as a running average over the previous five coin moves as well as the migration ratio (black data series); the migration ratio is an index that measures the degree to which the coins are primarily migrated up or down (see Vallée-Tourangeau et al., 2020, for a detailed description of this index; we return to the migration ratio below). As described earlier, the task is to reverse the vertices of the triangle coins 180° by moving only three coins. Thus, what is animated is the movement of letters, the red ones corresponding to the vertices, and these letters corresponded to the coins (the vertices were not colour coded in this manner for the participants). Let us watch the animation: https://osf.io/vh43b/; Vallée-Tourangeau et al. (2020) provide a detailed analysis but for our purposes here, we wish to draw attention, once again to the role of the dynamic change to the physical model of the problem. The

animation shows that most moves (40 or so) migrate the coins north, but, for this participant (as for all), this strategy fails because moving north requires too many coins to reverse the triangle's orientation. In the last 12 trials the participant begins moving the coins south to form the lower base of the triangle and this new pattern of movements gradually enacts the correct configuration.

The case study highlights several characteristics of the process of thinking as revealed through the manipulation of an object. We limit our discussion to two.

Movement and Thinking Are Indivisible

The animation demonstrates the difficulty of separating participant from environment in such a way that leaves the agency of wisdom exclusively on the side of the participant. We must suppress the GOfCD Pavlovian reflex that seeks to identify the independent causal attribution of either the agent on the one side or the environment on the other. Of course, these participants have thoughts and of course the environment throws up leading cues; but the creativity on display by these participants is irreducible to either. While it is possible to transactionalise the process, we argue instead that what is on display in this animation is the sort of dynamically unfolding intentional states captured by the concept of creative thinging. Methodologically, the process of creative thinging is revealed by the instrumentalised research procedure that affords the detailed coding of actions and changes in the world, which in turn provide the data with which the animated pathways can be constructed and then inspected. A particular problem-solving system is created by the constraints of the experimental design and these constraints in turn reveal that thinging takes place with and through the interactive materiality offered by the computer tablet and the physical model of the problem.

The triangle of coins study provided additional information about the cognitive role of movement. Alongside the animation, an index was created to capture the general transformation of the physical model as either involving coins migrating north (low ratio) or coins migrating south (high ratio): the "migration ratio" captures moves that bring coins

down to form a base along row 7 and is a numeric indication of the extent to which step-by-step configuration changes approximate to the solution. In this case, the migration ratio identifies that the direction of migration turns towards a potentially successful solution at move 46. Once again, we are confronted with the question of whether this suggests an enacted realisation (learned and experienced systemically as outsight) or whether we should view the reversal of movement as a conscious strategy change by the participant, provoked by what she learned during the previous 45 moves. In support of enactive realisation, the gradual rise in the migration ratio strongly suggests that the participant did not have a solution in mind until it appeared in front of her. This is further supported by the fact that she incorrectly announced the solution at the point when she had moved four coins to create a triangle pointing up. Only after being told that her solution was wrong did she go on to create the right configuration and see it as such.

Local Contingency and Epistemic Myopia

We therefore suggest that the solution to the triangle of coins is a story of gradual emergence rather than one that is internally cogitated and then physically implemented. This gradual emergence is in turn embodied by the evolving shape of the model of the solution. The pattern of previous moves combined with feedback from the real-time physical configuration of the coins constrain and guide the subsequent movements that adumbrate a solution. The unproductive series of moves illustrated in the animation, followed by the gradual approximation of the normative configuration, reflect a path-dependent and locally contingent process of move-selection that in turn illustrates the epistemic myopia of the individual agent: The knowledge of the solution and the physical construction of the normative configuration co-evolve gradually and systemically. Rather than being dictated by a well-articulated plan, each move is triggered by the previous one (see Copeland, Glăveanu, this volume). The transformation of the object does not proceed by implementing a plan that casts some moves as necessary, while others as unproductive (see Lock and Sikk, this volume). In turn, agency and

intentionality are locally contingent on the physical appearance of the configuration-qua-model of the solution. It is this path dependency and local contingency that give rise to the gradual emergence of the solution. After the participant's incorrect announcement, the transformation of the configuration is most assured and swifter, to be sure. Despite appearing to indicate that the participant knows the answer at this stage, she does not stop to announce it before first creating it. It is important to note that the task instructions did not force participants to construct a solution before announcing it (see Vallée-Tourangeau et al., 2020). Yet, she does so, and while the move latencies are shorter, it is also plausible to conjecture that these last moves were needed to physically reify the participant's hunch. In a separate case study reported in Vallée-Tourangeau (forthcoming), there is clear evidence that a participant recognises the correct configuration only after constructing, and not before. Thus, the object secures its ontological stability as the normative solution only once it is constructed.

Conclusions

The case of fibre-clay presents a systemic account of how activity in an art workshop called into question the ontological status of that activity. The case demonstrates how the disorienting brume of uncertain agency and sense of purposelessness that ensued, robbed the concepts of "accident" and "wisdom" of their traction. Later in the story, when a doodle suggested a thingeable idea, the case study indicated that the realisation of this possible future would depend, not on accidental events but on the extended period of incertitude that preceded the doodle. We suggest that the incertitude reported by the artist finds a parallel in the participant's movements seen in the triangle of coins animation. The migration ratio reflects how erstwhile purposeless moves (as defined by the goal state) begin to make sense (to the researcher, not necessarily the participant) when they turn southward. It is tempting to view both the doodle and the change in migration direction as serendipitous turning points: as externally mediated eureka moments of sagacity during which everything falls into place. But, although we know that the participant solved

the problem and that this was contingent upon the change in move-direction, to draw retrospectively a linear, causative link between solution and direction-change, removes from consideration the influence of the disorganised pattern of movement from which the latter emerged.

What Future for Serendipity?

Our first case shifted the focus of research from the intention of the artist to the development of the extended intentional state of the workshop. In case study two, rather than trying to elucidate the participant's strategy, the experimental design concentrated on the migration ratio as an interactional marker. Through these two changes in perspective, we hope to have demonstrated first, that a system can learn in real-time and second, that a system acknowledges this learning, not retrospectively, but prospectively through animated reorientation. We argue that a detailed examination of the process of creative change is better captured by the notions of MET that we have introduced in the chapter rather than by attributing it to the combinatorial consequences of accident and wisdom.

So where does this leave the concept of serendipity? In relation to scientific research, Latour (1999) description of Pasteur's discovery of lactic fermentation, demonstrates that, to be taken seriously, a scientific report must present a story in which the research programme appears to move systematically and unerringly towards the discovery of a fully formed natural phenomenon that had been passively waiting to be found for millennia. Traditional scientific methodology requires the researcher to take on the role of an impartial and invisible observer, imposing "epistemic limitations" (Copeland, 2019) that edit out the messy materiality of laboratory life along with its role in creating scientific ideas. This rational reconstruction of scientific discourse overlooks the important role played by the process of entanglement and so it is no surprise that, in the handful of frequently cited cases in which scientific discoveries are attributed to environmental change outside the research protocol, such discoveries are experienced, not as an inevitable part of the process of research but as lucky accidents, opportunistically and cleverly picked up by the observant scientist.

The domain of art suffers similar constraints. The cult of the artist-genius that developed during the renaissance (Sennett, 2008), blossomed into the romantic period and is now underwritten by conceptual art and supported by the requirements of the contemporary art market, emphasises human over material agency. However, the art market judges artists on their product rather than the purity of their process and this provides first, some flexibility for art-making to extend epistemic limitations by embracing methodological indeterminacy and second, for artists to become more familiar with the dynamic, creative potential of their medium and equipment, experienced, depending on their perspective, as either incertitude or as accidental (see also Copeland, Lock and Sikk, Turner & Kasperczyk, this volume). Francis Bacon refers to both. He makes accidental marks with paint in order to "trap images" but describes:

> …how hopeless and impossible this thing is to achieve. And by making these marks without knowing how they will behave, suddenly there comes something which your instinct seizes on as being for a moment the thing which you could begin to develop. (Sylvester, 1975, p. 54)

In the above terms, although our case studies extend epistemic limitations beyond an individual account, they implicitly reinstate the boundary (albeit as a border, see March and Malafouris, *forthcoming*, for a description of the boundary-border distinction) around a system. For example, by extending the mind as far as the door, we may have succeeded in dissolving serendipity within the creative system of the workshop but, unpredictable and unforeseen events may still hover beyond the new epistemic threshold, offering to disrupt the system, to create surprise, and perhaps, to precipitate a serendipitous event (see Glăveanu, Ross, this volume). Of course, for this to come to pass, it needs to be picked up by an entity that is capable of experiencing surprise (see Lock and Sikk, this volume). Whether the capacity for surprise is uniquely human or whether it extends to socio-material systems is not something we can explore further in this chapter but, in his analysis of organisational change, Hutchins (1995, p. 360) nicely summarises the issue:

> …human institutions can be quite complex because they are composed of subsystems (persons) that are "aware" in the sense of having representations of themselves and their relationships with their surroundings. Whether we consider a particular change at the upper system level to be the result of evolution or the result of design depends on what we believe about the scope of the awareness of the subsystems. If we think that some of the subsystems have global awareness, and that they can represent and anticipate the consequences of possible changes, then we may view an organizational change as a result of design. If we believe that the subsystems do not form and manipulate representations of system operation, then we must view organizational change as evolutionary.

Whether we consider organisational change to be a function of design or evolution depends on whether or not we believe that awareness of change can cross system boundaries: a notion that we can equally apply to the issue of serendipity. If change is viewed as a result of design, then serendipity has a role to play whereas in an evolutionary system it loses its explanatory power.

We have argued in this chapter that things and ideas are two sides of the same coin—experience. Both are learned into existence not through accident and wisdom but by waiting in uncertain hope for a transient system of creativity to bring itself into being. Such a system becomes increasingly certain by accruing knowledge in the form of skilled actions but the mounting certainty is not necessarily experienced by the person in the system. The corollary of this is that as long as the knowledge-gain remains implicit, the ubiquity of serendipity is overshadowed by the individual's retrospective search for a momentous event.

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Chapter 4. The clayful phenomenology of Jōmon flame pots. Part 1.

Project Holocene: The Clayful Phenomenology of Jōmon Flame Pots

Paul Louis March

As a ceramic artist, I was surprised to find that archaeological research gives little attention to the extraordinary sensorial qualities of Jōmon flame pots. To understand why, I consider the challenges of including sensory experience in archaeological method and the problems of leaving it out. Turning to the typological approach to Jōmon pottery, I highlight the assumptions it makes about cognition before introducing Material Engagement Theory (MET) as an alternative. A MET-oriented reanalysis of the typological evidence places sensation at the centre of enquiry and removes the need to interpret symbolic, representational content. Through MET, I consider the sensorial qualities of flame pots, not as prehistory but as they appeared recently and unexpectantly during the process of modelling clay into sculptures for a contemporary art project. Flame pots joined conceptually with the explorative activity of clay. A prehistoric/contemporary artefact/modelling system was created and developed itself into a method of monitoring intra-systemic experience—clayful phenomenology. The findings cover five themes: enacted agency, iconicity from indexicality, bending rules/undermining habits, the choreography of material engagement and the phenomenology of space.

Part One. The shock of the Jōmon

When a friend of mine saw the large ceramic sculpture shown in Figure 1, he wondered if it had been inspired by Jōmon pottery. I had never come across Jōmon pottery, so he gave me two books of prehistoric Japanese art (Egami 1973; Stanley-Baker 1984). Turning to the pages on the Middle Jōmon period I was captivated, disturbed and bewildered by the images of flame pots (Fig. 2). Later, when I visited the Jōmon pots in the British Museum collection, I found myself spiralling round and around one of them, unable to stop moving, unable to make sense but revelling in the contradictory austere/decadent richness of the experience. The exhibition has since changed; there are now more pots on display, but, as they are lined up against a wall, it is frustratingly only possible to see them from one, arbitrarily assigned frontal view.

In the following passage Tarō Okamoto, one of Japan's best-known modernist artists, describes his own encounter with a flame pot:

> one experiences a strange shock from the unbelievably radical asymmetry, which is consistent across the entire body of the vessel. This asymmetry has a broken rhythm and is dynamic. This expressiveness always exceeds the limits on one's expectations. With one asymmetrical face of the vessel as a starting point, the viewer begins to feel the urge to view it while circling all the way around the vessel. (Okamoto & Reynolds 2009, 54–5)

I was surprised to find little exploration of the explosive sensory experience that Okamoto describes in the archaeological literature on Jōmon pots. Moreover, few explicit links were made between an analysis of the creative origins of Jōmon pots and the contemporary experience of them as active and destabilizing creations. Several years later I still

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Figure 1. Extended Phenotype 4 *(2013) by Paul March. Stoneware, 1×1×3.5 m. (Photograph: © Paul L. March.)*

Figure 2. *Flame pot, 5000 BP. Earthenware, excavated from the Iwanohara Site, Nagaoka City, Niigata Prefecture, Japan. (British Museum, on loan from the Nagaoka City Board of Education. Photograph: © Paul L. March.)*

wonder what it is about encounters with flame pots that is so arresting, and I make this the starting point for the article that follows.

Introducing Jōmon archaeology

I begin with a brief summary of Jōmon archaeology (see Habu 2004; Kenrick 1995; Kidder & Esaka 1968; Kobayashi 2004; Steinhaus & Kaner 2016, for more detailed accounts). The word Jōmon (cord-pattern in Japanese) was coined by Edward S. Morse, a nineteenth-century American zoologist and orientalist who found the remains of ceramic pots decorated with the repetitive imprint of twisted cord while excavating a shell midden at Omori, about 50 km east of Tokyo. This cord imprint is a hallmark of Jōmon pottery and now refers also to the culture that produced it. These ceramic artefacts present an evolving pattern of production starting at least 14,000 years ago and ending around 3000 years ago with the beginning of the Yayoi Period, the first evidence of rice farming and the emergence of a more restrained and elegant form of pottery.

The Jōmon people were fisher-gatherer-hunters who lived in settled communities. This sedentary lifestyle may have contributed to the precocious emergence of ceramic technology. The evolving morphology of ceramic output has been used taxonomically to divide the 11,000 or so years of Jōmon culture into six main stages, namely Incipient, Initial, Early, Middle, Late and Final stage.

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Kaen doki [fire-flame pottery] defines the Middle Jōmon stage, dating it to about 5000 years ago. They originate in the Echigo region with finds concentrated along the Shinano Valley in the Niigata prefecture. The term 'fire flame' was given to the original finds at the Umataka site, but when pots of similar form and construction technique were discovered in other sites in the Niigata prefecture and beyond, the appellation was widened to *kaen-gata doki* [fire-flame type pottery] (Ghobadi 2015). According to Kobayashi (2004), the relative isolation of the Echigo area resulted in the establishment of a particular style, *shinbo ninzaki*, which developed independently of the influence of the *morioso* and the subsequent *jusanbodai* style that defined the pots of the surrounding regions. Kobayashi (2004) divides the *shinbo ninzaki* style into three chronological stages, locating flame pots within the final stage. Ghobadi (2015) describes flame pot stylistic variation using Terasaki's (1991) typology (itself adapted from Kobayashi 1988) which sub-divides flame pots into four groups, A, B, C and D. The sub-division is based on construction methods and visual appearance, although contextual analysis demonstrates that different styles also followed different cycles of use, exchange and deposition (Ghobadi 2015; Pearson 2007). As a brief morphological description, group A contains the iconic flame-type (Fig. 2) and crown-type pots. The former are characterized by so-called cockscomb projections, the latter by what in Japanese are called *tanzaku gata tokki* castellations (*tanzaku gata tokki* refers to the contemporary Japanese practice of hanging messages in trees on vertical tags). A pot is divided into different design fields: decoration around the top of the vessel is organized horizontally with motifs around the rim, whereas the base contains four panels of relief, organized vertically and containing embedded spiral motifs. Aside from some hybrid examples, group A and B vessels do not feature any cord-imprint (*Jōmon*) pattern. Group B pots tend to be significantly plainer overall than group A vessels. Group C pots are distinguished from group A by the existence of cord-imprint decoration over much of the vessel, overlaid with an embossed and groove relief (*ryukisen* and *chinsen*: see below). Group D pots are plain, simple pots of a variety of forms and dimensions, whose surfaces are normally covered in what appears to be a rapidly applied cord imprint.

All four groups were constructed using the coiling method: sides of a pot are built up by spiralling a cylindrical coil of clay onto itself in a circular motion before smoothing down the joint between layers. Contemporary potters (including myself) still make regular use of the coiling technique in construction. In the case of a group B or D pot, a length of twisted cord was then rolled across the smooth, damp surface to give the distinctive imprint of Jōmon parallel lines.

The rim and body extensions that are the principle characteristic of group A pots were made by adding rolls or slabs of clay that were pinched or modelled into shape. The embossed pattern on group A pots was made using a combination of two techniques. The first involves rolling out a thin cylinder of clay, using the same gestural technique as the coiling construction method, and then sticking this to the vessel surface (*ryutaimon*). In the second technique a length of bamboo is drawn across the surface of a vessel leaving a convex ridge (*ryukisenmon*). Other relief patterns could be achieved by changing the bamboo profile, for example, a convex semicircle produces a concave ridge (*chinsen*). The relief pattern on group B and C pots did not involve the coil technique but was made using bamboo tools alone.

Sense and archaeology

> What a shock it would be for anyone to encounter the crude, inharmonious shapes and patterned decoration of Jōmon ceramics without adequate advance preparation. In particular, the strangeness of the over-ripe middle Jōmon period is beyond words. (Okamoto & Reynolds 2009, 50)
>
> The raised line pattern that is the most characteristic feature of Jōmon ceramics moves in every direction in a manner that is rough, blunt and wild … If one follows that line, it gets tangled up then gets loose, it descends into confusion then re-emerges, it dodges every possible accident, it endlessly returns then flees. (Okamoto & Reynolds 2009, 54)

This assault on the senses is not lost on archaeologists. Bausch (2016) entitled her paper on flame pots 'The splendour of the Middle Jōmon Culture'; Barnes (2015, 127) as 'florid … with intricate flame-shaped rims' of 'immense creativity'; and Kaner (2018, 3) describes how an encounter with flame pots 'evokes feelings of shock and awe. The shock comes from the visual overload that results from attempting to take in the complexity of design.'

Despite the shock, the experiential nature of Jōmon pots is not a major concern in the archaeological literature; Japanese research concentrates upon a typological analysis that focuses on an 'extremely detailed chronology of Jōmon pottery' (Habu 2004, 200; see also Egami 1973; Imamura, 1996; Kobayashi 2004; Naumann 2000). Indeed, Kobayashi (2004, 68) warns of the seductive dangers

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of flame pots: 'Whilst appreciating these pieces we must not lose sight of the fact that they are the material representations of mental images and symbols shared by the inhabitants of the Jōmon Echigo style zone who made and used the pots.'

Kobayashi's warning reflects a pervading ambivalence about the place of subjective and aesthetic responses in archaeological research. The exact nature of the ambivalence to subjectivity depends somewhat on whether we take the word 'aesthetic' to refer to a property of an object, a sensation belonging to the beholder, or an emergent aspect of the relationship between the two (Skeates 2017), but the general concern is well captured in a viewpoint piece published in this journal in 1994 in which five specialists (Taylor, Vickers, Smith, Renfrew and Morphy) were asked to pronounce on whether aesthetics has a place in archaeology. To varying degree, they all emphasized the danger of drawing any equivalence between a contemporary affective response to a prehistoric artefact and the responses of the original object-maker and its users (Is there a place for aesthetics in archaeology? 1994).

The unease is compounded by a tendency to refer to particularly impressive prehistoric artefacts such as flame pots as 'art'. In a recent special issue on Art and Archaeology, Robb (2017) provides an overview of how the application of the word 'art' to a prehistoric artefact entangles it with modern cultural roles and imbues it with contemporary aesthetic qualities. Nevertheless, the use of the art word in archaeology persists partly, as Robb points out, for lack of an alternative way of highlighting the specialness that some prehistoric things appear to express. He suggests 'powerful objects' (Robb 2017, 595) as an alternative and in the same issue, Wells (2017, 617) offers 'visually complex objects'.

These two authors aim to reposition the European/Western concept of art within a wider multicultural context, thereby facilitating the consideration of the specific sensory/affective responses of material culture across different societies. This more anthropological approach (following Morphy 1994) encourages an exploration of the aesthetic quality of ancient or prehistoric material using contextual evidence in order to locate the sensory experience in relation to the culture of the original users and makers. For example, in his analysis of Minoan drinking vessels, Knappett (2005, 133) situates the vertical and recursive relationship between action, mind and matter within the 'horizontal networks in which objects find themselves' (see also Crnobrnja 2011; Meegan 2014; Sofaer 2015; Wells 2017). In short, a contextual approach to aesthetics has two advantages. First, it enables contentions about long-absent sensorial responses to be stress-tested against an existing network of material evidence. Second, it explicitly locates aesthetic response in the past, helping to separate it from the feelings of the contemporary archaeologist. However, there is a fine line between mitigating the amalgamation of contemporary and prehistoric sensibilities and losing empathy for an artefact altogether. In order to recognize something as powerful or visually complex, it seems to me that we must remain sensitive to it. By interacting dispassionately, we surely attenuate its vibrancy and risk losing an important perspective on human development. For example, Barrett (2013, 11) argues that essential cognitive capacities were dependent upon the ability to make sensory distinctions: 'The move to metaphor must have depended upon the recognition that various things embodied common or contrasting qualities. Consequently, it was the sensual recognition of common qualities in things that was primary'.

The methodological philistinism of Gell (1992) creates a similar bind. Gell (1996; 1998) made a major contribution to the revaluation of notions of aesthetics in archaeology. By 'taking an attitude of resolute indifference towards the aesthetic value of works of art' (Gell 1992, 42), he played a significant part in loosening the grip of western aesthetic values on the study of material culture. He aimed to reveal 'the specific objective qualities of the art object as an object' (1992, 43) by ignoring its subjective qualities. Despite the important perspectival shift afforded by methodological philistinism, I suggest that it comes with a cost: an 'attitude of resolute indifference' encourages a relationship lacking vitality.

For example, if objectivized, a flame pot's 'absurd, magnificent convolutions' (Okamoto & Reynolds 2009) risk being perceived as dislocated features. Rather than evoking the nonsensical sense that Okamoto finds therein, they become formal in their presentation. It seems to me that a refusal to engage (methodologically or otherwise) creates the impression that to experience extravagance has no function. Dissociated from sense, the convolutions are assigned a default ritual role:

> Some of these rim adornments were so large, cumbersome and freely formed that although some may have served for hanging or carrying one doubts their utility … Small lugs may have been functional but larger handles were so ungainly that, like the ornate rims, their serviceability is doubtful … the sculptural representations that swarm around the rims … are concrete manifestations of zoomorphic and anthropomorphic repertories that form a consistent iconography … accepted by many archaeologists as offering firm evidence of an ideology, and associated ritual. (Kenrick 1995, 53)

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Concerns about the consequences of excluding the researcher's sensory experience from archaeological research has led some researchers, most notably Hamilakis (2013; 2017, Hamilakis & Jones 2017) to propose a wholesale re-habilitation of the senses. For example, in a recent paper about Neolithic figurines from Greece, Papadopoulos *et al.* (2019) argue that archaeological recording methods (photos, drawings, notes, etc.) objectify archaeological evidence by failing to capture the sensoriality of artefacts. These acts of representation allow archaeological method to ignore the kinaesthetic and corporeal experiences that are central to the contemporary and past experiences of the object. They suggest using various hands-on approaches to access the affectual[1] experience that emerges from inter-nodal spaces in a distributed network of artefacts, environmental features and humans.

> Within this understanding, affect becomes central in sensoriality; this is not about individuated emotional reactions and feelings, either on the part of the present-day researcher or on the part of people in the past … It does not aim at representing or recreating past senses, but at evoking some of the affective energy and power of sensoriality, which is neither past nor present, but multi-temporal. The body and the sensorial and affective constitution of the researcher become, inevitably, part of this endeavour; as such, reflexivity and an investigation of the researcher's own sensorial archaeology is a starting point of any investigation on the senses. (Papadopoulos *et al.* 2019, 8)

Clearly Papadopoulos *et al.* do not intend to equate the feelings of present-day researchers with those of past people. They focus not on the individual emotional reactions, but describe instead a supra-systemic notion of sensoriality and affect that arises out of shifting assemblages (Deleuze & Guattari 1987) and implicates the researcher in the prehistoric mark-making of others. Although, from the perspective of an academic paper, they may be correct to refer to this evocation as multi-temporal, I suggest that the position of the authors in this respect is only possible because they move outside the specific system-of-affect in order to do so. Within the system, there exists only an affective evocation in the present, as below, which is subsequently brought outside and attached to the past.

> How to convey the intimate, affective experience of the researcher as s/he explores in detail the surface of a figurine with a magnifying glass and raking light? How to evoke the sensorial experience of past makers and handlers of clay and figurines-in-the-making? (Papadopoulos *et al.* 2019, 15)

Despite their intentions they end up with a phenomenological account of a present-day individual which is retrofitted to past actions. Finally, they imply a universal quality to 'the power of sensoriality', describing it as 'neither past nor present, but multi-temporal' (2019, 8), leaving me unsure what conclusions Papadopoulos *et al.* wish me to draw about the ontological status of affect with regard to what went on between figurine and its original maker. Perhaps experiencing uncertainty is an inevitable and even necessary part of subjective accounts: something I will return to later.

Bailey (2017a) proposes another way of integrating archaeology and the senses. In a review of research into prehistoric figurines of South Eastern European, he concludes that, despite examples of excellent contextual fieldwork, interpretations of the data fail to move beyond the anecdotal. In 'Disarticulate—repurpose—disrupt', Bailey (2017b) rejects the archaeological requirement to show how artefacts fit neatly into past cultural roles and instead begins working with artists as facilitators of a more explorative, less deterministic position. (See Bailey *et al.* 2010, in relation to *dogū*—Jōmon figurines.) Bailey aims to 'disarticulate' an artefact from its past and 'repurpose' it by allowing its materiality to forge new, sensorial relationships with present-day humans to 'disrupt' the political and cultural status-quo. Bailey (2017a, 844) claims that breaking with the past to disrupt the present paradoxically and recursively provides insights into past practices:

> as we are starting to release our articulations with figurines from the confines of meaning, we may be stumbling upon a truer connection to those Neolithic people who made, handled, broke, and threw away these objects. Perhaps Neolithic figurines … existed in the past exactly as they do in the current art/archaeology work: as evocations, provocations, and objects of admiration, fear, wonder, and bewilderment … My intention has been to use material and surrounding ephemera in order to make new works. These new works loop back … to connect in some obscure way with the Neolithic material: both new art/archaeology work and the original figurines were in play, at play, and of play.

Bailey does not appear to expect the same burden of proof for art/archaeological projects as he does for contextual approaches. Perhaps this is because the capacity of art to 'connect in some obscure way' is a function of a network of overdetermined metaphorical associations woven from the artist's engagement with material: a state of affairs more difficult to achieve with narrative interpretations. Art/archaeology work avoids determinist yet

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anecdotal descriptions of meaning, remaining explicitly in the realm of the possible. This does not mean that art/archaeology interpretations are more valid than anecdotal ones. By positioning the work as artistic, Bailey moves the response outside the scope of objective validity; although, when he talks of making a 'truer connection to … Neolithic people', he undermines this position. Instead, as with the uncertainty I found at the centre of Hamilakis' approach, perhaps we can acknowledge that a connection exists while accepting the discomfort of its indeterminate nature.

In this section I have summarized why archaeology is wary of aesthetic reactions, followed by a description of the possible consequences of avoiding sensorial responses altogether. I then introduced the proposals of Hamilakis and Bailey for re-integrating the senses into archaeological research, highlighting the epistemological uncertainty that accompany them both and suggesting that this may be something worth living with. I will now review the typological approach, with its goal of avoiding interpretation altogether.

The typological approach

The typological analysis of Jōmon pots began with Yamanouchi's seminal work in the 1930s. One of its main goals is to identify styles as manifestations of a shared mental template of a group of socially connected potters, thereby linking material form to cultural associations and discontinuities (Ghobadi 2015). Kobayashi is largely responsible for having extended and developed Yamanouchi's work, and so I will draw principally on his 2004 account to illustrate the conceptual framework.

For Kobayashi, a detailed chronological and geographical taxonomy helps identify the relationship between different pots, indicating who was using them and what they might have meant to their users: 'investigating the history of Jōmon pottery style zones provides an insight into the Jōmon mind, even if we are left guessing at the actual contents of the stories the pots were used to tell' (Kobayashi 2004, 56).

Each Jōmon vessel is a version of a cultural archetype expressing the beliefs of the community. The form and basic motif of each pot is regulated and defined by the potter's mental image of the 'community template'. With a critical mass of similar forms, a certain style or 'spirit' starts to emerge. This spirit is not communicated by morphological design, but by an 'abstract effect' produced by the overall impression of the vessel.

Turning to their evolutionary development, Kobayashi draws attention to the strange form of some incipient Jōmon pots—cuboid with flat bases. He points out that such a morphology does not emerge naturally from modelling clay and suggests that these early innovative clay containers were inspired by

> everyday items they had to hand, for example basketry, wooden objects and bags made of animal skins. While these objects may not have helped much with the technological developments needed for pottery making, they provided convenient models for shape …
> The potters had images of these objects in their heads as they started to make pots, and for this reason the incipient Jōmon can be described as the 'image stage' in the history of the development of Jōmon pottery. (Kobayashi 2004, 34–5)

Kobayashi suggests that 'image stage' pots evolved into forms more consistent with the material properties of clay—circular, conical and deep—and he notes that Jōmon decorative motifs also moved progressively away from the imitation of effects that could be easily obtained on the surface of other materials such as wood or basketry, to be replaced by patterns that capitalized upon the plastic qualities of clay. The influence of earlier containers as 'external representations' (Kirsh 2017) as well as the material qualities of clay are both acknowledged but neither is given an agential role in the creative process: an inconsistency I will return to later.

Kobayashi associates the evolution of the middle Jōmon period from the early phase with the breakdown of the conceptual assumption that linked pottery exclusively to its function as a container and the creation of a narrative role:

> The establishment of these narrative patterns indicates that Jōmon potters had moved from just holding mental images of the object they wanted to create in their heads, to having particular concepts in mind, which they wanted to express through combinations of symbols, which carried meanings that would have been understood by other people in their community. In other words, by this stage, meaningful concepts existed prior to the designs used to express them, and these concepts were given a reality in the Jōmon world through appearing on Jōmon pots. The visual impact of the design motif began to lose some of its significance as the motif itself became increasingly standardised and stylised, whilst the symbolic meaning of the motif as an expression of a particular concept gained in importance. (Kobayashi 2004, 45)

Certain motifs detached themselves from the overall geometric design, developing into symbolic

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representations of specific concepts that were already circulating in the Jōmon community, thereby indicating

> a shift from motif as just an ornamental form to motif as implicated in the appearance of a sophisticated system of symbolism, presumably related to the Jōmon world view, even though we are unable to decipher the precise meanings these motifs expressed. (Kobayashi, 2004, 48)

Kobayashi notices that these patterns began to wrap themselves around the entire pot, making it impossible to take in the whole motif in a single gaze. In order to have been able to make sense of these extended patterns and 'to recreate the complete composition in their mind's eye' (2004, 50), he concludes that Jōmon people must already have been familiar with the motifs and their signification.

The limits of representational meaning

The view that a pot's form begins with an internal image in the head of the potter is refered to as hylomorphism and is associated with a philosophical position dating back to Aristotle which proposes that the form (*morphe*) something takes can be separated from the matter (*hyle*) from which it is made (Ingold 2010). Hylomorphism enables a model of the mind in which an abstracted form can be representationally stored. This reliance on the mental image as the driver of creative activity is consistent with mainstream cognitive-science descriptions of creativity (e.g. Boden 2004) as well as the wider cognitive-science, information-processing approach (see David *et al.* 2004 for an introduction). However, both the typological approach and the brain-as-computer metaphor make two significant epistemological assumptions. First, they separate mind from body/environment; and second, they assume that decisions are made through the manipulation of internal representations, rather than through interaction with the external world (as in Gibson's 1979 model of direct perception). Separating the act of conception from its material realization influences the way meaning is attached to Jōmon pots. However, by shifting away from an analysis of form towards an investigation into the process of becoming, a very different field of meaning emerges—as I will describe in the next section.

Material Engagement Theory

Developed by Renfrew and Malafouris in an archaeological context, Material Engagement Theory (MET) presents a radical re-thinking of the nature of human cognition. By reframing the mind in systemic terms, Malafouris places the analysis of the process of change at the centre of a methodology for understanding human becoming. MET is described in detail by Malafouris (2013), with further important elaborations concerning the concepts of creative thinging and metaplasticity in Malafouris (2014; 2015; 2018). The six most relevant concepts to my purpose can be summarized as follows:

The extended mind: Clark and Chalmers (1998) propose that external artefacts can act as scaffolding for cognition. The mind extends outwards to incorporate objects on a temporary basis. Malafouris interprets the extended mind differently by suggesting that the mind does not extend outwards from the brain, but exists only within the process of moment-by-moment human–material interaction: a conceptualization more ontologically related to Heidegger's ([1927] 1962) notions of *Dasein* and of 'thinging' (see below).

Enactive signification: It follows from the above that sense and materialization are recursively co-dependent, together creating an experience unmediated by language. Perception and cognition are not information-processing tasks, but together create a sense-making experience, inextricably linked to the physical world.

Material agency: If cognition is an emergent property of a human–environmental system, then it follows logically that humans can no longer be conceived of as the sole drivers of activity. A concept of agency is necessary that recognizes that the vector of action is determined by preceding material–human confrontations, linked together by intention.

Intention-in-action: Traditionally, intention refers to an internal mental state that directs and drives an individual's behaviour (Searle 1983). But Searle departs from this internalist view in his description of the intentionality of everyday activity in which he suggests that intention is presented within the actions themselves. Malafouris (2008; 2013) takes Searle's model of intention in action (Searle 1983, ch. 3) and extends it by demonstrating that all intention is intentional activity, born of prior experience or cultural practice.

Creative thinging: Heidegger's notion of 'thinging' (1971) emphasizes the behavioural nature of things as opposed to the representational quality of objects. In this sense, an intention-in-action is 'thinged' into taking place by actionable things. Creative thinging extends the notion by proposing that thinking can occur directly though the behaviour of things and the transformation of material. Creative

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thinging is a point in time and space where/when mind and matter become indistinguishable.

Metaplasticity: The relationship between the plasticity of brain functioning, the mutability of culture and the plastic potential of material–human interaction creates an arena of recursive action in which development and the awareness of development occur together (see section on Metaplastic rules and habits, below).

The first thing to notice when looking at Jōmon flame pots in relation to MET is that attention is focused, not on the pot itself, nor on its human maker, but on *the meeting point between human activity and matter*. Creative thinging is a phenomenological process that puts sensation at the heart of meaning making. In these terms, a flame pot is not the product of human cognition, it is a trace left by a cognitive process (creative thinging) in which the brain, body and clay co-construct (through material agency) an emergent, materially articulated meaning (enactive signification). A flame pot does not represent an internal image, nor is it the product of human intention. It cannot therefore be taken as an artefactual clue to an antecedent, causative state of mind, nor seen as the outcome of a particular pattern of neural activity that may or may not be replicable in the brains of modern humans. Rather, the creative thinging of a flame pot *is* the intention-in-action of the mind.

MET and typology

In this section I will review the typological approach from the perspective of MET and give five reasons to suggest that a significant amount of evidence is overlooked by concentrating exclusively on style and symbolism and ignoring the emergent sensorial signification of material engagement.

First, the presence of non-ceramic containers in the incipient Jōmon potters' environment means that it could have been the containers themselves that determined the shape of incipient Jōmon pots, rather their mental representations. Whereas physical presence does not rule out the use of mental imagery as a source of insight, having an object in plain sight renders it unnecessary.

In a recent critique of insight as an explanatory model of problem solving, Vallée-Tourangeau and March (2019) introduce the term 'outsight' to describe how problem solving may take place by observing and manipulating the environment. Outsight provides a more parsimonious explanation for the emergence of Jōmon pottery. Kobayashi unwittingly provides a beautiful example of outsight when describing how Yamanouchi discovered how the pattern on Jōmon pots was made:

> He took a break and without thinking about what he was doing, picked up a small spring from his desk and rolled it across a flattened piece of modelling clay. Seeing the resulting series of parallel lines on the flattened clay surface, he suddenly realised the significance of what he had done. He went on to try the same thing with twisted cord. To his delight, the distinctive cord-impressions which he had long been researching appeared on the clay before his eyes. Yamanouchi had solved the mystery of how Jōmon people used twisted cords to decorate their pots, by rolling them across the surface of the vessel. (Kobayashi 2004, 26)

The development of flame-style pottery also undermines representational explanations. Ghobadi (2015, 68) notes that a flame pot's unique 'visual impact[,] melds numerous design influences from a host of neighbouring, regional pottery styles'. It is difficult to envisage how such hybrid vessels could emerge fully formed through mental imagery alone without engaging directly with physical examples of extra-regional pots. This is not an argument about whether or not mental imagery exists; it is about the nature of creative intention. Hylomorphism ascribes agency to the Jōmon potter and creative intention to her internal image. MET proposes that intention becomes manifest through a process of materially and culturally guided engagement.

Second, as previously noted, Kobayashi argues that the Incipient stage evolves into the Early Jōmon stage by a shift away from skeuomorphs towards a morphology that arises naturally from modelling clay. In fact, this evolution demonstrates perfectly the reciprocal relationship between form and matter: portraying cognition, not as something that occurs in an internal conceptual space (as in Boden 2004), but as an external activity, guided by the behaviour of material. If there is a conceptual space, it is the metaplastic, sensory attentiveness to the possibilities of clay.

Third, Kobayashi describes how the pots of the Middle period distinguish themselves from Early Jōmon pots by a change of role from container, to a medium for symbolic representation. This functional change is mediated by pre-existing Jōmon concepts finding expression in the erstwhile decorative motifs of Early Jōmon vessels. As previously mentioned, Bailey (2017a) described attempts to account for the meaning of prehistoric figurines as anecdotal and, whereas Kobayashi explicitly avoids specific interpretations of flame pots, his general assertion that the motifs told a story is itself a narrative illustrated

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by a flame vessel which could equally well illustrate other explanations. To avoid anecdotal analysis, Bailey suggests (2017a, 17) that we 'release the restraints of standard archaeological reasoning, and work in a more creative world' and, interviewed about Jōmon figurines (*dogū*), Kobayashi agrees with him:

> instead of coming up with the 'correct' interpretation, we need to be fostering new and innovative research questions. Dogū get us thinking, perhaps just as they got the Jōmon people thinking. (Bailey *et al.* 2010, 81)

But what does it mean to think? MET proposes that we think *through* material change, not about it. Instead of considering meaning in terms of the outcome of change, MET focuses on the act of making as an enactive thread (Malafouris 2011). The crucial difference is that conceptualization is gesturally mediated. In enactive signification, the signifier and signified are co-created, emerging simultaneously. As an artist, having spent years making things of uncertain ontological status, I felt liberated by Malafouris' description of the enactive sign because it explicitly distinguished material expression from meaning, undermining the notion of an artistic intention lurking somewhere behind the work. Enactive signification has no requirement for an artwork to designate something or stand in for anything else.

This is not to deny that an artefact may also be communicative in a linguistic sense. Byers (1999) points to the possibility of something exhibiting both symbolic and pragmatic meaning. By considering flame pots in MET terms, I do not exclude a possible symbolic role. Rather, I am suggesting how such a role might evolve through the intermediary of generations of indexical associations and habitual actions that were evoked and facilitated by these pots. Nanoglou (2009, 285) calls these 'performative articulations', emphasizing that they do not stand in 'for an abstract set of rules, but actually materialize discourses, which … cannot exist outside this materialization'.

Malafouris elaborates on the concept of enactive signification using Kirsh's (2009) notion of cognitive projection: an operation that takes place by mapping a cognitive space onto the physical structure of an object. Kirsh describes projection as an augmented form of perception: that is, a way of conceiving of added possibilities beyond those that are actually present; a way of exploring novel, abstract constructs by grafting them onto more concrete and familiar ones. For example, the sculptural exuberance of flame pots developed from earlier, more utilitarian vessels. As we will see in Part Two, given that they continued to be used to hold and prepare food, their flame and crown protrusions can therefore be experienced as a challenge to the role of containment. A flame pot can serve as an anchor from which to extend a metaphorical exploration of the permeability or otherwise of boundaries in relation to, for example, the body, social structure or environmental limits. Rather than suggesting that the people of the Middle Jōmon period used flame pots to investigate the concept of boundaries, I am showing that flame pots can facilitate a process of materially bounded intuition.

Fourth, given the difficulty in viewing an entire flame-pot motif from one perspective, Kobayashi concludes that their symbolic content portrayed very familiar community-based concepts, providing further evidence that flame pots evolved into representational vehicles equivalent to clay tablets—their morphological features to be read as a string of linguistic signs that together form a narrative. I described above how enactive signification explains the emergence of a form of realization that is non-linguistic and non-representational. Unlike narration, there is no fixed temporal order—no requirement to begin the pot at any particular point. Indeed, meaning emerges, not by standing stationary, the better to read each sign, but from the circling movement of the pot relative to the viewer. Enactive signification is able to capture the over-determined and indeterminate possibilities of material engagement that together create overlapping and congruent meanings as well as contradictory ones.

Finally, Kobayashi's separation of Jōmon pots into different styles based on an overall impression or abstract effect is not integrated into the typological framework, leaving it unclear exactly what 'abstract' means and how it relates to the physical qualities of a vessel. I suggest that this abstract effect is effectively captured by understanding meaning in terms of the materiality of enactive signification as described above.

In this section I have presented the advantages of considering the sensual richness of material expression. By sensual richness I mean, for example, the sense I have of sensori-motor-empathic directional smoothness combined with gentle resistance when my eyes run along a furrow on the surface of a flame pot. This feeling tells me no more about the Jōmon potter wielding her bamboo tool than I learn about the modernist painter Clyfford Still by following the brush strokes on one of his canvases. But I suggest that this sort of gestural empathy does make a link, not to a past creator, but to a moment

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of creative thinging that allows a prehistoric artefact to resonate in the present. By concentrating on the relationship between action and clay, I am not suggesting that the creative thinging of a flame pot happens in splendid creative isolation. It happens at the junction of a number of temporal arcs of different scales: the time it takes to make a gesture, to make a pot, to reach gestural readiness (traditionally referred to as an apprenticeship), and more: the lifetime of a pot in a community, the time delineated by the ancestral pedigree of the pot type, etc. A process-centred approach allows us to consider each pot as a node in a metaplastic (as opposed to metaphysical) exploration of the world.

Part Two: Clayful phenomenology

So far, I have discussed why archaeology is uncomfortable about admitting sensory experience as receivable evidence, and I have also argued that it is a shame to leave it out. I have suggested that MET, specifically the concept of enactive signification, can be used to put sensation back at the centre of a non-verbal, materially articulated process of meaning making. In the next section I will describe how a prolonged artistic interaction with clay unexpectedly presented an opportunity to 'thing creatively' with Jōmon pots.

Malafouris (2018) presents a series of photos of a potter working at a wheel. The images can certainly be interpreted as evidence of the imposition of creative intention, but Malafouris points out that this reading does not capture the extent to which the potter's gestures occur within a cognitive ecology of human–material enaction—held in dynamic, transactional equilibrium by the clay's bodily changes.

It is one thing to see creative thinging in the dynamism of a potter's wheel; it is more tricky to thing creatively with flame pots while standing in the half-light of a museum, on the wrong side of a pane of glass that separates the viewer from a row of vessels lined up defensively against a wall as though for an identity parade. It turns out that there is another way of going about this.

In 2016, I began a series of sculptures, originally entitled *The Matrices*, later renamed *Holocene Pottery* for reasons I will explain later. The sculptures were built up by repetitively adding open, diagonally intersected cubes of clay (see Figure 3a). Normally this activity would produce a grid-like cuboid, but here, the growing structure was increasingly deformed by the occasional addition of a shorter edge or diagonal (see Figure 3b). I wrote the previous sentence in the passive voice because the active voice implies a strong sense of personal agency, whereas this emerging deformation seemed to be associated with a fluctuating and indistinct sense of agency and of self. The absolute linguistic division between the active and passive voice is problematic when trying to describe a systemically generated sense of agency. The active voice determines a single agent. The passive voice avoids naming agency altogether. It is therefore difficult to record the sense of agency I am trying to describe.

I had acquired a procedural dexterity in this cube-making task, having already used the same technique to make a large sculptural installation (Fig. 4). I worked intermittently on the *Holocene* project for about three years, taking notes and photos. A time-lapse camera took a photo every 20 seconds. (An edited version of *Holocene 6* footage can be seen at https://vimeo.com/288572786)

In May 2018 two fellow-artists, seeing the sculptures in my workshop, felt their origins to be geographically, culturally and temporally indeterminate: stretching across a period from the distant past, through the present and into the future. The extended timespan brought to mind the word 'Holocene'. A note I made at the time reads:

> The extent to which work is both precise and intricate—clumsy and approximate. *(This)* relates to *(the visit)* of R-A and L *(the artists)* about time and place—every continent, past and future. Were Jōmon done in the same way? Jōmon = Holocene? (*Holocene* 6, 14.5.18) [2]

Something about the artists' comments on temporal and spatial indeterminacy evoked the word 'Holocene' and provided a link between Jōmon pots and *Matrices* sculptures. Jōmon ceramics have influenced my work since I first came across them in 2013: explicitly so in the case of *Jōmon spider kit* (Fig. 5), and *dogū* (Jōmon figurines) may implicitly have influenced three others, *Substantia Innominata* II, III and V (Fig. 6).

Although Jōmon pottery intermittently entered the extended mind of my workshop, I can say little more about the exact process by which flame pots and *Matrices* sculptures became entangled at this moment—except for the important point, that it felt that I was discovering links, not making them. By this I mean that rather than any prior intention to engage in flame-pot research, I believe it was intention-in-action that was responsible for bringing the Jōmon–*Holocene* creative system into a transient existence, enabling further exploration of itself through the process of cognitive projection described earlier (Kirsch 2009). Conceptual engagement with flame pots took place through the unfolding, sensorial and physical experience of modelling clay, which inevitably

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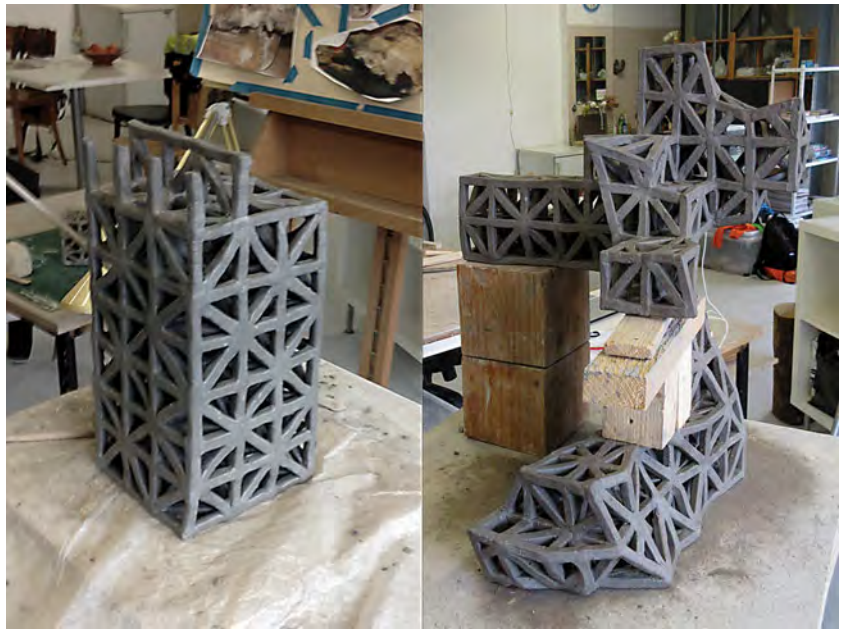

Figure 3. *(Left)* Holocene *grid-like cuboid structure and (right) its deformation by addition of foreshortened edges. (Photograph: © Paul L. March.)*

Figure 4. Claustra *(2015) by Paul March. Stoneware, 1.8×2×1.8 m. (Photograph: © Paul L. March.)*

locates the sense-making of these prehistoric artefacts in the present. The clayful phenomenological approach, as I wish to call it (see March 2019 on the phenomenology of playing with clay), allows for a recursive pattern of sensorial activity between Jōmon and *Holocene* which I will demonstrate in the following five sections.

Creating space

What seemed to impress Okamoto most about Jōmon pottery was its ability to engage actively with space:

> It is a miracle that an object made in the Stone Age … could be so fresh and so sharp and could so completely seize hold of the space around it … the great achievement of the abstract and avant-garde sculptors of the twentieth century has been to … make space itself sculptural … If one were to compare the way Jōmon ceramics control space with avant-garde art, not only is it powerful and not the least bit inferior, but, on the contrary, it is actually more intense. (Okamoto & Reynolds 2009, 55)

Okamoto's sense of the spatiality of Jōmon pottery contrasts with the perception of traditional sculptures and ceramic ware in which the role of the

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Figure 5. Jōmon spider kit *(2013) by Paul March. Stoneware, steel and stainless steel, 4×2×1.5 m. (Photograph: © Paul L. March.)*

Figure 6. *(Left) Dogū figurine (3000–2400 BP). (Ueno Museum, Tokyo.); (right)* Substantia Innominata 10 *(2014) by Paul March. Stoneware, 35×35×25 cm. (Photograph: © Paul L. March.)*

surface is paramount, both implying the volume it contains (see Noë 2005, concerning implicit perception in action) and separating the object from the space in which it sits. When viewing the base of a flame pot, a non-potter may apply the same perceptual constraints. As a result, the capacity to seize hold of space does not manifest itself in the way a pot begins to take shape. In contrast, even when making the most ordinary of vessels, a potter senses the creative manipulation of space. Where a non-potter might perceive a surface, a potter experiences an emerging volume: 'he shapes the void … From start to finish the potter takes hold of the impalpable void and brings it forth as the container in the shape of a containing vessel' (Heidegger 1971, 167).

What I find so intriguing and astonishing about flame pots is their ability to make explicit at the top what was tacit at the base. Moving up towards the 'flames', I enter a space whose boundaries are liminal. The pot's apparent volume expands and contracts as I circle around it. This sensation of creating space through working with clay was also explicitly enacted in the *Holocene* construction method, which, as it advanced, drew no clear demarcation between what was and what was not *Holocene*, as I state in my notes:

> The Holocenes are almost entirely void. There is not a skin. The framework colonises a void … the distinction between thing and space (or air) is no longer valid. (*Holocene* 8, 1.8.18)

The open *Holocene* framework was built from a confusional state concerning what it means to take up space; whether creative thinging makes space or takes up space; whether space exists when there is activity or when there is no activity. By diffracting Jōmon through *Holocene* and *vice versa,* the tacit knowledge necessary for shaping space was revealed and experienced and, from within this Jōmon–*Holocene* creative system, *Holocene* frames and Jōmon flames creatively thinged about the nature of spatial experience.

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Enacting agency

The *Holocene* framework construction technique and the coiling method used by Jōmon potters are both highly constrained. But, unlike the continuum of coiling, constructing a framework is a step-wise, freeze-frame activity which breaks down the act of making and opens up the process of deformation to analysis in a way that is not accessible by raising the gaze from the base to the rim of a flame pot.

As the cuboid structure of a *Holocene* piece becomes increasingly deformed, a contrast develops between the precise, geometrically architectural gestures of cube-making and an emerging, organic structure. I want to describe what happens to my sense of agency during this process. The gestures and work practices of a previous project (Fig. 4) defined the cube-making procedure and so I began this project with a series of procedural rules. This is how I refer to them in my notes:

> Perhaps being so constrained by rules causes extreme decisions in the space between rules. These rules were imposed during the making. There are some that are explicit, there are some that grow out of the work (common-law rules) that can be interpreted. (*Holocene* 9, 6.12.18)

Agency was therefore predicated upon the geometry of the structure. When an act of deformation occurred, I experienced it as a requirement of the project, not something that I decided in advance: more like a premonition that was articulated by the relationship between the expanding cuboid structure and the pattern of my gestures. Further deformation tended to occur by extending pre-existing lines of deformation—similar to the way a fracture propagates itself. Over the weeks, these deformations would extend in all directions until they found a spatial equilibrium between themselves. The following notebook excerpt offers a paradoxical picture of someone who feels he has little control over an intentional activity in which he plays an important role:

> adding bits by impulse—on a bit by bit basis. With no plan and no understanding of how several of these decisions join … up. Long periods when I am working at a fast pace—adding bits without hesitation, whilst at the same time—no understanding how such a process can create something that is interesting to look at … How do the individual impulses form together to form an overall intention? I do not feel part of that intention. I am not conscious of it—I am only conscious of what I should do next. (*Matrix* 4, 11.2.18)

I feel purposeful. I am fully implicated in the unfolding realization of a sculpture in its entirety and yet I feel the impulse for action only as far as the next moment. 'I only see the future in terms of one strut' (*Holocene* 8, 10.7.18). Throughout most of a sculpture's development, the criteria used in the decision-making process were inaccessible to me. Then, quite suddenly, I would notice the work beginning to behave differently.

> It doesn't really matter too much how it grows until a certain point and then it does. How does it know it is finishing? … As it gets towards the end, I put lengths on—it doesn't look right. This is a different matter—things matter more (*Holocene* 6, 14.5.18)

As it sensed the end, the sculpture began to make specific demands about how to proceed. The consequence of each new change was no longer localized, but was felt across the whole piece as the sculpture began to follow a rather unexpected course: one that I (immersed in contemporary art) would probably not have chosen (see Fig. 7).

> I am confronted by configurations that do not fit into what I would describe as sculptural forms. They clash but seem to impose themselves … a tension between the canons of art and what the system seems to want to do. (*Holocene* 9, 18.12.18)

In a previous paper (March 2019) I wrote about the anxiety associated with ceding control to an extended mind, and other artists have also been disturbed by the dissolution of sense of self that takes place under the direction of material agency, as Alexandra Engelfriet describes: 'Clay can give you the feeling of being pulled into it, sucked away out of existence. It can go as far as an experience of death' (Higgin 2016, 110).

But there are also more positive descriptions, for example, Marion Milner (1950, 142): 'there occurred, at least sometimes, a fusion into a never-before-known wholeness; not only were the object and oneself no longer felt to be separate, but neither were thought and sensation and feeling and action'.

Returning to the more continuous construction method of a flame pot, the initial shape is determined by a gentle, gradually expanding spiral, but, at a certain height, coiling becomes increasingly disrupted as the spiral extends beyond the space delineated by the geometry of its original polar coordinates. The pot loses conical symmetry as it expands discontinuously and, like a *Holocene* sculpture, begins to behave increasingly unpredictably as it nears completion. Although unpredictable, the experience is one in which construction remains constrained by the sculptural imperative that these discontinuous,

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Figure 7. Holocene 9 *by Paul March. A clash between the intentions of the creative system and the canons of art. (Photograph: © Paul L. March.)*

asymmetric extensions occur in relation to each other. For this to occur, clayful activity maintains the entirety of the vessel in the extended mind so as to achieve this sense of holistic equilibrium.

Effacing traces

As with most coil-built vessels, the indexical traces left on a flame pot by the technique are effaced. In the case of flame pots, the surface is then overwritten with vertical stratifications. In this way the temporally organized horizontal strata of coil-construction are effectively rotated 90° and spiral motifs are often incorporated within this matrix of vertical lines. Towards the end of making *Holocene 7*, I realized that throughout the project I too had been effacing the production marks, but the gesture was so automatic as to be invisible to me until Jōmon pots joined the creative system and began interrogating the *Holocene* modelling methodology.

> Why correct all the join(*t*)s and make smooth? … Efface the hand of man. The history of production disappears—(*it means we*) can't see how a cube forms. (*Holocene* 8, 19.7.18)

To answer my notebook question, with the joints left visible, the sculpture is effectively divided into its constitutive units of production, facilitating two possible modes of experience: either as the sum of its many parts, or in relation to the process of construction. Both possibilities anchor interpretation temporally to the period of the sculpture's construction and systemically to the hand that made it and to its creative thinging origins. Visible joints maintain the sculpture as a model of what it might have become. Although it might be expected that this provisional status would highlight creative process over creative product, it is the historical evidence of a process rather than its dynamism that is emphasized. With process temporally fixed, future thinging possibilities between viewer and sculpture are diminished. The viewer is constrained to experience the sculpture in reference to its making and its maker—rendering flights of fancy between the sculpture and the viewer less likely (Heidegger 2002).

Returning to flame pots, effacing the indexical lines left by coil-making and vertically reorienting them brings about a similar reorientation of my gaze. The vertical, regimented lines, seen in relation to the rest of the vessel, now take my eyes away from the horizontal temporality of production, moving them upwards towards the crazily enfolding gyrations of the vessel's top. On the way up, the embedded spirals anticipate the disruption to be found at the top of the vase. But, more importantly, on seeing the spirals and swirls, the indexical, horizontal traces left by coiling are metaphorically transformed into icons of the mode of production.

Metaplastic rules and habits

The recursive diffraction of *Holocene* sculpture and flame pot suggested a metaplastic flexibility in their construction methods. For a *Holocene* sculpture, a restrictive, geometrical procedure became an organic, flourishing structure by deforming the basic cubic substrate. But the rule breaking was constrained. Sides remained straight, cubes deformed by shortening an edge, never lengthening one. Longer edges arose only to bridge the gap made by antecedent foreshortening decisions and angles were always right-angles unless a more acute angle was needed to close a side. On 13 March 2018, I wrote:

> There is a mathematical logic (at least it pretends to be a mathematical logic) which is not my logic—and keeps

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> surprising me with what it allows . . . . part of (*the*) reason geometry + organic go together is because geometry is false—constantly cheating—but we don't see it (*the signs of cheating*).

The *Holocene* rules of engagement cannot be expressed as a set of verbal or geometric propositions. They are explicit only inasmuch as they manifested themselves across the timespan of the project. The line of transgression was negotiated and understood through the act of making and the emergent rules were made literally flexible by the plasticity of the clay. This is important. It is this metaplasticity that allows for the quality of cognitive transposition that is possible through material engagement, that is described by enactive signification and which, I argue, is not accessible through language (March & Glavneau 2020)

The intentional drive provided by the recourse to unconscious habits and procedural memory was disrupted by this clayful rule bending. For Ingold (1999), memories are not specific, environmental adaptions, structured by genetic predispositions on one side and the mores of culture on the other. Rather, they are patterns of activity that exist within specific contexts and develop ontogenetically such that the body, activity and environment grow inseparably into each other. 'In reality, memories, like the bodies to which they belong, undergo continual generation and regeneration in the contexts of individuals' life activities within an environment' (Ingold 1999, 429). In this respect, habits are not isolated gestures but develop in relation to specific materials. Sensitively attuned to their material substrate, habitual actions are often rhythmical and these individual rhythms-of-making become linked into networks of movements: a form of bodily intelligence that develops in relation to the world.

It is the repetitive constancy of gesture that, I believe, transfers structural action to form and delivers a material consistency and coherence to a creative system. The *Holocene* creative system starts by beating out a regular, cubic rhythm but then, while maintaining the rhythmical connection with the original matrix, each *Holocene* sculpture begins to stretch and test the limits of its own habitual gestures. An alternative title to *Holocene* might have been *Variations and Fugue on the Theme of a Cube*.

Similarly, the coiling technique of pot-making requires a specific network of movements that play themselves out, bodily and culturally, in relation to the feeling of clay. A flame-pot base begins with this invariant and repetitive network of movements. The initial form is determined by the gradually expanding coiling technique, but the vertical lines and spirals of the base encourage the gaze to rise—projecting movement upwards in an eddying pattern (see Figure 8). It is this projected dynamic that allows the clayful system to experience an escape from the predictable pattern laid down by the basal mode of production and its canonical constraints. The coiling motion flourishes and develops, exploring how it came into being as the structure gains height. However, the spiral-of-formation is not lost altogether. It is taken up, reoriented and pushed to an extreme. Flame pot clayfulness explores the limits of the spiral; it does not seek to destroy it. The gestural plasticity of clay-in-hand searches for the limits of system-imposed rhythms: exploring the extent to which habitual patterns can maintain continuity while evolving or rupture and transform into a different network of movements.

Figure 8. *Upward movement and eddying pattern of gaze on a flame pot. (Photograph: © Paul L. March.)*

Making rotational sense

> I keep turning it. At each turn it is working towards a 3D perspective from each angle . . . at that orientation. But once the orientation changes—those perspectives disappear. I can remember I had them but I can no longer sense them. I can be aware that I may be destroying them (*destroying the previous perspective by working on the present one*) but this does not change the overriding effect of the sensation of new perspectives at new orientations (*Matrix* 6, mid April 2018)

An ecological approach to perception (Gibson 1979) suggests that we perceive a group D Middle Jōmon

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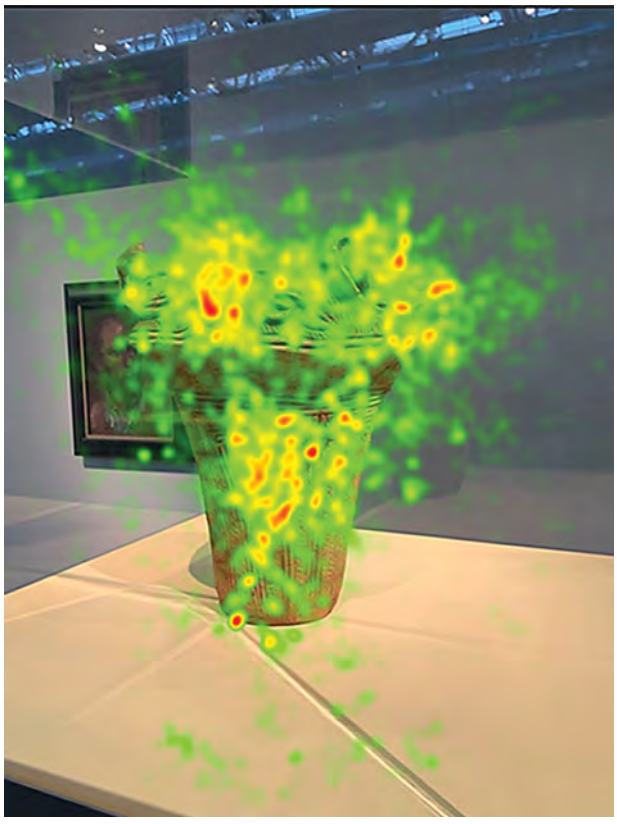

Figure 9. *Flame pot with heat map of gaze fixations for 24 participants showing a similar spiral pattern of eye movements across participants. (Photograph: © Paul L. March.)*

pot through its function. Its presence awakens possibilities of specific actions such as pouring, filling or storing, and in so doing gives sensori-motor meaning to a hollow mass of clay. In the previous section, I suggested that an encounter with the bumps and curls, spirals and protrusions of a flame pot awakens the possibilities of rhythmical and rotational movement patterns. Support for this view is found in a recent study by March, Ross & Vallée Tourangeau (n.d.) that used video analysis of body and eye movement to show how flame-pot morphology consistently choreographed the movements and viewing patterns of 24 participants. The results are vividly summarized in Figure 9.

To summarize, the clayful phenomenological approach enacts a procedure in which the indexical spirals of construction are effaced, turned perpendicular and experienced as iconic forms and structures. Initial empirical evidence suggests that the perceptual experience of this iconic transposition is mirrored by and mediated through bodily movement. The body and gaze are choreographed in a dance of sensori-motor empathy that evokes the indexical movements of construction. (See https://vimeo.com/410590408 for a video excerpt of a participant's gaze and body movements.)

Discussion

This paper relies on the rigorous and scholarly work of Kobayashi. Although I contrast his typological approach with that of MET, I am not criticizing the meticulously collected evidence, nor the way the typographical framework reveals a temporal and spatial network of influences between Jōmon pottery styles. The difference between the two positions concerns the existence and nature of non-linguistic meaning and how it emerges from a material substrate. Kobayashi predicates his search for meaning on a hylomorphic model of the mind that divides form and matter and separates events in the world from cranial activity. Kobayashi identifies routes by which pots may have become meaningful to their makers and how this meaning was communicated. MET outlines a different signification altogether, one that focuses, not on the artefact, but on 'the hylonoetic field of human becoming' (Malafouris 2014, 142). The clayful, phenomenological approach presented here is based upon the principles of MET. It developed while using creative thinging to try to understand the modelling process in a contemporary art project. When two artists visited my workshop, the creative system unexpectedly expanded. Their comments created an association between the physically present (and self-presencing) *Holocene* project and the physically absent (but conceptually evoked) Jōmon flame pots. From an MET perspective, it was intention-in-action within the Jōmon-*Holocene* creative system that brought this expansion about. The system functioned through a process of cognitive projection that enabled a recursive and diffractive pattern of sensorial activity between Jōmon and *Holocene*. The process of cognitive projection gave flow to the pot's rigid structure, highlighting its capacity to perform. The evocation of an absent flame pot through the physical dynamism of contemporary modelling helped the former to escape its previous evocation as a physically present but static museum object.

Whether or not intention-in-action was responsible for creating this research opportunity, this case study was certainly opportunistic. It might, therefore, be argued that, rather than relying on a chance, subjective connection such as this one between flame pots and *Holocene* project, a more directly relevant association could be achieved by making a replica of a flame pot. This makes sense from an

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experimental archaeology perspective as a way of generating and testing hypotheses about possible Jōmon *chaînes opératoires* and providing useful information about material process (Jeffra 2015). But I give three reasons to suggest that experimental archaeology is not so good at capturing sensory process. First, prehistoric sensory experience leaves little trace: a challenge for any approach seeking to establish valid, reliable and replicable findings based on physical evidence. Second, if this challenge were met, the data would be inferential rather than phenomenological. Objective and subjective methods produce qualitatively different outcomes. Taking the subjective view of a contemporary flame-pot maker, her attention would be focused, not on creating something new, but on simulating something old: an experience that amounts to one of progressive embodied learning rather than clayful phenomenological exploration. In short, experimental archaeology and clayful phenomenology proceed in quite different ways.

The *Holocene* project began as an artistic one. When flame pots joined, they were incorporated into a contemporary art system and were experienced, to a great extent, in those terms. In light of the difficulties created by referring to prehistoric artefacts as art, I want to argue that taking an artistic position is not the same as labelling something as art. By artistic position, I mean the development of a system that allows a process of enactive signification to propagate and foster metaphorical associations. I think I am on a similar track to Sjöstrand (2017, 371) when he refers to 'the art function' as 'set into operation when an object of experience reveals its multiple possibilities of existence and thus offers an agent multiple latent possibilities for creative choices'.

This position is qualitatively different from inferential reasoning, whether deductive, inductive or abductive. An inference seeks to provide an evidence-based explanation—a reasonable story that fits the available facts. An artistic position, on the other hand, is not measured by its approximation to objective truth. Instead, it allows for transient connections to be made in a subjective space that are true only in as much as they occurred in that space. In *The Open Work,* Eco (1989, 86) gives a clear account of the dynamic behaviour of indeterminate art: 'Its signs combine like constellations whose structural relationships are not determined univocally, from the start, and in which ambiguity of the sign does not … lead back to reconfirming the distinction between form and background.' But he also describes what can happen if openness is left unchecked (1989, 91): 'What remains then is no longer a field of possibilities but rather the indistinct, the primary, the indeterminate at its wildest—at once everything and nothing'.

It may be possible to address Eco's warning by focusing research on tacit knowledge as 'an embodied means of self-understanding in which imagination does not run riot but is put to a specific disciplined use' (Sofaer 2015, 20). Perhaps the specific modelling techniques and the anatomically constrained gestural characteristics that brought material and process together to make a flame pot can link to contemporary practice through the uniquely plastic and intemporal creative quality of clay. But even if embodied knowledge can offer access to past, processual activity, it is experienced in a contemporary, cultural context. One thing is clear at least: if we take meaning to be enacted and not encoded, then artefacts can only exist phenomenologically in the present. They can offer no way back to the sensorial patterns of the past. '[w]e must seize this purposeless purpose and this meaningless meaning as our method' (Okamoto & Reynolds 2009, 54–5).

Many years ago, as a trainee clinical psychologist, a supervisor told me that to take feelings seriously was not the same as taking them to be true. Incertitude about the status of felt experience permeates this paper. From the ontological uncertainty of Hamilakis' sensoriality and the obscure way in which Bailey's art/archaeologies connect with the Neolithic world, to the clayful associations of the Jōmon-*Holocene* system: making sense goes hand-in-hand with feeling doubt. We may as well embrace it.

Notes

1. Their special use of the word 'affect' follows Deleuze & Guattari (1987). See also Massumi (1995); Hamilakis (2013; 2017).
2. To increase intelligibility, I add some words (*in italics*) that were not in the original.

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Chapter 5. The clayful phenomenology of Jōmon flame pots. Part 2.

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CHAPTER

Time and Clay: The Clayful Phenomenology of Jōmon Flame Pots in a Post-modern World

Paul March

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Abstract

The aim of this chapter is fourfold. First, it introduces an artistic mode of enquiry to a cognitive archaeology readership. Called *clayful phenomenology*, the method depends upon the sense-making potential of material change. Unlike the outcome of scientific research, the ideas created by a clayful phenomenological investigation are not expressed in words or numbers but become manifest through the morphosis and metamorphosis of clay. Meanings that are made with a clayful attitude lack the clarity of logical or semantic statements; their sense derived from connections that are metaphorical, allegorical, and mythical. Method and meaning are non-coherent. Second, the chapter gives the theoretical framework for clayful phenomenology, principally provided by Material Engagement Theory, with additional support from Heidegger's phenomenological accounts of *Dasein*. It shows how this ontological backdrop transforms the agent of enquiry from an individual artist to a "transient system of creation," a temporary assembly made not of whole things but a collection of processes. Third, it shows how an engagement with *Project Holocene* changed the contemporary signification of a specific prehistoric artifactual type, a Jōmon flame pot. The change was born, not of prior intention, but happened non-coherently, through the confluence of the sort of disparate events that gather as a transient system of creation. Fourth, the chapter describes what time feels like from inside a system of creation. Inside, instead of creative activity happening in time, the creation of temporal experience is part of the activity of the system.

Keywords: Material Engagement Theory, Dasein, phenomenology, Jōmon flame pots, temporal, non-coherence, myth, sensory, emotion, art

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Part 1: The Background

If, instead of focusing on thinking, Descartes had said something like, "I feel that I am" (*Je sens que je suis*), you might now be holding a copy of *The Oxford Handbook of Emotional Archaeology*. As it is, Descartes' wariness about feelings was so influential that, to contemporary ears, such a title suggests a discipline needing therapy. Following Descartes, the enlightenment made feelings oppositional to thought, creating a view of rationality that was partial and disjointed (Midgley, 2003). I am not trying to dismantle the enlightenment order; I am highlighting a serious side effect of it. Feelings do not exist separately from thoughts, perceptions, and sensations—quite the contrary. This chapter deals in nuance: affective perceptions, emotional sensations, and thoughts that are felt. Emotions can be troublesome—sometimes very troublesome—but they are also responsible for turning an existence in to a life. If we want to understand life, it is best to do it with emotion.

Feelings shake the foundations of traditional research. They undermine the need, the desirability, and even the onticity of objectivity. Midgley (2003) claims that feelings also demand that we become reacquainted with the important role of mythmaking in the development of ideas. The Enlightenment was tasked with bringing an end to the influence of myths and so, in post-Enlightenment science, the way myths facilitate scientific advancement is obfuscated by the very process that they underpin (Midgley, 2003). In the name of the inductive method, myths are relegated to the creative arts, a safe space where knowledge may be represented but, ironically, cannot be created.

In his chapter in this volume, Malafouris asks, "What is cognitive archaeology?" and responds by dividing the domain into six overlapping areas: evolutionary; comparative and anthropological; experimental; reflexive; semiotic; and affective and sensory. Regarding the latter, he too argues against the separation of emotion from cognition and encouragingly points to the way sensory and affective considerations are seeping into archaeological methods. This chapter is a case study in affective and sensory cognitive archaeology, one that is informed by the reflexive and semiotic framework of Material Engagement Theory (MET).

The aim of the chapter is fourfold. First, I want to introduce an artistic mode of enquiry to a cognitive archaeology readership, one that depends upon the sense-making potential of material change. I call the approach *clayful phenomenology*. If we accept that mythmaking has a clandestine but crucial role in the production of scientific knowledge, there remain crucial differences between artistic and scholarly methods and the quality of knowledge they produce. During a clayful phenomenological investigation, new ideas manifest themselves, not as words or numbers, but as a physical change in, by, and through clay. Unfortunately, to argue for this gets me into trouble. I need to use words to write this chapter, and words are the very things that I believe misrepresent the unique conceptual quality of knowledge acquired through clayful engagement. Hamilakis (2013) found himself caught in a similar trap when writing *Archaeology and the Senses*. As Law (2004) says, the trouble is this:

> [I]f matters are non-coherent, then to try to describe them as non-coherent may miss the point since it insists on generating a form of coherence. Some other allegorical mode might be better. Some other kind of gathering. One that stutters and stops, that is more generous, that is quieter and less verbal.
>
> (Law, 2004, p. 147).

Heeding Law's warning, instead of trying to translate the meaning of making into words, I will limit myself to describing the process by which meaning is made. Even so, I hope an empathic reader may make some, non-coherent sense out of material transformation.

Second, I will lay out the theoretical framework for clayful phenomenology. This is principally provided by MET (Malafouris, 2013), with additional support from Heidegger's (1962) phenomenological account of what it is like to be in the world (*Dasein*). I will explain how this ontological backdrop changes the agent of enquiry from an individual artist to what I refer to as a transient system of creativity—a temporary assembly made up, not of whole things, but of certain human activities and material qualities, made briefly indivisible by the dynamic reciprocity of their relationship.

Third, I want to show how engagement with a specific course of artistic activity changed the contemporary signification of a specific prehistoric artifactual type, a Jōmon flame pot. The change was born, not of prior intention, but happened non-coherently through the confluence of the sort of disparate events that gather into a transient system of creation. The artistic activity, *Project Holocene*, did not begin with research objectives that correspond to the aims of this chapter; instead, there was only an intention to extend and develop artistic patterns that had established themselves during previous projects. It proceeds on the assumption that a system of activity, of which the activity of an artist is one element, will create its own goals intrinsically. This open-ended, indeterminate approach to investigation is familiar to the world of art (Rawlings & Nelson, 2007; Reinders, 1991). If applied to archaeology, the method may appear haphazard and spurious. However, this perception, I suggest, assumes that research must depend on the goal-setting activity of an individual and on a view of intention as a uniquely human attribute, one that lies outside the domain of investigation.

Fourth, I want to describe what time feels like during a period of creative making. Normally, when making stuff, time acts as a resource that we use up as we move from inception to fruition. For example, in the introduction to her book about the role of time in cooking, Linford (2019) describes time as "the universal ingredient in the food we cook and eat … To cook well, one needs to know how to use time appropriately" (p. 2). Normally, we experience time either when it is running out or when it drags under the weight of a task that moves too slowly. I argue that this is the view we get when we step outside a system of creation, a maneuver performed ubiquitously to create the separation necessary for an objective appraisal. By remaining within the system, I experience things differently. Instead of creative activity happening in time, temporal experience is created along, within, and by the creative system itself.

Lining up thoughts in an orderly manner is not the only way to create knowledge (Law, 2004). Nevertheless, I will structure the chapter in the following way. In Part 1, I begin by giving some background. I relate my own introduction to Jōmon flame pots and the excitement they caused me. I go on to explore the reasons why such sensorial reactions are treated suspiciously in archaeology. I briefly review two attempts to make archaeology more sensitive before returning to Jōmon pottery from the perspective of the typological approach and its underlying assumptions. I follow this by describing another way of thinking about Jōmon pottery, one that is informed by the philosophy of Heidegger and structured around MET. I end with an argument for non-coherent methods.

Part 2 begins with an introduction to *clayful phenomenology*, followed by a case study, taken from my work as a ceramic artist. I describe how and why Jōmon flame pots and a contemporary sculpture workshop got tangled up, and I consider the effect of this entanglement, both on the evolution of the contemporary sculptures and on the transformation of the quality of experience of flame pots. I focus on how the creation and development of a flame-pot-contemporary-sculpture system changed the intra-system experience of time. Finally, to help make sense of this temporal change, I consider the system in relation to the temporal behavior of modernist painting and poetry.

Introducing Jōmon Flame Pots

A few years ago, as I stood next to an installation entitled *Extended Phenotype 4* (Figure 1), a friend asked if I had been inspired by Jōmon flame pots. When I told him I had not, and that I had never heard of them, he gave me two books about prehistoric Japanese art (Egami, 1973; Stanley-Baker, 1984). The books gave me a glimpse of flame pots that took my breath away. At the next opportunity, I visited the British Museum, which houses several examples. Serious, dignified, and austere—and flamboyantly decadent to the point of absurdity—the pots presented an extraordinary experiential paradox, rendered even more extreme by their modest, yet virtuoso, sculptural sensitivity (Figure 2). My introduction to flame pots was deeply affective. As I read more, my first sustained introduction to archaeological literature, I found that although many authors commented on the esthetic power of flame pots, the profoundly serious craziness of Jōmon pottery was not a major scholastic concern. On the contrary, I got the sense that esthetic appreciation was seen as something dangerous. As Kobayashi (2004) wrote: "Whilst appreciating these pieces we must not lose sight of the fact that they are the material representations of mental images and symbols shared by the inhabitants of the Jōmon Echigo style zone who made and used the pots" (p. 68).

Figure 1

Extended Phenotype 4. Stoneware installation (2013), 1.0 × 1.0 × 3.5 m.

Photograph by the author.

Figure 2

Jōmon flame pot, earthenware, excavated from the Iwanohara Site, Nagaoka City, Niigata Prefecture, Japan and dated to about 5000 BP. Located in the British Museum.

Photograph by the author.

Emotional Archaeology

Kobayashi's warning expresses a more general ambivalence about the place of subjective and esthetic responses in archaeological research. As I have previously reviewed this (March, 2021), I will not go into further detail here (also see Taylor et al., 1994). It will suffice to say that concern centers on the risk of confusing contemporary esthetic responses with the feelings of the original makers/users of prehistoric artifacts; concerns confounded and reflected by the way we use the word "art" to refer to artifacts that we find particularly expressive. To avoid this and to help situate the Western esthetic tradition within a wider anthropological approach to affective or sensorial culture, Robb (2017, p. 595) suggests replacing "art" with "powerful objects," an exchange that facilitates the use of associated contextual evidence to situate hypotheses about ancient and prehistoric sensory experience within a wider network of contemporaneous material culture (Crnobrnja, 2011; Knappett, 2005; Meegan, 2014; Sofaer, 2015; Wells, 2017). By encouraging researchers to filter contemporary emotional experience through a network of material evidence, the contextual approach mitigates the confusion that sets in when artifacts are used empathically to intuit prehistoric emotions and reduces the risk that contemporary archaeologists anachronistically project their sensorial reactions onto the minds of the past.

In a similar vein, Gell's (1992) methodological philistinism, by encouraging the development of "an attitude of resolute indifference toward the esthetic value of works of art," aims to release the study of material culture from the powerful grip of Western estheticism (p. 42). Once again, creating a context around powerful objects ensures that emotional responses are titrated through scholarship. This is mostly a good thing, and I do not want to take issue with it. But I think there is something extra to be gained by embracing and celebrating, in an emotionally direct way, the vitality of flame pots. Let me illustrate what I mean by juxtaposing two passages; both concern the ubiquitous convolutions and protuberances that define the upper rim of flame pots. The first comes from an archaeological source.

> Some of these rim adornments were so large, cumbersome and freely formed that although some may have served for hanging or carrying one doubts their utility … Small lugs may have been functional but larger handles were so ungainly that, like the ornate rims, their serviceability is doubtful …
>
> … the sculptural representations that swarm around the rims … are concrete manifestations of zoomorphic and anthropomorphic repertories that form a consistent iconography … accepted by many archaeologists as offering firm evidence of an ideology, and associated ritual.
>
> (Kenrick, 1995, p. 53).

By taking a dispassionate approach, Kenrick assigns a default, ritual, role to the convolutions (see also Nyord, 2020, who finds a similar problem in the analysis of Ancient Egyptian images). The second passage are the words of one of Japan's foremost modernist artists.

> There are projections that rise up on the surface of the vessel. As one traces the thick, protruding lines as they run across the body of the vessel, one's line of vision also moves. A line soars and whirls about, then suddenly drops. It weaves to the right and left two or three times and then drops down vertically. Just then, it runs up at an unthinkable angle and crawls upward as it draws a strange arc in the air. ln an unbalanced fashion the line gouges and cuts away high up on the face of the vessel, then calmly return to its original path …
>
> This phenomenon is beyond words. But that is not all. When one follows the horizontal line that connects with this pattern, suddenly one comes across a discordant ornament in the form of a handle, which is like a stalactite that twists and turns and dangles down. When compared with the overall size and weight of the vessel, the handle is disproportionately small. Yet, as ornament, it stands out as inharmoniously large …. This amazing quality shakes the viewer to the depths and resonates with a strange melody inside the viewer's body.
>
> (Okamoto, 1952, pp. 54–55).

Okamoto's description turns the embossed lines and clay-work into sculptural performance. If we too are willing to experience, in the present moment, the extravagance of a flame pot exclusively for the sake of that experience and accept that the knowledge that we seek is enacted within that experience, then we may lose interest in the search for meanings that have passed. Encouragingly, an interest in sensory archaeology has been mounting in recent years. Hamilakis offers a comprehensive and effective critique of modernist archaeology and he and his colleagues (Hamilakis, 2013, 2017; Hamilakis & Jones, 2017; Papadopoulos et al., 2019) make a convincing case for sensorial archaeology. However, Hamilakis portrays sensorial experience as "multitemporal." By this he means that senses "are past and present at the same time; they entail the simultaneous co-existence and communion of perception and memory" (Hamilakis, 2013, p. 124). From this position, he argues that artifacts have the capacity to enact the past. I do not find it controversial to claim that perception and past experience are blended across a continuum and connected through an evolving series of systems, nor that familiar things like tools enact habitual behavioral patterns. But, by suggesting

that giving access "to the material world from early prehistory to the present, which expands infinitely the sensorial capabilities of the body, archaeology can unearth the lost and forgotten sensorial modalities of humans" (Hamilakis, 2013, p. 199), he extends the perception-memory blend far beyond directly connected systems. He appears to suggest that contemporary, sensorial reactions to prehistoric artifacts offer a portal to a domain of sensibility that is shared across time. This claim for temporal universality risks reintroducing the confusion between past and present feelings that has been the longstanding criticism of the sensorial approach. Referring to the impulse to bring back the prehistoric sense of the Odin Stone, Raffles puts the issue in these terms:

> Stone persists, perhaps for eternity, requiring only to be animated. The frustration is that this archaeological animation—ultimately, simply the rediscovery of the animating principles of its time—relies on the conceptual and theoretical repertoire of our own time (symbolism, mimesis, process, hermeneutics, structuralism, phenomenology), a repertoire too distant and disenchanted for the task. Still, this is the alluring gap that these stones open, evidence, but refuse to fill, the gap of which that long-lost gap about a quarter of the way up the Odin Stone, peephole to an expanded universe, is iconic.
>
> (Raffles, 2020, p. 57).

In contrast, Bailey's art/archaeology proposal explicitly avoids making an amalgam between past and present. In his paper about prehistoric figurines of south-east Europe, Bailey (2017a) makes a distinction between the care taken in fieldwork and contextualization of figurines found at the Serbian site of Stubline and the anecdotal and unverifiable nature of the subsequent searches for meaning. Bailey's analysis leads him to seek less scholarly, more experientially exploratory connections instead. In *Disarticulate—repurpose—disrupt* (2017b), he breaks with the past altogether. By making links between prehistoric artifacts and contemporary art practice, Bailey encourages us to reconsider the former through an experience of the latter. By disarticulating artifacts from their context and repurposing them within a contemporary one, Bailey claims that they can serve to disrupt cultural assumptions about both past and present societies. This disruptive process creates uncertainty about the validity of received wisdom, while at the same time, it emphasizes that disruption cannot produce stable truths either. In *Breaking the Surface*, Bailey (2018) follows and extends Renfrew's (2003) encounters with contemporary artists by arguing the case for aligning specific thematic artistic interventions with the evidential remains of physically similar prehistoric remains. Bailey's intention is not to claim equivalence between past and present meanings, nor to argue that the process of contemporary art resembles in some mystical or shamanistic way the cognitive architecture of the past. Instead, juxtaposing contemporary art and prehistoric artifact introduces archaeologists to non-coherent ways of making knowledge and to the benefits of the sort of vivid experience recounted by Okamoto.

Jōmon Culture and the Typological Approach

In this section, I introduce the field of Jōmon archaeology (for a more detailed introduction see Habu, 2004; Kenrick, 1995; Kidder & Esaka, 1968; Kobayashi, 2004; March, 2021; Steinhaus & Kaner, 2016). Jōmon flame pots were produced by a complex forager society in the Echigo region of Japan. Findings are concentrated along the Shinano valley. The word "Jōmon," which means "cord pattern" in Japanese, refers to both the repetitive imprint of twisted cord found on the surface of many specimens of Jōmon pottery and their culture of origin. Lipid analysis suggests that flame pots were used to cook aquatic animals (Lucquin et al., 2016, 2018), and their burial context indicates that they were used to prepare feasts (Pearson, 2007).

The archaeological ceramic record dates the beginning of Jōmon culture to more than 14,000 years ago and presents a continuous development in culture and pot morphology that ended only around 3,000 years ago

with the arrival, from the mainland, of the Yayoi culture, rice farming, and a more refined ceramic tradition (Kenrick, 1995; Kidder & Esaka, 1968; Kobayashi, 2004). The development of Jōmon pots is separated into six stages: (i) Incipient, (ii) Initial, (iii) Early, (iv) Middle, (v) Late, and (vi) Final.

The relative isolation of the Echigo region led to the development of a style, *shinbo ninzaki*, that progressively distinguished itself from the pottery of surrounding regions. Based on construction method and appearance, Kobayashi (1998, 2004) divides the evolution of the *shinbo ninzaki* style into three stages, parsing the final stage into a further four groups. He locates flame pots in the fourth (D), along with so-called crown pots. Flame pots appeared about 5,000 years ago, toward the end of the Middle Jōmon stage. The word "flame" refers to the vessels' convoluting rim, but there is no evidence to suggest a connection with fire.

All *shinbo ninzaki* vessels, including flame pots, were made using the coiling method, a technique still used today. The potter rolls a lump of clay into a thin cylinder, building up the vessel sides by spiraling the coil onto itself and then smoothing the joints between the layers. The rim protrusions and body convolutions of a flame pot were added afterward by modeling or pinching slabs or rolls of clay, and the vessel body was then embossed using the shaped point of a bamboo stick.

The above summary gives a flavor of the extensive, detailed, taxonomic approach that has characterized Jōmon scholarship since the work of Yamanouchi in the 1930s. As Ghobadi et al. (2015) describe it, the aim is to map the mental connections between groups of potters based on pot morphology. This network of geographical and chronological relationships between types offers clues about what pots meant to their original users. Kobayashi (2004) predicates the typological approach on the notion of a "community template," a shared mental image of pot morphology. Potters create variations on the template and, and the emerging body of work manifests and maintains the style: "[I]nvestigating the history of Jōmon pottery style zones provides an insight into the Jōmon mind, even if we are left guessing at the actual contents of the stories the pots were used to tell" (Kobayashi, 2004, p. 56).

Ingold (2010) calls this view of the creative process "hylomorphic" because the form (morphe) that something takes is understood to exist separately from the matter (hyle) from which it is made. Kobayashi's position is consistent with mainstream information-processing models of the mind (e.g., David et al., 2004) and of creativity (Boden, 2004). A Jōmon pot is taken to be an external representation of an internal creative process, a window into the mind of its maker. The assertion that creative decisions take place in an internal conceptual space determines not only how we understand the creative process of the original maker but also prescribes the perceptual process of the contemporary viewer. If a pot's shape is a representation of an internal mental procedure, then to understand the meaning of the pot, the elements of pot morphology must become symbols to be decoded.

For example, Kobayashi suggests that Early- and Middle-phase Jōmon pot were conceptualized differently. In the Early phase, makers/users saw them primarily as containers but, as the Early phase evolves into the Middle phase, the pots develop a narrative function. Kobayashi (2004) explains the transition as follows:

> The establishment of these narrative patterns indicates that Jōmon potters had moved from just holding mental images of the object they wanted to create in their heads, to having particular concepts in mind, which they wanted to express through combinations of symbols, which carried meanings that would have been understood by other people in their community. In other words, by this stage, meaningful concepts existed prior to the designs used to express them, and these concepts were given a reality in the Jōmon world through appearing on Jōmon pots.
>
> (Kobayashi, 2004, p. 45).

A hylomorphic view, as we have seen, separates mind from matter. In the next section I will present another way of understanding what it is like to be sensate, one that does not divide the world into active subjects and passive objects. I will begin with Heidegger, who—despite the notorious obscurity of his writing—provides an influential, philosophical framework for various enactivist approaches to cognition, including MET, which I will move on to after Heidegger.

Heidegger, *Dasein*, and Temporality

The most relevant feature of Heidegger's philosophy is his concept of *Dasein*, "being-in-the-world." *Dasein* means something radically different from an-individual-in-the-world. In *Dasein*, there is no such thing as "I." *Dasein* is an indivisible, ongoing, temporal process that is characterized by an intention to gain an understanding of being-in-the-world. *Dasein* makes sense of itself through its everyday activities, and especially, through the quality of care it takes in those activities. Heidegger (1962) refers to the unconsciously familiar way in which *Dasein* undertakes everyday activity as "readiness-to-hand" (p. 98). An example of readiness-to-hand is an experienced hand, wielding a hammer whose heft is adapted to the task. Heidegger contrasts this with "unreadiness-to-hand," the situation in which the hammer is ill-adapted or damaged. Finally, he contrasts ready/unready-to-hand with present-at-hand, a situation in which a hammer is not experienced through its use but analytically, as an object that stands apart from its handiness.

The indivisibility of person and world means that the temporal experience of *Dasein* is different from that of an individual. A person uses past experience to guide the search for information in the present in order to decide actions in the future. *Dasein*, on the other hand, means "being-ahead-of-itself-being-already-in-(the-world-) as being-amidst (intraworldly encountering entities). This being fulfils the meaning of the title care" (Heidegger, 1962, p. 236). What Heidegger means by this is that as an ongoing "being-in-the world" system, *Dasein* is prescient in the sense that it acts itself into the future. For example, the readiness-to-hand of a wielding hammer knows what comes next—hammering. Heidegger called this "fore-having." And it is fore-having that takes *Dasein* into the future. The following passage, to which I return during the case study, introduces the term.

> In every case this interpretation is grounded in *something we have in advance—in a fore-having* … In every case interpretation is grounded in *something we see in advance—in a fore-sight*. This fore-sight "takes the first cut" out of what has been taken in to our fore-having, and it does so with a view to a definite way in which this can be interpreted. Anything understood which is held in our fore-having and towards which we set our sights "foresightedly," becomes conceptualizable through the interpretation … In either case, the interpretation has already decided for a definite way of conceiving it, either with finality or with reservations; it is grounded in *something we grasp in advance—in a fore conception*.
>
> (Heidegger, 1962, p. 191; emphasis in original).

By "interpretation," Heidegger is referring to an understanding that comes from an incident of being-in-the-world. Each interpretation is guided by a triumvirate of prejudices or assumptions: fore-having, fore-sight, and fore-conception. Together these create a fore-structure (see Leung, 2011, for a more detailed analysis). The fore-having is brought forth by the specific nature of the incident—for example, hammering. Fore-having occurs through an act of appropriation; an interpretation takes an erstwhile external entity and incorporates it into being-in-the-world. Heidegger refers to this act of appropriation as fore-sight and sometimes, more evocatively, as "fore-grasp." Fore-grasping contains two contradictory aspects. First, it determines the way in which an entity is unveiled to *Dasein*. Secondly and concurrently, *Dasein* decides the manner of fore-grasping, using an understanding that already exists between it and the veiled entity. The

interpretive process of an entity through fore-having and fore-grasping produces fore-concepts. It is through these fore-concepts that the unveiling of the entity takes place.

To sum up, the fore-structure means that *Dasein*'s interpretive position is guided by prior understanding. But this prior understanding is not imported from the past but is constructed in the ongoing activity of *Dasein* in the present (Heidegger, 1962, pp. 191–194). That present understanding should be based upon prior knowledge makes common sense. But here, Heidegger is suggesting that presuppositions suppose themselves, not in the past, but in the present.

Material Engagement Theory

Since it was first introduced (Renfrew, 2004), Malafouris (2012, 2013, 2014, 2015, 2019) has developed MET into a comprehensive description of how thinking (or *thinging*, see below) takes place through, with, and by things. The philosophical backdrop of MET is found in the work of Whitehead, Merleau-Ponty, Husserl, Heidegger, and Bergson, and MET shares some common ground with other approaches within archaeology and anthropology (e.g., the work of Hodder, Ingold, and Hutchins), as well as ecological psychology and the recent 4E (embodied, embedded, enactive, and extended) movement. And there are important parallels with Latour's ontological position (see, for example, Latour, 1999).

In terms of developing the clayful phenomenological perspective, there are three reasons why I rely on MET rather than one of these other approaches. First, MET presents a systematic and systemic formulation of the mind that conflates subject and object, creating a continuity of activity between humans, materials, and things. Such an outlook provides an ideal as a framework for understanding artistic activity. Second, MET is informed by detailed anthropological fieldwork with potters (e.g., Malafouris, 2007), making it directly relevant and applicable to understanding a creative relationship with clay. Third, and following the previous two, specific concepts associated with MET such as "creative *thinging*" and "enactive signification" are invaluable when it comes to describing how artwork proceeds.

Malafouris sets out the three main MET hypotheses (see Malafouris, 2013 and his chapter in this volume). The summaries below are partial, influenced by my work as an artist and by the specific concerns of this chapter.

The extended mind. As we have seen, hylomorphic approaches to cognition locate the mind in the head. Clark and Chalmers (1998) extend the mind by describing how external artifacts play a constitutive role in thinking. Nevertheless, they still assign a central, executive role to the brain. In the MET version, the mind becomes a process extending across time rather than space. It exists spatially only in the sense that we can locate and track the shifting coordinates of human-material interaction. In terms of this chapter, it is important to note that this temporal extension is bidirectional. The mind extends backward to encompass the habits and cultural patterns that provide ongoing activity with the predictive rhythm to allow the mind to reach forward. In these terms, an opportunity for creative *thinging* is precipitated when the rhythms from the past become out of step with the requirements of the future.

Enactive signification. If the mind is a property of temporally extended material engagement, then activity finds meaning in what it makes and vice versa. Signifier and signified create each other and emerge simultaneously. This means that an artwork is not a stand-in for something else. It is no longer necessary or desirable to wait for activity to make a material mark before searching it for presumed, symbolic content. For an artist like me, the concept of enactive signification is compelling because it suggests that both making a mark and enacting an existing mark are affective-cognitive, non-linguistic actions in themselves. To translate such actions into words makes no more sense than do the shadows on the wall of Plato's cave.[1]

Material agency. The notion of a temporally extended mind undermines any attempt to locate a single, stable source of agency; no longer a personal attribute, agency is an emergent property of ongoing activity. Like the extended mind, agency is shaped by the evolution of patterns over time. And, although this patterning occurs at different temporal scales—cultural/phylogenetic, ontogenetic, task-in-hand—all are expressed during a single moment of action in a spatially and materially specific location.

These three hypotheses are brought together by the concept of "creative *thinging*" (Malafouris, 2015), a useful notion for understanding how MET applies to working *with*, *by*, and *through* clay. Heidegger converted "thing" to "*thinging*" to undermine the view of things as passive, immutable objects, recasting them instead as bundles of auto-generative activity (Heidegger, 1975). By adding "creative" to "*thinging*," Malafouris links a temporally extending mind to the mutability of things and draws our attention away from human intention, away from the pot as an object and toward the point of sensation where hands and eyes touch the clay, a moment in time and space where mind and matter are indistinguishable. For Kobayashi (2004), flame pots distinguished themselves from earlier pots by becoming mediums for the symbolic representation of the Jōmon mind. Whether or not this hypothesis is true, creative *thinging* takes us back to the present—a time when the mental images of Jōmon people and their representational intentions are long gone. By returning to the sensorial present, we give a prehistoric artifact the freedom to resonate, and we give ourselves the possibility of attending to "the non-spiritualistic spirit of Jōmon culture's primitive art … a spirit that is completely adapted to reality in a material and dynamic way and has no ideological utility" (Okamoto, 1952, p. 59).

Okamoto (1952) exhorts us to "seize this purposeless purpose and this meaningless meaning as our method" (p. 59), which reads to me like an endorsement of non-coherence. In the next section, I will summarize Law's argument for non-coherence as a method.

In Praise of Non-coherence

Following the Enlightenment, myths have been understood as stories that misrepresent reality rather than frameworks that support systems of knowledge (Midgley, 2003). In *After method: Mess in social science research*, Law (2004) deals with the epistemological consequences of this position:

> In Euro-America the inscriptions that condense ontic/epistemic imaginaries belong to the novel or to poetry or to art and not to serious research method. As do those that condense non-coherences (James Joyce?), overpowering fluxes (Edvard Munch?), indefinitenesses (Mark Rothko? Franz Schubert?), multiplicities (Georges Braque?) or fractionalities (Steve Reich?). Perhaps all this is fine … On the other hand, it is also costly. It is costly since it Others imaginaries, fluxes, indefinitenesses and multiplicities—even as it draws on them. And, at the same time, it denies the various desirable effects—the various goods—that these might carry and enact.
>
> (Law, 2004, p. 148).

Modern (post-Enlightenment) knowledge-making methods aim to develop clear, unambiguous, coherent representations of reality. But reality is often messy and ambiguous, and Law (2004) fears that the pursuit of clarity risks misrepresenting reality:

> [Social] science should … be trying to make and know realities that are vague and indefinite because much of the world is enacted in that way. In which case it is in need of a broader understanding of its methods. These, I suggest, may be understood as methods assemblages.
>
> (Law, 2004, p. 13).

It is important to note that Law does not pit coherent and non-coherent approaches against each other. He makes it clear, for example, that a non-coherent approach to organizing alcohol addiction services would be disastrous. Rather, he believes that restricting research methods to those that seek definite results leaves many questions unanswered and unanswerable, question like why alcoholism services are so difficult to manage. To answer messy questions, he suggests:

> [We might] keep the metaphors of reality-making open, rather than allowing a small subset of them to naturalise themselves and die in a closed, singular, and passive version of out-thereness. That we refuse the distinction between the literal and the metaphorical (as various philosophers of science have noted, the literal is always "dead" metaphor, a metaphor that is no longer seen as such). That we refuse the dualism between the real and the unreal, between realities and fictions, thinking, instead, in terms of degrees of enacted reality, or more reals and less reals. That we seek practices which might re-work imaginaries. That we work allegorically. That we imagine coherence without consistency.
>
> (Law, 2004, p. 139).

A non-coherent approach has much in common with the way artists proceed. For example, studies of artistic creativity by Reinders (1991) and Rawlings and Nelson (2007) show how artists maintain an attitude of uncertainty and not-knowingness. Reinders uses Merleau-Ponty's term "circumscribed indeterminacy" to describe this mode of functioning. A painter interviewed by Reinders gave the following description of indeterminacy.

> You can say: "I like this orange. Therefore I am going to put it here." And the orange says: "No, I won't go there because I'm coming off," or, "I'm falling away" ... You start with one idea and it changes into something else. And you think [of what] you are going to do ... For instance, I thought this would look ... as an example ... more like the drawing or the monotype. It didn't. It looked less like it, and for reasons that were almost beyond my comprehension of why it was happening that way.
>
> (Reinders, 1991, pp. 121–122).

Following interviews with eleven artists, Rawlings and Nelson (2007) summarize the artistic mode in the following terms.

> The immersion in the artistic activity and the dominance of intuition give rise to a unity in sense of self ... The divisions inherent to selfconscious experience—referred to by one participant as "decision-makings," "worryings" and "deliberations"—seem to break down. In fact, this unity of self can be experienced as a lack of self, as illustrated by one participant's description of a "bracketing of the self." A sense of self as "pure action" emerges—that is, a lack of distinction between thoughts and the act of expression in the art form; the artist does not contemplate the work and then proceed, but uses the medium in an immediate, automatic flow. This experiential state involves a lack of awareness of the physical body and of the passing of time.
>
> (Rawlings & Nelson, (2007, pp. 231–232).

In his book *Make to know*, Buchman (2021) interviewed 48 artists from diverse fields about the creative process. He too identifies the importance of being unsure:

> Make to know ... is not "winging it": There is a direct link, in fact, between the quality of making, no matter the medium, and the level of skill, experience, education, ethics, and engagement that

> one brings to the work. But those are elements that serve as scaffolding on which the artist stands in creative activity to enter the unknown and the unimaginable.
>
> (Buchman, 2021, p. 78).

One artist he interviewed, Ann Hamilton, linked unknowingness and uncertainty to a loss of a sense of intention.

> How do you cultivate a space where you can allow yourself to do something you don't understand at all … that allows you to dwell in not knowing? … the goal is to find a process that is unselfconsciousness … so that you lose your sense of intentionality in order to become responsive.
>
> (Buchman, 2021, pp. 78–79).

Another artist, Diana Thater, described the evolution of her installation *Radical as reality* (2017) as follows:

> I had no idea I was going to do that in the installation. I found the thing that I didn't expect to creep in … It became the starting point for the next piece, the thing I realized after making the work. The thing that is there that I never plan to be there, that appears and, in turn, produces a new idea in the making.
>
> (Buchman, 2021, pp. 61).

I continue with two excerpts from interviews I conducted with artists. In the first, Markus Karstieß describes how for him too, the creative process happens in a state of uncertainty, vividly communicating the unsettling nature of "working in the open field," as he calls it.

> If you work into the open field, it's like walking up … stairs and you think there is a fifth stair coming and there isn't, and you step into this nothingness, and this is the feeling that you have … this is what I think we should work towards when you want to succeed in creating a new artwork.
>
> (Karstieß interview with March, 2015, unpublished).

The second comes from an interview with textile artist Matthew Harris, during which he explores how much control he feels he has over the process and outcome of making. I cite him at length to give a flavor of the complexity of the issue that Harris is wrestling with.

> MH. Most of the time my process is about creating something that's unintentional … There was always this tension between … Maybe I should just make them and then have the courage to just exhibit them the wrong way round because, actually, I was really excited about, you know, the quality of the marks on the back … Suddenly there are these other lines just crisscrossing across the surface … I want my unexpected marks to come through—to disrupt …
>
> PM. So what does that mean about the nature of intention? Because now, would you now call them intentional?
>
> MH. No they are still unintentional because I mean I know that they're going to have an impact but I have a very … clear sort of procedure that I use… I tend to think, well … I have to use a colour of thread that corresponds with the colour of the lime stitching down there (pointing to a part of the work) but I make sure that it's a darker tone than the one that I would use if it were on the front so it becomes visible. Yes, so then, I don't know … I don't know what the full impact (will be) but that is an intentional decision. It is a decision, well, I know … I know that that procedure will lead to something, I mean … They're all a series of procedures that lead to things that I have some control

> over but also there are these elements, uncontrolled elements, that just kind of come about through that process.
>
> (Harris interview with March, 2019, unpublished).

Harris' technique is a perfectly coherent procedure; he is certainly not "winging it," and yet the process has no clearly defined arc of intent, no predetermined goal. Keats (1817) invented the term "negative capability … being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason" to describe Shakespeare's creative capacity (p. 528). The psychoanalyst Bion (1970, p. 125) subsequently used "negative capability" to describe the requirement for an analyst to remain in a state of free-floating unknowingness, tolerate the associated anxiety, and resist the pressure to end indeterminacy with false certainty. When she began painting, Milner, herself a psychoanalyst, encountered similar anxieties. As soon as the lines of a drawing were suggestive of something, she reports:

> [She] would develop them to make it look like that object. It seemed almost as if, at these moments, one could not bear the chaos and uncertainty about what was emerging long enough, as if one had to turn the scribble into some recognisable whole when in fact the thought or mood seeking expression had not yet reached that stage. And the result was a sense of false certainty, a compulsive and deceptive sanity, a tyrannical victory of the commonsense view which always sees objects as objects.
>
> (Milner, 1950, pp. 75–76).

I end this series of vignettes with three descriptions from *Project Holocene*, the case study I will present later. They describe, in a context of uncertainty, the strange juxtaposition of skilled gestures, purposeful action and unintentional activity.

> The dexterity of the cube-making gesture came from having repeated it hundreds of times during a previous project. Dow (2017) suggests that such continuous and expert bodily gestures contain an implicit awareness of self. There was certainly a mild sense of mastery that went with these gestures. Indeed, it was quite disconcerting to experience purposeful action in the absence of a sense of personal agency … I felt a clear inclination to bring forth form from clay but I do not think it is accurate to describe it as my inclination. It was something I was a part of
>
> (March, 2019, pp. 143–144).

> … adding bits by impulse—on a bit-by-bit basis. With no plan and no understanding of how several of these decisions join … up. Long periods when I am working at a fast pace—adding bits without hesitation, whilst at the same time—no understanding how such a process can create something that is interesting to look at … How do the individual impulses form together to form an overall intention? I do not feel part of that intention. I am not conscious of it—I am only conscious of what I should do next
>
> (Notebook entry *Matrix 4*, February 11, 2018).

> I am confronted by configurations that do not fit into what I would describe as sculptural forms. They clash but seem to impose themselves … a tension between the canons of art and what the system seems to want to do.
>
> (Notebook entry *Holocene 9*, December 18, 2018).

While the above accounts suggest that art sometimes proceeds in a non-coherent manner, they also suggest a distinction between two modes of creative making. There are episodes of discontinuity, rupture, and

discordancy, and times when the apparent pointlessness of gestures makes them feel clumsy. However, there are also periods of continuity and rhythm associated with embodied knowledge—examples of craftmanship, contingent on the moment-by-moment attunement of gesture, tool, and material (Baber, 2023). There are indications that such technical competence is a prerequisite for tolerating prolonged periods of uncertainty, and that the episodes of non-coherence exist to challenge habitual patterns of engaging with the world.

Enactive theories of cognition, including MET, are predicated on the view that humans think by engaging with the world. But while enactivism is well suited to describing and accounting for embodied knowledge, situations of non-coherence are another matter. In their introduction to *Enactive cognition at the edge of sense-making*, Cappuccio and Froese (2014) lay out the problem. They define cognition as situated sense-making and describe intelligent behavior as a function of the dynamic coupling of organism and ecosystem, suggesting that:

> [T]his reciprocal belonging of living body and world-environment is the defining, nonmetaphoric underpinning of cognition itself, so that living and cognizing are modes of the same sense-making capability and therefore are, in their essences, coextensive... [But] if cognition is essentially a process of sense-making, then how does the enactive approach account for non-sense?
>
> (Cappuccio & Froese, 2014, pp. 6, 8).

Their use of the term "non-sense" parallels Law's choice of "non-coherence." As Law distinguishes non-coherent from incoherent, Cappuccio and Froese separate non-sense from senseless. For them, senseless means, "devoid of sense," while non-sense points toward a proposition—whether it is true or not—that is either unthinkable or cannot be adequately captured by language. How can enactivist theories deal with the paradox of being confronted by something that does not make sense, yet feels like it might, but ... then again, maybe it does not? What happens when the activities of a human and the behavior of the environment are non-compatible but not necessarily incompatible?

To resolve the paradox, Cappuccio and Froese (2014) turn to Heidegger's use of the word "uncanny." When *Dasein* shifts from being-in-the-world into being-in-a-world-of-non-sense, then it loses the sense of "ready-to -hand," the implicit familiarity of world-human activity. In short, *Dasein* becomes unfamiliar to itself. Things that are normally taken for granted within *Dasein* are called in to question, creating anxiety. Although the structure of the world remains unchanged, being-ahead-in-the-world is no longer attuned to it. For Heidegger, this is the basis of the uncanny. Cappuccio and Froese describe it well.

> If non-sense emerges from anxiety, this is not because the fluid stream of habitual coping with the world had been overlooked, forgotten, or impaired, but because it was objectified under the focus of hyperreflective consideration, turning into a petrified body of factual information virtually separated from its cognizer.
>
> (Cappuccio & Froese, 2014, p. 11).

The situation of unready-to-hand introduced earlier is a less disorienting version of the uncanny, and in such cases, action is not brought to a complete halt. Instead, *Dasein* tries new things that we might call "anticipatory ready-to-hands." Cappuccio and Froese suggest that these provisional action patterns are phenomenologically bracketed as non-sense, remaining so until and unless patterns are found that do make sense.

For Cappuccio and Froese (2014), feeling something is absurd encapsulates the uncanniness of non-sense. The absurd is not the result of having simply overlooked or misinterpreted sense, but the consequence of finding oneself in a situation of indeterminant salience. As a result, implicit sense-making habits are made

conscious by their failure in the absurd situation. The sense of absurd comes from an awareness of the failure of sense-making accompanied by a failure to pinpoint the reasons for that failure.

In Part 1 of this chapter, I have argued for the importance of being emotional about archaeology and, by introducing the philosophy of Heidegger and MET, I have indicated a preference for process over substance (Gosden & Malafouris, 2015). I ended Part 1 by making a case for approaching messy things in a non-coherent manner. I begin Part 2 by presenting *clayful phenomenology*, a non-coherent, artistic approach, the rational for which is provided by MET in partnership with *Dasein*. In a previous paper (March, 2021), I used *Project Holocene* to illustrate the ontological and epistemological benefits of *clayful phenomenology*. In Part 2, I revisit *Project Holocene* to give a further account. I describe the clayful relationship that developed between flame pots and the activity of a contemporary ceramic workshop, and I explore what this relationship reveals about temporal experience.

Part 2: The Feeling of Time

Clayful Phenomenology

I begin with the neologism "clayful." One advantage of taking an artistic approach to knowledge-making is the relative freedom it offers to explore unusual or unfamiliar avenues of enquiry in ways that are unconstrained by expectations about the value of the artistic activity itself or its outcome. Essentially, a system of creation does what it feels like doing. But, as *Project Holocene* will demonstrate, this liberty may include the freedom to be rule-bound, as for example, being constrained to repeat a similar action many times or limiting the construction method to a cuboid form. This combination of spontaneity and auto-imposed constraint is distinctly playful (Bateson, 2017), and by collapsing the words "clay" and "play," I emphasize that the playfulness of sculpting comes, not from a human state of mind, but from the metaplastic qualities of clay-in-the-hand.

In her interviews with artists, Reinders (1991) identifies a paradoxical mode of functioning that she calls "purposive-playfulness," which she relates to "a tension between the vaguely intuited artistic demands of the intentional object and the attitude of 'circumscribed indeterminacy'" (p. 55). Purposive-playfulness is similar to the clayfulness of non-coherence as this excerpt illustrates.

> As the artist assumes the attitude of circumscribed-indeterminacy, he holds at bay the knowledge which he derived from previous artistic experiences … The artistic configurations themselves that emerge in the playful manipulation of the artistic materials are recognized by the artist rather than produced by him. They come into being out of the artist's actively manipulating his artistic materials in a certain mode in which his artistic intuition and artistic perception play a primordial role against the background of an open-ended receptive attention.
>
> (Reinders, 1991, pp. 55–56).

I turn next to "phenomenology," which normally refers to subjective experience: to the perspective of a cognizant agent. But, in *Dasein*, the cognizant agent is not an individual but a state of being-in-the-world. The seat of consciousness is neither the brain nor the individual. Although *Dasein* exists in time, it has no fixed spatial abode.

Let me give an everyday example. One Saturday morning, I took a break from writing this chapter and went to have breakfast in a café with my wife. I looked up from our table to see a small, framed picture hanging lopsidedly on the wall. The sense of skewness was surprisingly present, making it difficult to concentrate on the picture itself. I stood up to straighten it, but my wife told me not to, so I took a photo instead (Figure 3).

The issue of whether experience is extended depends on where, if anywhere, I locate the sensation of skewness. Orientation-sensitive cells in my visual cortex were firing, setting in motion a chain of neural activity across my cerebellum, basal ganglia, and motor and prefrontal cortex. But I did not feel skewness in any of those areas. The brain has no capacity to feel anything. The sensation of skewness felt like it came from the picture itself, but a picture has no more capacity to feel skewness than the brain. I asked my wife what she thought. She said that she didn't know and that she didn't need to know.

Figure 3

Where is lopsidedness experienced?

Photograph by the author.

Whether we need to know or not, I hope the story shows that there is no clearly identifiable spatial locus to experience.

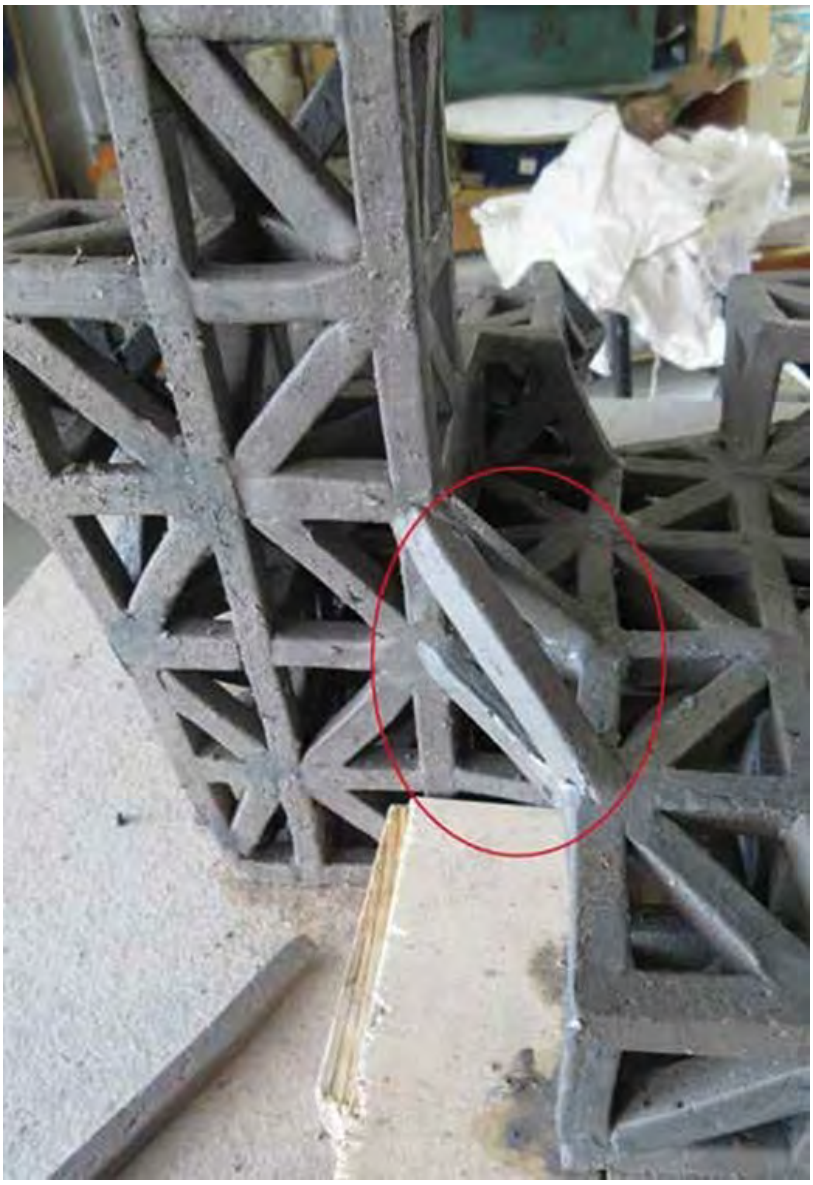
Like *Dasein*, MET is predicated on the notion that cognition, agency, and signification are temporally extended and spatially dynamic. I find it helpful to understand creative *thinging*, "a point in time and space where movement makes mind and matter indistinguishable" (March & Vallée-Tourangeau, 2022, p. 164) as a specific, experiential manifestation of *Dasein*. Creative intention comes not from the artist but from what I call a "transient creative system," which can be delineated pragmatically by the walls of my workshop. A transient creative system is made up of mind-matter elements. These are not the stable and recognizable objects like tables and chairs found in a substance-oriented account of the world. The movement of hands, a squishing lump of clay, and the hardness of a few square centimeters of work bench interact and auto-

generate a brief, chimeric existence. The moment-by-moment interaction forms and maintains the system as an intentional force (March & Glavneau, 2020; March & Malafouris, 2023; March & Vallée-Tourangeau, 2022). Here are two examples from the *Holocene* notebook of what I mean.

> One thing that is happening more—instead of whole cubes—breaking down—so I only see the future in terms of one strut.
>
> (*Holocene 8*, October 7, 2018).

> Sometimes it is so obvious where to put the next piece (rectangular length of clay) that it is like deciding whether or not a line is horizontal or vertical—(the sense of) verticality come from where?
>
> (*Holocene 9*, November 12, 2020; see Figure 4).

Figure 4



The decision to place this piece here could be described in terms of a moment-by-moment auto-sculptural configuration.

Photograph by the author.

The ongoing, creative intention of sculpting is an example of what Kirchhoff and Kiverstein (2018) refer to as a "self-organizing process," one in which:

> control and coordination are distributed over and propagated through the media taken up in cultural patterns of activity … one in which a set of components that make up a system enter into non-linear interactions according to local rules, without the intervention of any global executive control process.
>
> (Kirchhoff & Kiverstein, 2018, p. 20).

Hutchins (1995) gives a similar account of the experience of meaning:

> It is difficult to place the meaning of the step cleanly inside or outside the person, because some component of the meaning may be established by a kind of situated seeing in which the meaning of the step exists only in that active process of super-imposing internal structure on the experience of the external world. That is, at some point in the development of the task performer's knowledge the step may not have a meaning in the absence of the world onto which it can be read.
>
> (Hutchins, 1995, p. 300).

Hutchins goes on to propose that, if such an episode of situated meaning is consciously experienced, there are three possible, non-exclusive mechanisms by which it might become manifest. First, experience is likewise situated; in other words, consciousness is extended. Second, experience runs as a separate process within a subsystem (person). And third, the subsystem (person) exhibits awareness beyond its (his/her) boundaries. My interest lies in making a case for the first: extended consciousness (EC). What follows is an adaption of Kirchhoff and Kiverstein's (2018) argument for EC.

In his paper "Spreading the joy," Clark (2009) accepts the case for dynamic entanglement within and between brains, bodies, and worlds, conceding that "some specific experiences … require a kind of 'signature' temporal evolution of neural states that simply cannot (in the natural order) occur in the absence of the right extra-neural scaffolding" (Clark, 2009, p. 979). The feeling of lopsidedness, or of creative decision-making happening between my hands, is exactly this type of experience. Clark is suggesting that neural activity is not sensitive enough to capture the dynamics of lopsidedness or creative change without the temporal presence of a fistful of clay or the skewed painting. Kirchhoff and Kiverstein (2018) propose that such a unique temporal signature is captured by Sensory Motor Contingencies (SMCs). SMCs are a specific sort of dynamical entanglement. An SMC describes an established, reciprocal link between sensation and familiar, body-centric, object-centered, or environmental movements. SMCs link movement to sensation dynamically (nonlinearly) so that sensation and movement become phenomenologically indivisible as "perceptual presence." SMCs are also responsible for what Noe (2005) calls "presence in absence" (the sense of experiencing the whole of something while perceiving only a part). Along similar lines, Silberstein and Chemero (2015) use dynamical systems theory to argue the case for "extended cognitive-phenomenological systems":

> Dynamical systems theory is especially appropriate for explaining extended cognition because single dynamical systems can have parameters on each side of the skin. That is, we might explain the behaviour of the agent in its environment over time as coupled dynamical systems … Our cognitive, conscious, and behavioural capacities co-explain and co-determine each other dynamically. The systems that cognitive scientists have identified as extended cognitive systems are in fact extended phenomenal-cognitive systems.
>
> (Silberstein & Chemero, 2015, pp. 189–190).

And, some years earlier, Hurley (2010) came to a similar conclusion:

> The interactions of an active agent with her environment generate what I've called a dynamic singularity (Hurley, 1998): a tangle of causal and informational feedback loops centered on herself that moves with her and ropes in her brain, body, and elements of her environment. Dynamic singularities are extended in the same sense that phenotypes can be extended (Dawkins, 1982); the skin is transparent to the dynamic feedback processes whose character explains what phenotype, or what type of experience, is in question.
>
> (Hurley, 2010, p. 149).

SMCs are predictive; their rhythm is projected onto possible future sensory movements, as when we turn an object to see its back. We can therefore consider habits as semi-contingent networks of SMCs. The sense of gestural certainty about the placement of the next piece of a *Holocene* sculpture, described earlier, illustrates this point; patterns of behavior are prescient by virtue of being established in the past. Here is another entry from my notebook.

> [A]ll movements in making the Holocenes are mundane. They feel like construction gestures (like tiling or brick laying) rather than creative gestures like sculpting. This means that (it feels that) the origin of creativity is unclear-obscure. Unlike the S.I series [*Substantia Innominata*, a previous project. See Figure 7, right] where it felt collaborative between clay and hand. The clay here does not follow plastic, manual gestures so as to join the dance. Here the hands have a job to do, and the way the material presence is constructed happens, in some part, separately from the forming sculpture.
>
> The hexagonal template of a honeycomb is not decided in relation to the present ecosystem—it arrives as a habit … This is like the cubes. Cubes = habit, deformation = disruption (of habit). Pattern of form and deformation—deformation always in relation to form. (Unlike normal sculpting gestures, when amorphous lumps of clay are added to a body and then modelled on the body, here, the lengths of clay are made apart and are then cut before being attached to the body).
>
> (*Holocene 8*, September 7, 2018).

For Husserl (1989), when habits are consistent with the present context *and* correctly predict future circumstances, then the experience of past, present and future are linked by implicit or procedural knowledge:

> From a phenomenological standpoint, the "habitually" or the "experientially" has its intentional relation to circumstances. If these circumstances become real then the experiential steps forth as something belonging to them, as something expected. An instinctual drive would also have to be related to circumstances, and to that extent we have there an experiential expectation, but this expectation has, in the case of genuine habit, an implicit horizon of similar memories.
>
> (Husserl, 1989, p. 268).

Habits follow SMCs in being relational; organism and habitat exist, define, and develop themselves and each other in concert. As such, SMCs can provide a framework for extended consciousness, especially in the case of skilled activity in predicable situations. It is perhaps therefore not surprising, in situations of non-coherence, that when habits stop working, things start to feel uncanny. Even when running smoothly, a system of creation inhabits a disquieting, liminal world. Within the system, there is a sense of artistic activity, but no notion of an independently sensate artist. Things come together. Things fall apart.

There are affective consequences to following a line of research in which the sense of self fragments and disperses into a system that "deals with the propagation of deformed and reformatted representations, and … dissolves individuals into peculiar loci of coordination and coalescence among multiple structured media" (Sutton, 2010, p. 213). In a previous description of *Project Holocene* (then called *The Matrices*; see March, 2019), I described how purposeful engagement in unintentional activity was like being trapped in a double-bind (Bateson, 1973). And Milner (1950) describes how "[i]n one part of the mind, there really could be a fear of losing all sense of separating boundaries … in fact a fear of going mad" (p. 16). The artist Engelfriet talks of how "[c]lay can give you the feeling of being pulled into it, sucked away out of existence. It can go as far as an experience of death" (Higgin, 2016, p. 110). It is clearly difficult to tolerate an attenuated sense of self (March, 2021; March & Vallée-Tourangeau, 2022), and I am often tempted to pull myself together, step out of the system, and return to the familiar world of cause and effect, of immutable objects; a world where my hands move the clay and my intentions move my hands (March, 2019).

Having described Clayful phenomenology and given some examples of what it feels like to be part of a system of creation, I will move to the case study.

The Beginning of the *Holocene*

Where to start? If "prior intention" is defined in terms of three sequential propositions—having an idea, thinking it's a good one, and deciding to act on it, all occurring in a mental space—then I hope it is now clear why I think that "prior intention" does not pinpoint the beginning of anything and does not originate in a place that is separate from the material context for which the intention is about. Instead, and consistent with the MET formulation of the extended mind and of material agency, I see intention as transactional and transitional, emerging from the integrative reciprocal activity of human and non-human subparts. So, I begin the story with the joyful feelings of absurdity associated with the repetitive actions necessary for making a flat, geometric matrix out of clay.

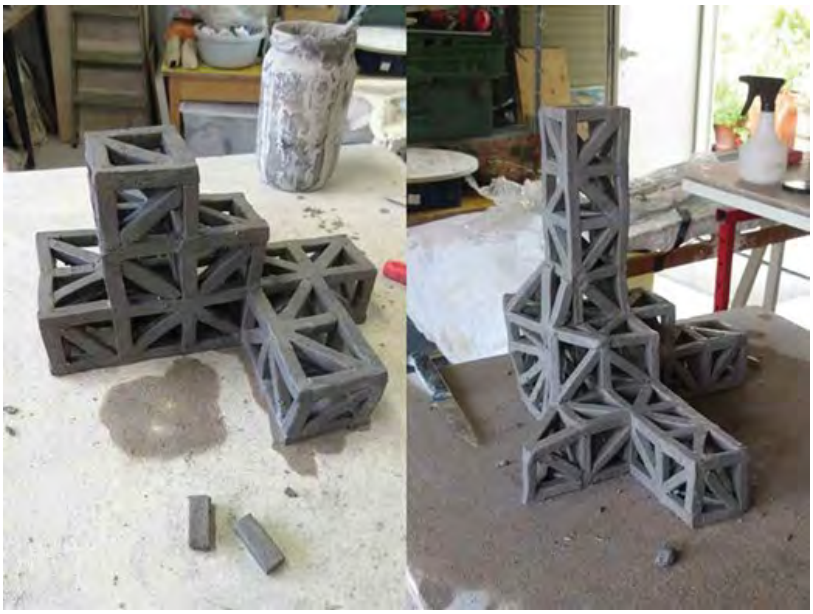
Absurd and joyful because making a geometric structure from clay seemed delightfully silly. The matrix work was part of a project called *Claustra* (Figure 5; also see Vallée-Tourangeau & March, 2020 for a case study). In parallel to the joyfulness, there was a sense of frustration because the *Claustra* project required the matrix to be constrained to two planes. *Claustra* was finally completed in 2015, leaving the matrix free to develop its three-dimensional potential. Intermittently, over the course of the next three years, the matrix-making process developed into a series of sculptures, provisionally and predictably called *The Matrices*. The sculptures grew by the multiplication of a quasi-identical cuboid structures of clay. They were quasi-identical because the cube would occasionally become deformed by shortening an edge or diagonal (Figure 6).

Figure 5

Claustra, sideview showing matrix wall. Stoneware installation (2015), 1.8 × 2.0 × 1.8 m.

Photograph by the author.

Figure 6



Holocene 8. Left: Grid-like cuboid structure. Right: Deformation by addition of foreshortened edges.

Photographs by the author.

I took notes and photos throughout the project, and a time-lapse camera took snaps at 20-second intervals (an edited version of the time-lapse footage of *Holocene 6* is available online at https://vimeo.com/288572786). There were six sculptures in my workshop in May 2018, when two fellow artists came to visit. Both artists were struck by the sculptures' undefinable cultural and geographical origins and temporal indeterminacy, a feeling that these objects might have been made any time from the distant past, through the present, and into the future. The incertitude about the sculpture's temporal origins brought the word "Holocene" to mind. I wrote in my notebook:

> The extent to which work is both precise and intricate—clumsy and approximate. [This] relates to [the visit] of R.-A. and L. [the artists] about time and place—every continent, past and future. Were Jōmon done in the same way? Jōmon = Holocene?
>
> (*Matrix 6*, May 14, 2018).[2]

Jōmon pottery, particularly flame pots, have inhabited the extended mind of my workshop for several years, either explicitly (Figure 7) or implicitly (Figure 8; also see March, 2021).

Figure 7

Left: Jōmon spider kit (2013). Right: Detail, stoneware, steel and stainless steel, 4 × 2 × 1.5 m.

Photographs by the author.

Figure 8

Left: Dogū figurine (3000–2400 BP). Copyright Ueno Museum and distributed under a Creative Commons license. Right: *Substantia Innominata 10*.

Photograph by the author.

Nevertheless, flame pots insinuated themselves into the project opportunistically. There had been no plan to use the *Matrices* project to investigate Jōmon pottery. Aside from both being made from clay, it is difficult to give a reasoned account of what drew flame pots and the *Matrices* together. The reasons lie not in words but in the enactive signification of their union. Within the newly forming *Holocene* system, the connection between contemporary, geometric structure and flamboyantly prehistoric pottery was clear and manifest.

Whether it remains clear, extricated from the system and inserted into this account, is for you, the reader, to decide.

Approaching the End of the *Holocene*

Following comments by the two artists about their temporal lability, the activity of the workshop became explicitly associated with Jōmon flame pots and the *Matrices* changed their name to *Holocene Pottery*. Focusing on the penultimate phase of the project, *Holocene 8*, I now want to look in more detail at what this temporal incertitude is about and what it says about an encounter with flame pots (Figure 9). See an edited, time-lapse video of the making of *Holocene 8* here: https://youtu.be/HoqqO3WTnic.

Figure 9

Four views of *Holocene 8*. Stoneware installation (2018), 0.45 x 0.45 x 0.45 m.

Photographs by the author.

To recap, flame pots were built using the coiling technique in which a spiral of clay is wound into an inverted conical form. The coiling action leaves a series of horizontal lines on the surface of the vessel, which potters usually go on to efface. Jōmon potters did likewise, and once the surface was smooth, they used a sharpened bamboo stick to make vertical stratifications, within which they incorporated spiral motifs.

While working on *Holocene 8*, it dawned on the system, in a moment of outsight (so-called because the realization happened not internally as insight, but externally, as part of an extended mind; see Vallée-Tourangeau & March, 2020) that the system had been obliterating the lines left between the edges of the cubes. I wrote in my notebook: "Why correct all the joins and make smooth? … Efface the hand of man. The history of production disappears—[it means that we] can't see how a cube forms" (*Holocene 8*, July 19, 2018). The habit was transferred automatically from the *Claustra* project, and it was only when flame pots joined *Project Holocene* that the reason for effacing the joints came under scrutiny.

The explanation that came to the extended mind of the system of creation goes like this. Visible joints divide the sculpture into its constituent, construction elements, constraining the viewer to engage with the piece in relation to the way it was made and to the actions of the artist; creative *thinging* possibilities between viewer and sculpture are restricted to the period of production by the indexical evidence of the process. You might think that this provisional, in-the-making status would emphasize creative process over creative product, but what gets highlighted is the historical fact of the process rather than its dynamism. In a sense, the sculpture gets stuck as model of what it might have become. With the process temporally fixed, creative *thinging* is diminished by the constraint to experience the sculpture in reference to its making and its maker. In his analysis of the origin of an artwork, Heidegger (2002) describes how important it is for art to separate from the hand that made it.

> The more solitary the work, fixed in the figure, stands within itself, the more purely it seems to sever all ties to human beings, then the more simply does the thrust that such a work is step into

> the open, and the more essentially the extraordinary is thrust to the surface and the long-familiar thrust down.
>
> (Heidegger, 2002, p. 40).

By covering its tracks, the *Holocene* creative system helps those who subsequently encounter it to ignore past intentions and concentrate instead on a creative encounter in the present.

This reasoning by the system of creation took place primarily through material transformation, occurring when the gestures of contemporary sculptural activity evoked flame pot production methods and projected them onto the morphology of the contemporary sculptures that were being constructed using the same gestures. By bringing together flame pots and contemporary sculpture, the projective act opened a new arena for creative *thinging—Project Holocene.* What I am describing here is a version of "blending theory" or "conceptual integration" (Fauconnier, 2018), which is adapted to include enactive (material-conceptual) blended spaces as well as mental ones. I will not go into more detail here, but those interested can consult Malafouris (2013), where in Chapter 5, he presents blending theory as the primary mechanism underlying engagement with material.

I have described above how a newly blended conceptual process, *Project Holocene*, brought about a conceptual change in the *Holocene* sculptures. This, in turn influenced how flame pots were experienced within the system, in the following way. The efforts by the makers of flame pots to smooth and re-stratify the surface were now seen to be disrupting the chronologically ordered indexical strata by rotating it 90 degrees. The vertically inscribed lines take attention away from the horizontal chronology of construction and redirect the gaze upwards, past embedded spirals and toward the gyrating convolutions of the vessel's rim. This journey metaphorically transforms the indexical traces of coiling to iconic signs of the mode of production. In transforming from index to icon, the coiling action explores and celebrates the role it plays in bringing itself in to existence. The metamorphosis feels pleasurable and elevating but, as Okamoto (1952) also senses, the pleasure has little to do with a disinterested appreciation of visual form:

> Rather it is bound up with an intensely religious and magical meaning that points, if one is to put it in words, to a fourth dimension … The life balance that was achieved between nature and humans was dynamic and dialectical in nature. What is concealed in this aesthetic view, with its strange and dignified serenity, is dialogue with the fourth dimension.
>
> (Okamoto, 1952, pp. 57–58).

Exactly what Okamoto means by the "fourth dimension" is unclear. The Cubist movement was associated with four-dimensional geometry (see Ambrosio, 2016 for a review), and Okamoto studied art in post-Cubist, 1930s Paris. But rather than referring to a spatial dimension, Okamoto's use of the term fits more closely with Duchamp's exploration of the fourth dimension, as a temporal extension of spatial experience (Gell, 1998). Duchamp said of his work, *The Bride stripped bare by her bachelors* (or *Large Glass*, 1915–1923):

> I thought of the idea of a projection, of an invisible fourth dimension, something you couldn't see with your eyes.... the fourth dimension could project an object of three dimensions, or, to put it another way, any three-dimensional object, which we see dispassionately, is a projection of something four-dimensional, something we're not familiar with. It was a bit of a sophism, but still it was possible. "The Bride" in the "Large Glass" was based on this, as if it were the projection of a fourth dimension.
>
> (Cabanne & Duchamp, 1987, p. 40).

Duchamp distrusted the notion of perception, believing that its analytic and synthetic qualities make it insensitive to the essence of objects as they come into existence. What Duchamp tried to capture in his work was a moment when energy emerges from matter. When I walk around *The Large Glass*, I glimpse some activity that lies beyond the physical work itself. I get a similar feeling when I walk round a flame pot. I think this is what Okamoto is hinting at.

As the *Holocene* project approached its end, I noticed that the transformations taking place as I sculpted also had a transformative effect on the previous sculptures in the series. It was as though *Holocene 8* foreshadowed earlier work in the sense that some of the influences at play during earlier sculptures were only brought into existence during work on the later one. It makes sense that the creative *thinging* of later sculptures might retrospectively explore the cognitive/material processing of preceding sculptures. But, in addition to this, I am describing a sense that the *Holocene 8* system of creation sculpted itself into a temporal position that pre-dated earlier Holocenes. I wrote the following in my notebook: "Forehaving = 'possibility of this coming to pass' = the experience of making the Holocenes … The later Holocenes may be realisations of what could have preceded earlier ones" (March 8, 2018).

The reference to "fore-having" comes from the Heidegger passage about fore-structure (1962), cited earlier, and the idea that presuppositions do not pre-exist but unfold during a present, ongoing encounter. I am suggesting that the *Holocene 8* creative system sculpted the presuppositions (the fore-structure) of antecedent *Holocene* sculptures and thereby inserted itself before them. I mean by this that *Holocene 8* shaped the material-concepts that were to guide its forebear's development and, by extension, its own. This gave a fluid, bidirectional feeling to the sense of time within the system of creation. Like most activities, sculpting is normally associated with feeling that time moves forward. Here, I am suggesting that there was also a sense of certain eddies and whorls in the flow of time during which the creative *thinging* of sculpting dragged the temporal experience of time into reverse.

To help you appreciate what I mean, here is another everyday example. Sometimes I work on my computer in the kitchen. I may be so absorbed in the task that I am unaware of the noise of the fridge's cooling system until it stops turning. But when it does stop, I do not hear silence. I hear the noise of the motor *after* it has stopped. For a moment, it feels like time goes forward into the past.

In Kobayashi's typological analysis of Jōmon pottery, flame pots take their place in a temporal and geographical network in which regional and chronological patterns of influence connect earlier pots to later ones. Kobayashi describes the changing face of Jōmon pottery in terms of an evolution of cultural and traditional practice. The proposal that *Holocene 8* anachronistically pre-empted antecedent sculptures suggested to the system-of-creation that flame pots might relate to their predecessors in a similar way—by enactively signifying the fore-structure of earlier Jōmon pots.

There are two strands to this anachronistic relationship that can be disentangled if we think about them in relation to the modernist art movement. I will summarize the evolution of modernist painting and then return to the strands. Consistent with the notion of enactive signification, Bernstein (1992) suggests that an artistic encounter arises partially but directly from the materiality of the medium: offering us "a thing's meaning in excess of our meaning it" (Bernstein, 2006, p. 261). This means that how we judge a painting depends, first, on how we define the art of painting and second, on how the material agency of the medium is expressed. Fried (1964, 1968) argues that the transition to modernism took place when the second judgement was integrated into the subject matter of the painting. In a similar vein, Cavell (1979) argues that if the task of modernist art is to create its medium, then we cannot call a painting art just because it is a painting. To qualify as (modernist) art, a painting must express concerns about the nature of painting. Fried (1964) summarizes the development of modernist painting:

> Roughly speaking, the history of painting from Manet through Synthetic Cubism and Henri Matisse may be characterised in terms of the gradual withdrawal of painting from the task of representing reality—or of reality from the power of painting to represent it—in favour of an increasing preoccupation with problems intrinsic to painting itself.
>
> (Fried, 1964, p. 642).

I return now to the two tangled strands, left hanging when I suggested that flame pots have the potential to enactively signify the fore-structure of antecedent pots. The first strand concerns the proposal that a Jōmon flame pot system-of-beholding can engage in a self-conscious exploration of its genesis, a contention mirrored by Fried's definition of modernist painting. It suggests that flame pots may be seen to withdraw from their role as vessels and become preoccupied with the nature of becoming a flame pot. The reorientation and transformation of the indexical traces of coiling to iconic signs, as discussed earlier, exemplify this preoccupation. Fried's definition suggests a straightforward exchange of roles. But Harris' (Harris et al., 2005) analysis of Manet's work captures a nuance in the transition that is otherwise overlooked. Harris suggests that Manet never altogether stopped trying to paint pictures of the world. Rather, in revealing the world by painting, Manet also revealed the means by which its unveiling took place in the painting of it. Applying Harris' analysis to flame pots suggests that they do not need to be experienced as either "a container of food" or as "an ontological exploration" because the pot performs the latter role by fulfilling the former.

The first strand shows how a flame pot might develop self-awareness. The second strand involves temporal experience and how Heidegger's (2002) investigation into the origins of a work of art can explain how a flame pot system-of-beholding can upset the chronology of time. Shmugliakov (2012) draws a parallel between the development of modernist painting, as described above, and Heidegger's view of the artistic process.

We have seen that the central preoccupation of modernist painting was the requirement that a painting justify its painterly manner through emerging materiality. In this respect, Cavell (1976) claims that the concerns of modernist painting were not so different from those of art in general. He argues that self-consciousness was central to all art but went unrecognized until the modernism made it explicit. Shmugliakov sees this as a retrospective application of the lessons of modernism to previous art movements. In practice, this meant that after modernism, it was impossible to experience pre-modern art from a pre-modernist perspective. Shmugliakov links Cavell's paradigm shift with Heidegger's contention that Hölderlin's poems, specifically "The Ister," changed our understanding of the nature of poetry-making forever: "[A]ll essential poetry also poetizes 'anew' the essence of poetizing itself. This is true of Hölderlin's poetry in a special and singular sense" (Heidegger, 1996, p. 9). As with modernist painting, "The Ister" creates itself as a poem through the act of "poetizing," and by doing so, reveals in the experience of reading it that such a meta-creative position has always been a defining quality of poetry. It is as though "The Ister" loops back to change its own historical foundations.

There are two ways of experiencing this looping back. First, if poetry reading is seen as an act that is separate from the poem itself, as expressed by the sentence, "I read the poem," then subject and object are ontologically separate. I (the subject) observe the temporal fluctuations in the way the poem (the object) poetizes itself (becomes its own subject), but my own temporal experience is not disturbed by those fluctuations. In object-subject mode, having read the poem and from my perspective in the present, I see the past differently, but I believe that the past itself remains unchanged. In contrast, consider what happens if the action of poetizing happens as *Dasein*; in a system where the poem and me are a single *thinging* thing. The temporal disturbance created *within* the system is experienced *by* the system and this changes how the flow of time feels. Enactive signification brings forth meaning that is oriented toward the future. But in doing so, it also traces its own past, a trace that did not exist until it was enacted in the present. As a result,

the influence of the poem feels like it happens prospectively toward the past, and time feels like it moves forward into the past.

Returning to flame pots, I am arguing that, within the *Holocene* creative system, the temporal experience of flame pots was analogous to Heidegger's experience of "The Ister." As part of becoming a self-referential ontological act, a flame pot creates a past for itself that is ontologically active in the present and toward the future.

Conclusion

Bailey (2017a) contrasts the rigor with which prehistoric figurines of south-east Europe are contextualized with the anecdotal attempts to understand their meaning. It seems that however well archaeologists situate artifacts in the past, their original sensorial significance will always escape us. Bailey's (2017a) alternative is to "release the restraints of standard archaeological reasoning, and work in a more creative world" (p. 17). If we follow this advice, juxtaposing contemporary art and prehistoric artifact, what do we get in place of anecdote? This chapter offers one answer by presenting *clayful phenomenology*. The approach is predicated on two, interconnected, principles: the importance of mythmaking in the development of knowledge/meaning, and the value of approaching knowledge-making non-coherently.

"Myths are not lies. Nor are they detached stories. They are imaginative patterns, networks of powerful symbols that suggest particular ways of interpreting the world." So Midgley (2003, p. 1) begins her book, *The myths we live by*. She goes on to show the vital role myths play in organizing thought, determining and constraining ideas. In post-Enlightenment culture, the influence of myths, for the most part, is implicit and denied. By shining a light on them, Midgley does not want to reduce the influence of myths, but bring them out of the shadows so we can see the role they play. Although I use "myth" in the sense that Midgley does, as a pattern or network (rather than "myth" as opposed to "fact"), the ontological backdrop to *clayful phenomenology* takes Midgley's definition and pushes it in a direction that I suspect, for two reasons, she would not have liked. First, in *clayful phenomenology*, the patterns and networks are not arranged as symbols linked in imagination, but as material-conceptual events, transformed and connected by temporal contingencies. Second, mythmaking is presented as a system within which myths do not determine the actions of people. Nor do people make myths. In a *clayful phenomenological* system, becoming human is enacted *en boucle* through the iterative weaving and disentangling of mythical, materially expressed, spatially localized networks. "Myth" here refers to an affective-cognitive transaction that takes familiar, culturally accepted notions and transforms them into thing-ideas that were "unthingable" at inception.

This brings me to the second principle, that of non-coherence, a word coined by Law (2004) to describe an assemblage of methods that he thinks we need in order to "rethink our ideas about clarity and rigour and find ways of knowing the indistinct and the slippery without trying to grasp and hold them tight. Here knowing would become possible through techniques of deliberate imprecision" (p. 3). And what he thinks we need are:

> tools that allow us to enact and depict the shape shifting implied in the interactions and interferences between different realities. There is need for assemblages that mediate and produce entities that cannot be refracted into words. There is need for procedures which re-entangle the social and the technical. There is need for the coherences (or the noncoherences) of allegory. There is a need for gathering.
>
> (Law, 2004, p. 122).

Clayful phenomenology is one such gathering, one that enacts the shapeshifting necessary for interaction between realities, that produces entities that cannot be spoken, that makes the social and technical indivisible, that makes allegory from material engagement. A contextual approach to knowledge-making seeks to provide evidence-based explanations based on inferential reasoning. As long as it is not exclusive, there is nothing wrong with that. Non-coherent methods do things differently. Knowing exists ephemerally and synergistically within the reciprocal activity of transient assembly (gathering). Its transience means that the validity of such knowledge cannot be assessed using a truth scale that lies temporally or spatially outside that assembly. I am not suggesting by this that all non-coherent connections are of equal value. I mean that their strength must be assessed by and within the relationships that make them, a situation that is problematic in cultures where education is based almost exclusively on training in coherent methods like numeracy and literacy.

The case study in *clayful phenomenology* presents a process of creative *thinging* that gathered flame pots and a contemporary art process into a system of creation, propagating a new, blended, material-conceptual process. The case focused on temporal experience and how it was experienced by the system. I described how the *Holocene 8* system of creation influenced its experience of itself in relation to antecedent sculptures. The system seemed to shuffle the chronological order of events, inserting itself before its forebears, making time sometimes feel like it was moving forward into the past. Flame pots were drawn in to a similar, phenomenological reversal of time's arrow as they transformed themselves into celebrations of their own mode of production, and as they enacted the materialization of the fore-structures of former generations of Jōmon pots.

In terms of trying to make sense of the archaeological record, the most important point is that the action reported here takes place within a materially and temporally continuous creative system, *Project Holocene*, with signification enacted in and by that system. The confusing non-coherence of *clayful phenomenology* therefore makes one thing clear: Artifacts exist phenomenologically within a contemporary system. They do not return to repeat the sensorial patterns of a prehistoric past.

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Notes

1 With reference to the multitemporal model of the senses proposed by Hamilakis, it is worth noting that enactive signification, as a systemic-specific feeling of meaning-in-the-making, precludes any possibility of gaining access to previously enacted meanings in systemic configurations that are discontinuous with the present one.

2 To improve intelligibility, I add some words (in brackets) that were not in the original.

Conclusion

Each chapter ends with its own conclusion and so I will concentrate here on bringing things together, setting out what I have learned from the research and identifying what I have left out. In keeping with the tenor of the thesis, the content is more discursive than conclusive. The introduction identified the three characteristics of clayful phenomenology that I believe set it apart from other modes of enquiry: subject to system, sculpting as curious intent and non-coherent knowing. The conclusion re-examines each in the light of the research presented across the five chapters. This review leads me to identify an important area of omission in the thesis: the role of letting go during intentional activity and the relationship between material engagement and contemplative disengagement in a creative process. The final section considers letting go and the implications of its omission for future clayful phenomenological research.

From subject to system

The idea that the mind and agency might be extended to include materials and non-human actors is gaining ground amongst academics. Tap the search term *extended mind* into Google Scholar and you will find 69 articles between 1962-82, growing to 359 between 1982-2002 and reaching 16100 for the years 2002-2022. That's a 233-fold increase. I have argued throughout the thesis that once serious consideration is given to the idea that a mind may extend beyond an individual brain, then it begs the questions whether experience also extends beyond the personal, and sentience beyond living things. Another Google Scholar search using the term *extended consciousness* demonstrates a significant but more modest increase over the same period, from 48 to 2210 hits: a 46-fold increase. Yet despite mounting

interest in the idea that thoughts, feelings and sensations may extend beyond the brain, clayful phenomenology is the only attempt I know of to date to give an account of supra-personal experience and to describe what extended sentience might feel like.

To regularise the concept of an extended phenomenological account I want to give it a name *systemive*. By naming it I hope to give extended sentience the same epistemological status as subjective accounts, which concentrate on individual experience and objective accounts, which ignore phenomenological experience altogether.

The dearth of systemive accounts may be because, whenever a sense of extended sentience begins to emerge, it is automatically and immediately interpreted as submerged by and subsumed under personal experience. Even Bateson, who spent his career promoting an ecology of mind and deconstructing brain-based notions of cognition, found it difficult to embrace the phenomenological implications of his ideas. The citation below is taken from a lecture Bateson gave in 1970 (published, 1972). Its message echoes that of a lecture given by Heidegger fifteen years earlier (published in English, 1966) which I will come back to later. Bateson sets out three crucial issues: a radical manifesto for a new way of thinking, his regretful but implacable personal opposition to it, and the existential risks of such personal opposition:

> The individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a sub-system. This larger Mind is comparable to God and is perhaps what some people mean by "God," but it is still immanent in the total interconnected social system and planetary ecology….
>
> If you put God outside and set him vis-à-vis his creation and if you have the idea that you are created in his image, you will logically and naturally see yourself as outside and against the things around you. And as you arrogate all mind to yourself, you will see the world around you as mindless and therefore not entitled to moral or ethical consideration. The environment will seem to be yours to exploit…

> If this is your estimate of your relation to nature and you have an advanced technology, your likelihood of survival will be that of a snowball in hell. You will die either of the toxic by-products of your own hate, or, simply, of over-population and overgrazing. The raw materials of the world are finite.
>
> If I am right, the whole of our thinking about what we are and what other people are has got to be restructured… The most important task today is, perhaps, to learn to think in the new way. Let me say that I don't know how to think that way. Intellectually, I can stand here and I can give you a reasoned exposition of this matter; but if I am cutting down a tree, I still think "Gregory Bateson" is cutting down the tree. I am cutting down the tree. "Myself" is to me still an excessively concrete object, different from the rest of what I have been calling "mind." (1972, page 101)

The Google Scholar searches suggest that Bateson's call to restructure phenomenological experience is beginning to be taken up by contemporary academics. McGilchrist's analysis of hemispheric differences (2010) and his argument for a processual account of the universe (2021) both stem from concerns about the causative link between the Western view of personhood and the perilous state of humanity. And Hickel associates the emergence of capitalism, the dislocation of humankind and the elevation of the self as a "standalone individual" with the collapse of animistic values (2020, page 33). Animism, Hickel claims, "anticipates the core principles of ecological science…everything is intimately connected…As growthism accelerates the sixth mass extinction, the contrast between animalist values and capitalist values could hardly be more pronounced" (page 266). In the face of the planetary crisis, Hickel suggests that we must dismantle the stand-aloneness of you, me and Bateson by adapting animistic ontology and incorporating it into contemporary scientific and cultural belief systems. [1] And finally, for Gosden (2020) the ontological basis of magic has humans embedded and emotively participating in a world in which sentience extends beyond humans to living and non-living things.

[1] Since 2017 Latour has written extensively about the need to re-animate the planet but I am not familiar enough with this body of work to reference it here.

Given the stakes, I want to look more closely at why Bateson has difficulty feeling supra-Batesonian. I want to suggest that extended consciousness may place Bateson into one of his own double binds. Being-Bateson is powerfully and reassuringly self-affirming and yet Bateson simultaneously believes that our collective refusal to move from personal to supra-personal experience threatens the existence of humanity. The trouble is, if he heeds his own warning about the threat to humanity and begins to enter a systemive world, Bateson's sense of self is disturbed and is only restored by the feelings of individual, existential anxiety that this provokes. Although it is difficult to shake free from double binds, one of the lessons of this thesis is that escape from my own subjectivity may be possible by engaging with clay. In CHAPTER ONE I argued that, although double binds constrain language, they have more difficulty ensnaring the material modulations of enactive signification and the non-coherency of thinging. The chapters that followed suggested that although working artistically with clay engenders feelings of anxiety and is indeed associated with the dissipation of feelings of selfhood, the systemive experience is creative rather than destructive. Nevertheless, the episodes of extended awareness that I relate were ephemeral, intermittent, difficult to describe, and offered accounts that were tentative and inconsistent. To some extent the unreliability of reported experience is a problem that besets not just clayful phenomenology but phenomenology in general, and the three criteria for evaluating autoethnography that I presented in the introduction put the onus on the reader for assessing the value of such research by considering the plausibility, credibility and embraceability of subjective accounts. However, I went on to argue that the visibility of sculpted knowledge gives clayful phenomenology an edge over traditional subjective accounts because sculpting allows for a scrutiny of physical change which can be judged alongside the written descriptions of experience. Whereas this does not and cannot communicate directly what it is like to be part

of a sculpture-making-system, empathic engagement with a completed sculpture may give a sense of it via enactive signification.

In addition, by offering specific demonstrations of material engagement in practice, the thesis gives abstract concepts like *dasein* an explicit and phenomenologically active role. The case studies bring *dasein* to life, presenting it in ways that are difficult for Heidegger or anyone else to express with words alone. In the same vein, the process of creative thinging may seem mysterious if you try to understand it with your hands held behind your back (or while holding a book). But mediated directly through and by gesture, the thesis makes creative thinging and the engagement of and by material in general more accessible and easier for the reader to grasp; at least I hope it does.

Overall, therefore, I believe that the thesis gives good cause to consider, if not to accept, that playing with clay gives access to an extended phenomenological experience. Not only is this consideration worth taking seriously in itself but, as I have said, the systemive approach I present here is the only one I know that offers a point of departure for future phenomenological research into extended sentience.

Although the credibility problems that beset phenomenology are mitigated by an MET approach, the persuasiveness of the thesis is undermined by two other issues. The first concerns a lack of rigor in the use of language. For example, when it comes to a sense of agency, I ascribe it inconsistently to the system, to me or to some other actor in the system, as the excerpt from my notebook in CHAPTER FOUR, page 13 illustrates.

> I am confronted by configurations that do not fit into what I would describe as sculptural forms. They clash but seem to impose themselves … a tension between the canons of art and what the system seems to want to do. (*Holocene* 9, 18.12.18).

In the preceding chapters I have repeatedly complained about the constraints imposed by language and, once more, I lay some of the blame for lack of consistency on the way language formats expression. But inconsistency also stems directly from an experience of agency that is itself uncertain and difficult to localize. Although a fluctuating sense of agency is exactly what MET would predict and is something to be explored rather than controlled, in future it would be helpful to find a more systematic vocabulary for mapping its vicissitudes. The second issue concerns the ownership of feelings – which brings me to the next section.

Sculpting as curious intent.

Reviewing the thesis, I noticed that it is suffused with an implicit assumption that feelings, sensations and thoughts belong somewhere – either to me, the system or some other actor – and that this assumption creates an oppositional attitude which manifests either as a struggle over who owns the feelings or an argument about which feelings are correct, as the following three notebook entries illustrate. The first two come from the work featured in CHAPTER THREE, the third from another project *formica alembica* which ran concurrently with the flower project.

> I am becoming increasingly convinced that the project is going nowhere…It is impossible to imagine anything looking good. But I am obviously not convinced, otherwise I would stop. Or would I? Why am I continuing? The octopus tentacle (*a reference to another concurrent project," twist and shout"*) has reached out into different memories, impulses and sensations and it is difficult to pull free from it – even if I want to. Instead, I seem to embrace a sad compunction to continue.". (5.11.18)

> When I am cutting the wire off that comes out of the top (*of a flower)*, dabbing glue on it and sprinkling cooked clay dust – why does this feel like I am departing from the process? Why should this not be part of the process? (4.10.19)

> I didn't want to do them (*make them)* smooth and super-symmetrical, but this was how they were thinged about. Was it because of past works? - alembic vessels or palourde? It was not that I thought I would do it like this. It was that they were thinged like this. (17.4.19)

We regularly express ownership of affect in comments such as "She made her feelings known" or "His anger was written on his face". Such statements imply that minds create feelings. But in the systemic accounts reported here, during which two or more sentient processes share time, space and matter, there are indications that feelings also create minds. Bateson uses art to illustrate the difficulty in reconciling the parallel functioning of different minds with a unity of purpose:

> It is not that art is the expression of the unconscious, but rather that it is concerned with the relation between the levels of mental process…Artistic skill is the combining of many levels of mind — unconscious, conscious, and external—to make a statement of their combination. It is not a matter of expressing a single level. (1972, page 103)

Despite making an underlying and unwitting assumption that affect is the product of a personality or a creative system, the thesis also challenges this assumption by promoting the notion of *sculpting as curious intent* which implicitly undermines subjective ownership. I see now that the consistency of the systemive account would have been improved if I had been explicit about describing feelings as sensorial-motivating qualities of specific intention-in-actions, what herein I will call *affective intentions*. To illustrate what I mean by affective intention I return to the concept of sensor-motor empathy (Chemero, 2016) mentioned in CHAPTER ONE. To recap, *empathy* is a translation of the German word *Einfühlung,* first coined in the late 19th century by Visscher to describe the process of art appreciation. In psychology, empathyis now used almost exclusively to describe the capacity to understand and appreciate another person's state of mind. By coining "sensory-motor empathy", Chemero wants to return to the original and literal meaning of *Einfühlung* - feeling into.

> You experience sensorimotor empathy when your lived body expands, and temporarily includes aspects of the non-bodily environment" (Chemero, 2016, page 8) …" I want to suggest human–tool synergies and inter-personal synergies form when humans feel-into things outside their biological bodies…which is to say experiencing yourself as expanding to include other things." (page 11).

Despite wishing to expand sentience, in the above quote Chemero identifies the human as the origin of the intention to "feel-into things". I think it is easier to follow and describe expanding sentience by going back not only to the origins of the word empathy but to its original context too – art appreciation. If we put down the tool and stand in front of a painting instead, it is easier to sense how feelings emerge from the encounter rather than being caused by the empathic capacities of the tool holder. Feeling-in is a process that brings a painting and onlooker into the same transient system and it arises from the sensorial invitation of the painting as much as it does from the individual's capacity to feel.

To sum up, I have presented empathy (feeling-in) as affective intention: as a motivating, in-betweening phenomenon. By doing so, I am suggesting that it is not emotion that makes a gesture emotional; the two are reciprocally generative. In hindsight, I think I was trying to grasp the concept of affective intention in CHAPTER TWO with the phrase, "it is not the painter that undergoes the emotions, it is the stroking of the brushstroke that is emotional: collapsing material and feeling into a single dynamic, aesthetic gesture." For affect to emerge systemively requires a letting go of subjectivity, something I will return to in the final section of the conclusion.

If gestures are not the outcome of the emotional impulses of the artist but are intrinsicality and affectively aesthetic then, as Bateson (2015) suggests:

> the whole base of aesthetics will need to be re-examined. It seems that we link feelings not only to the computations of the heart but also to computations in the external pathways of the mind. It is when

> we recognize the operations of *creatura* in the external world that we are aware of "beauty" or "ugliness." The "primrose by the river's brim" is beautiful because we are aware that the combination of differences which constitutes its appearance could only be achieved by information processing, i.e., by thought. We recognize an-other [*sic*] mind within our own external mind. (Bateson, 2015, pages 103-4)

Creatura is a Gnostic term that Bateson discovered in the writings of Jung, who used it together with another Gnostic term *pleroma* to describe two contrasting worlds of explanation (epistemological frameworks). According to Jung, *Pleroma* describes a world in which we distinguish between things and describe events in terms of cause and effect. Bateson emphasises that these distinctions "are attributed by us to the *pleroma.* The *pleroma* knows nothing of differences and distinction; it contains no "ideas" in the sense in which I am using the word" (2015, page 96). In contrast, *Creatura* refers to how certain phenomena are brought into existence through difference – or rather, via the sensation of difference. Bateson uses *creatura* to refer to "the world seen as mind"(2015, page 97), by which he means not a private, personal mind but (to use my term) a systemive one. In the passage cited above I understand *creatura* to indicate that the differential, non-linear and unattributed association of "primrose" and "river's brim" is simultaneously intentional and affective (see also CHAPTER TWO concerning the dissolution of sculptor, clay and process).

I am not the only one arguing for a systemic emergence of emotion while unwittingly ascribing ownership to affect. Lakoff and Johnson (1999) set the stage for a description of the role of empathy in ecological terms but, over the course of a few lines, their narrative segues seamlessly from a description of an emergent ecosystem to an explanation couched as an exchange between individual body mechanisms and nature:

> The environment is not an "other" to us. It is not a collection of things that we encounter. Rather, it is part of our being. It is the locus of our existence and identity. We cannot and do not exist apart from it. It is through empathic projection that we come to know our environment, understand how we are part

> of it and how it is part of us. This is the bodily mechanism by which we can participate in nature, not just as hikers or climbers or swimmers, but as part of nature itself, part of a larger, all-encompassing whole. (1999, page 566)

I am proposing that the principle of emotion-as-property undermines my efforts (and those of Lakoff and Johnson) to be consistently systemive. I now want to suggest a possible mechanism by which emotion-as-property achieves this. The assumption that the experience of affective intention belongs to me (is characterological) makes me less likely to notice and acknowledge the emergence of a parallel sentient system, whose genesis is reciprocally linked to parallel affective intentions. And if I do glimpse another mind encroaching on my feelings, the realisation is likely to precipitate an existential tussle over who owns the affect. Until now I have always emerged from these fights with my feelings intact and the fact that I emerge still sentient is taken by that same sentience (myself) as proof that I have vanquished the other. It is this same oppositional attitude: one that interferes with the ability to observe and describe co-existing experiential systems, one that is born from a sense of existential threat, that I attributed to Bateson in the last section.

Although a conclusion is not the place to begin a detailed analysis of why conflict ensues when two or more minds share some of the same access-routes to experience, I think it helps to legitimatise my contention by situating it in the context of previous literature concerning the difficulty of peaceful cohabitation between separate, coexisting minds. I begin by returning to Lakoff and Johnson and what they call “our common-sense understanding of the self ” (1999, page 13).

> Consider the common experience of struggling to gain control over ourselves. We not only feel this struggle within us but conceptualize the “struggle” as being between two distinct parts of our self, each with different values. Sometimes we think of our “higher” (moral and rational) self-struggling to get control over our “lower” (irrational and amoral) self.

> Our conception of the self, in such cases, is fundamentally metaphoric. We conceptualize ourselves as split into two distinct entities that can be at war, locked in a struggle for control over our bodily behavior… (1999, page 13)

Although it is rarely taken or mistaken for common sense, psychoanalysis too is based on the idea that two minds, a conscious/rational one and unconscious/irrational one, are pitted against each other (e.g., Freud & Breuer, 2004, Freud, 2003). Freud later developed this model into a tri-partite system, the *id,* the *ego* and the *superego* (Freud, 1950). Returning to Jung, I have already introduced his two modes of explanation, *pleroma and creatura*. He also distinguishes a personal from a collective unconscious, and in his autobiography he named his own versions – personalities No.1 and No. 2 – and compared the divergent ways in which the two of them understood the world (Jung, 1963). Bion (1957), who I introduced in the introduction, understood human experience to be distinguished by two separate and antagonistic modes of existence: a psychotic and a non-psychotic personality. Sinason (1993) and Sinason & Richards (2014) extend and develop the psychoanalytic differentiation of two personalities into a model of involuntary cohabitation between a psychotic and a non-psychotic mind in which they attribute "the conflicts of inner mental life as arising from the problematic interaction of two different selves." (Sinason and Richards, 2014, page 1)

Turning to neuroscience, research into brain lateralisation demonstrates the extent to which the right and left hemispheres approach and experience the world differently: the left analytically and precisely, the right intuitively, holistically (I would say, non-coherently) (Gazzaniga, Bogen, & Sperry, 1962, Gazzaniga, 1967). Each hemisphere may be responsible for creating different conscious experiences (De Haan *et al*, 2020), and Sperry draws attention to the potential for conflict that this suggests: "both left and right hemispheres may

be conscious simultaneously, even in mutually conflicting, mental experiences that run along in parallel" (Sperry, 1974, page 59). McGilchrist (2010) gives a detailed and vivid account of the contrasting psychic attitudes of the two hemispheres and provides anthropological, historical and neurological evidence to argue that the left has usurped the right as the dominant hemisphere. Finally, Jaynes's (1976) portrayal of the birth of consciousness as the breakdown of the division between the right and left hemisphere (the bicameral mind) can also be re-interpreted as a left hemisphere take-over.

Whereas psychoanalytic and brain lateralisation models situate both minds in the brain, descriptions of inter-psychic conflict are not limited to substance-based accounts. For example, McGilchrist (2021) revisits the findings of his previous book (2010) and reconfigures the evidence of hemispheric opposition into a portrayal of right brain activity as extended and processual. Likewise, Heidegger's (1966) phenomenological exploration of cognition is not concerned with where thinking takes place but by its nature. Heidegger identifies and contrasts two modes of thinking that are not only reminiscent of Jung's *pleroma* and *creatura* but also bear remarkable similarities to the hemispheric differences that neuroscience was contemporaneously discovering. I will describe Heidegger's analysis in a bit more detail because his modes of thinking come in useful in the final section when I turn to his concept of releasement. Heidegger calls the first mode *calculative* and describes how it…

> …computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is not meditative thinking, not thinking which contemplates the meaning which reigns in everything that is. (page 46)

He equates calculative with modern scientific thinking, and to contrast the potential and the peril, he evokes the threat of the atomic bomb and the promise of nuclear energy. When

Heidegger was writing, modernity was developing within these two extreme consequences of quantum mechanics. The first part of Heidegger's text (1966, originally published as *Gelassenheit,* in 1959) is the transcript of a speech from 1955. Part two is the reworking of one of three texts he wrote at the end of World War two as *Feldweg-Gespräche 1944/45* (Heidegger 2010). Given this ominous context, Heidegger's antipathy towards modern technology is understandable. He blames the ascendency of calculative thinking on the Enlightenment from which...[2]

> …arises a completely new relation of man to the world and his place in it. The world now appears as an object open to the attacks of calculative thought, attacks that nothing is believed able any longer to resist. Nature becomes a gigantic gasoline station, an energy source for modern technology and industry. This relation of man to the world as such, in principle a technical one, developed in the seventeenth century first and only in Europe. It long remained unknown in other continents, and it was altogether alien to former ages and histories… (2010, page 50)

> …No one can foresee the radical changes to come. But technological advance will move faster and faster and can never be stopped. In all areas of his existence, man will be encircled ever more tightly by the forces of technology. These forces, which everywhere and every minute claim, enchain, drag along, press and impose upon man under the form of some technical contrivance or other – these forces, since man has not made them, have moved long-since beyond his will and have outgrown his capacity for decision. (2010, page 51)

Heidegger contrasts calculative thinking with *meditative* thinking and provides a definition that reminds me of Law's concept of non-coherence.

> Meditative thinking demands of us not to cling one-sidedly to a single idea, nor to run down a one-track course of ideas. Meditative thinking demands of us that we engage ourselves with what at first sight does not go together at all (page 53).

And in a description which recalls Bion's interpretation of the concept of negative capability, (see introduction and CHAPTER ONE) Heidegger explains that meditative thinking requires a capacity for composure, what he calls *Gelassenheit*. This is normally translated as

[2] And he is not the only one, as we saw from Midgely and Latour in the introduction and CHAPTER FIVE.

releasement but I think *composed releasement* better captures the idea of a readiness to exist in a state of mystery and to wait there without expectations. Heidegger emphasises that *Gelassenheit* requires the relinquishment of will: what we might understand in the context of this thesis as letting go of agency. By relinquishment of will, Heidegger is not prescribing a collapse into passive fatalism. For Heidegger, being meditative encompasses something much more than what we might describe as thinking. Meditative is a way of being that is characterised by a careful attentiveness toward worldly correspondence.

My final example of inter-psychic conflict comes from Latour's action-based account of science (1987) where he distinguishes two divergent views and which he illustrates with the double-headed Roman God, *Janus* (image 1).

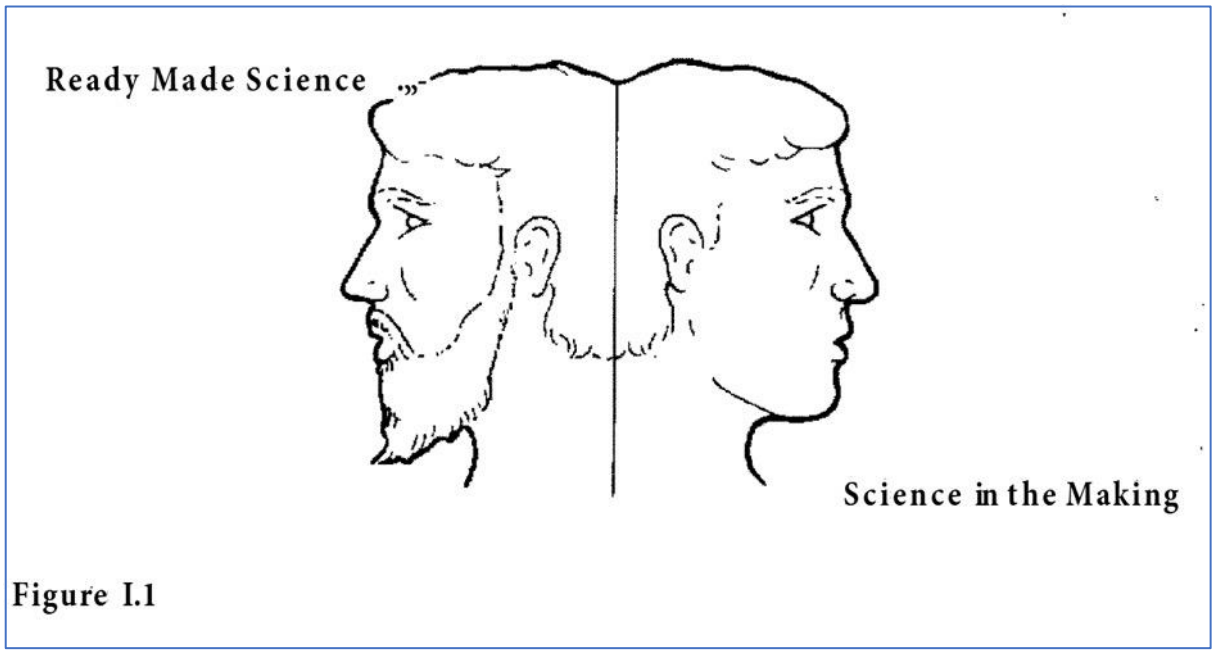

Image 1. Image of *Janus* from Latour's Science in action, which included the following caption. "They are as different as the two sides, one lively, the other severe, of a two-faced Janus. 'Science in the making' on the right side …'ready made science' on the other (page 4) …one that knows, the other that does not know yet…we have to get used to a strange acoustic phenomenon. The two faces of Janus talk at once and they say entirely different things that we should not confuse." (page 7)

Ready-made science is the official version, the face we see in journals. But this face alone gives an incomplete view of the way knowledge develops because it presents an inert, sanitised version of the right side: science-in-the-making. Latour argues that the tendency for ready-made science to separate animate from inanimate and to expunge the former from the narrative greatly interferes with the task of making knowledge. He suggests that we have "two definitions of what it is to do research…one is to be hair splitters, the other 'not to pick and choose'" (2014, page 20). Latour claims that science works not by reducing and dividing but by expanding and linking, suggesting therefore that we focus on the "metamorphic zone where humans and non-humans keep exchanging their properties, that is, their figurations" (2014, page 22)[3]. Latour's description applies not only to science but articulates exactly what goes on in an art workshop. Another Latourian phrase, "transformations of agencies" (Latour & Franke, 2012, page 92) nicely sums up what happens during artmaking, as reported in this thesis. Both art workshop and science lab are construction sites for making knowledge but the mess and uncertainty of construction, while accepted and even celebrated by artists, is less well tolerated in science. Indeed the two activities can be effectively portrayed as cultural opposites by the double-headed *Janus*, with art looking to the right and science to the left.

The visual iconography of *Janus* is ideal for presenting views as oppositional but *Janus's* place in the Roman pantheon as the god of doorways (Mac Mahon, 2003) can also serve to recount

[3] Given Latour is promoting an action-based over a brain-based account, it is odd that he chose to make his point with two heads. But given he did and given what I have just reported about hemispheric asymmetry, it seems to me more than a coincidence that he assigned a mind that is certain, precise and analytical to the left side of *Janus* and a mind of uncertain and expansive action to the right,.

a less divisive *Janusian* story. An important theme of the thesis has been an emphasis on the epistemological importance of holding and entertaining contradictory ideas. *Janus*, the god of beginnings, change and transition can of course point us to the divergence between ready-made-science and science-in-the-making or to the art-science divide but transition can also be toward integration, as Nabokov describes,

> Now and then, shed by a blossoming tree, a petal would come down, down, down, and with the odd feeling of seeing something neither worshiper nor casual spectator ought to see, one would manage to glimpse its reflection which swiftly – more swiftly than the petal fell – rose to meet it; and, for the fraction of a second, one feared that the trick would not work, that the blessed oil would not catch fire, that the reflection might miss and the petal float away alone, but every time the delicate union did take place, with the magic precision of a poet's word meeting halfway his, or a reader's, recollection (Nabokov, 1969, pages 323-4).

To summarise the conclusion so far, I began by suggesting that clayful phenomenological exploration of the activity of an art workshop gives sufficient reason to take seriously the notion of extended sentience. I went on to call this approach *systemive* and to suggest that the difficulty in attending to systemive experience may be partly based on an assumption that feelings belong to us and any other claim on their ownership feels like an existential threat. When disputes over ownership are voiced (expressed linguistically) the two minds become trapped in categorial opposition. In contrast, concepts that are developed through the affective, intentional process of material engagement enables, indeed requires, inconsistencies to be simultaneously enacted and thereby resolved, albeit non-coherently. It is the contradictory relationship between integration and divergence, union, rupture and reunion which I turn to next.

From non-coherent to polyherent.

I discussed non-coherence in CHAPTER FIVE. To briefly recap, Law (2004) argues that coherent research methods are ill-suited to investigating the indeterminate realities of complex systems because they disentangle the very messiness that epitomises such systems. His answer is to work with allegory, by which he means creating explanations that simultaneously express a multiplicity of realities and which, by holding each other under tension, create an inconsistent and unstable coherence.

Looking back over CHAPTER FIVE I notice two issues with the term non-coherence (or my use of it in relation to clayful phenomenology) that I believe interfere with developing a better understanding of the process of creative thinging. First, I understood (or mis-understood) Law to be using *non-coherence* as an alternative opposite to *coherence*. By alternative opposite, I mean that I imagined a triangle of coherence (figure 1) with one edge running from coherent to incoherent, a second edge delineating coherence to non-coherence and the third edge completing the continuum between non-coherent and incoherent.

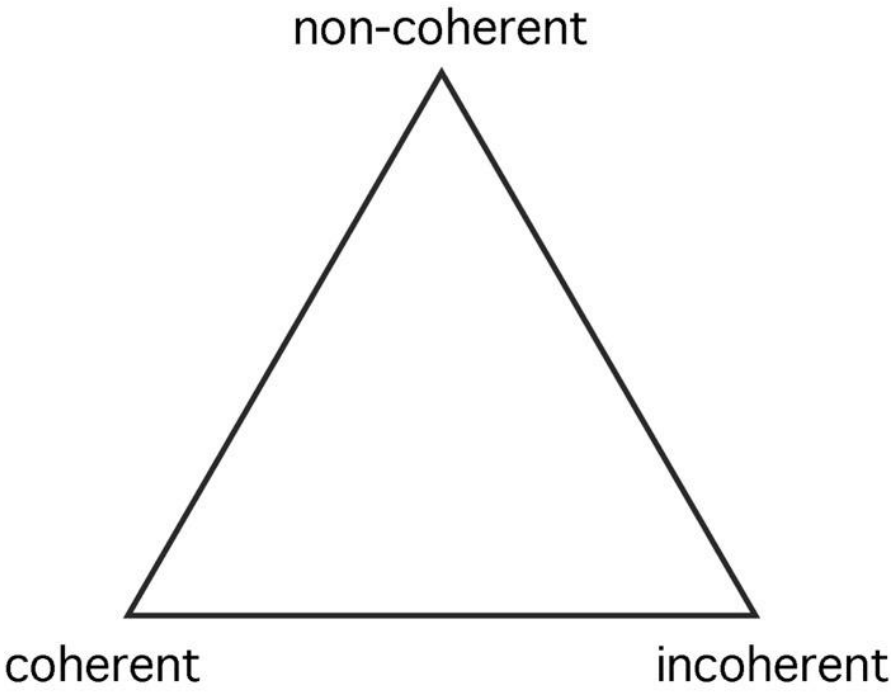

Figure1. The triangle of coherency.

I see now that triangulating an area of opposition undermines both my efforts (and maybe Law's too) to develop a field in which contradictory truths can co-exist. In addition, and more prosaically, the expression *non-coherent* is semantically closer to *incoherent* than to *coherent*. The prefix *non* signifies an absence of coherence rather than a multitude. To address this issue I introduce the neologism *polyherent* to describe more accurately the behaviour of a transient system of creativity. For example, polyherent better evokes the sentiments of a phrase I used in CHAPTER ONE to sum up artistic activity:

> in my experience, artmaking does not begin with an idea but is part of a tumbling, rolling hairball of impulses which gathers feelings, memories materials and disruptions to it. Most of the stuff that sticks is indecipherable in the abstract. The factors that may have precipitated art-making activity only become apparent in the course of the activity.

I now come to the second issue. Although I think the adjective *polyherent* captures the process of artmaking as described in the phrase above, there in an aspect of the process

that polyherence fails to address. The issue revolves around the meaning of the suffix, *herent*, from the Latin *haerēre*, to cling or adhere. The above description talks of how the rolling hairball gathers disruptions to it, but what exactly did I mean by this? When I wrote it in 2017, I wished to suggest that enactive signification is not achieved by taking various material-ideas, adding them together and mixing them up, and that enactive signification is an experiential moment that cannot be predicted in advance by looking at its list of ingredients. Re-reading the phrase six years after I wrote it, I notice its meaning for me has changed: a conative shift that articulates itself around a gap in the way the thesis portrays the process of making knowledge, a gap that concerns the meaning of disruption which has shifted from the sense of disturbance and shaking-up to one of falling away and letting go – the subject of the final section.

Letting go

Earlier I compared the knowledge-making capacities of science labs and art workshops to construction sites. Whereas this is a useful metaphor for evoking how thing-ideas come together and build themselves into previously unthinged ideas, such a categorical definition of construction obscures the extent to which knowledge-making depends also upon destruction, deconstruction and disruption. This is true even for the predefined, artisanal procedures of the building site. The site must be cleared, vegetation cut down and old buildings demolished. Earth must be excavated to make way for foundations, holes drilled, wedges knocked away, scaffolding dismantled, concrete formwork removed, holes cut in wood, pipes, bricks and tiles. Construction is part-subtraction, and when it comes to the tumbling, rolling hairball of artmaking, I suspect that there are nearly as many impulses, memories and materials that stick briefly before falling away – leaving a trace by their

imprint or absence – as there are elements that remain and morph together into thingable ideas. We are evidently less likely to notice the contribution of elements that make a constructive but paradoxical contribution by absenting themselves and perhaps this explains why scant attention has been paid to the phenomenon within archaeology, anthropology and the cognitive sciences.

But the discreteness of deconstruction may not be the only reason for it being overlooked. Perhaps it simply does not happen enough. This is certainly Hodder's (2016) view. He thinks that reversing the process of entanglement is an existential requirement and, in an analysis that lends legitimacy to Heidegger's apprehensions about technology, Hodder looks at the archaeological record of the last 10 000 years and finds that people have got…

> …increasingly caught up in things and in the care and management of things. One thing just seemed to lead to another, as new solutions were found which themselves depended on getting more things. For example, in order to get the wooden posts that helped stabilize houses, people had to travel to upland areas away from the lowland settled villages. And they needed polished axes to cut the trees down. So they also had to travel to sources of ground stone to make the axes. Everything seemed to be getting much more complicated, entangled. (Hodder 2016, page 21).

If Hodder is right, that entanglement begets further entanglement, then it is no surprise that research into gestural activity focuses not on release but on the acquisitive act of grasping or gripping. Indeed, as Sennett (2008) points out, "coming to grips'' (2008, page 151) is also a powerful metaphor for the act of thinking. When we grasp or prehend (understand) something it feels like the idea pulls us forward into the future.

> Prehension gives a particular cast to mental understanding as well as physical action: you don't wait to think until all information is in hand, you anticipate the meaning. Prehension signals alertness, engagement, and risk-taking all in the act of looking ahead." (Sennett, 2008, page 154).

However, following his analysis of grasping, Sennett suggests in passing that such a univocal understanding of grip raises the problem of…

> …how to let go. In music, for instance, one can play rapidly and cleanly only by learning how to come off a piano key or how to release the finger on a string or on a valve. In the same way, mentally, we need to let go of a problem, usually temporarily, in order to see better what it's about, then take hold of it afresh. (2008, page 152.)

Baber, Chemero & Hall (2019) suggest, also in passing, that every gesture contains a predisposition to end itself and move onto the next one.

> A jeweller might arrange their body in response to the task being performed and in preparation to move to the next task. This postural predisposition is common in sports and involves placing the limbs in a position to complete one action and begin the next…posture is adapted to suit future task demands. The posture we adopt not only 'anticipates' the end of the movement but also defines the regulatory parameters to monitor." (2019, Page 295).

In racket sports, the arc of the racket's swing that follows hitting the ball is called the *follow-through* and intriguingly, the quality of the follow-through has an influence not only on the next strike but its disposition appears to influence the quality of strike that precedes it (Howard, Wolpert and Franklin,2015, North *et al*, 2019).

Gibson's theory of direct perception exemplifies the theoretical emphasis on the positive aspects of sense-making at the expense of the negative. In the introduction I described how, in the shadow of mainstream cognitive structuralism of the 1980's, Gibson developed a theory of perception that places the process of perception in the world rather than the brain. The key to direct perception is the notion of affordance. Gibson enigmatically describes the affordance of something as "a specific combination of the properties of its substance and its surfaces taken with reference to an animal" (1979, page 67). I take him to be referring to the relational possibilities between an organism and its environment that are either sticky enough to become salient or salient enough to become sticky (or both). Or as Bardone puts it:

> the human agent operates in the presence of abductive anchors, namely, affordances, that stabilize environmental uncertainties by directly signalling some pre-associations between the human agent and the environment (or part of it). (2010, page 147)

The point is that Gibson's main task was directed toward demonstrating that direct perception establishes saliency more parsimoniously than information processing accounts. But by focusing on the explanatory power of direct engagement, he skips over the transient and diffusional nature of salience and presents perceptual experience as a series of discrete, afforded events. Such a saccadic account of direct perception will only become truly processual when ecological psychology develops into a model that balances the *yang* of affordance with the *yin* of release.

The preceding chapters describe how Malafouris (2013, 2014, 2015, 2018a, 2020b & 2021b) distinguishes MET from hylomorphic models of the mind by emphasizing the engaging potential of material. The case studies go on to demonstrate how clayful phenomenology follows MET by organizing itself around the seductive plasticity of clay. Malafouris (2021b) suggests that "What differentiates process archaeology of mind from other ways of practicing cognitive archaeology is that the former sees thought processes as *hylonoetic* semiotic fields." (page 40). By *hylonoetic* (*hylē* from the Greek for matter and *noêsis* for intelligence) Malafouris is referring to a continuity of consciousness between mind and matter. From a *hylonoetic* perspective, a sculptural project begins by inhabiting a vast field of semiotic possibilities. The unconstrained evolving clay-form is free to develop itself in different directions and the sculpture-in-the-making simultaneously protends many provisional futures. But with every new expression of material intent, other explorative avenues are ruled out and, if the project is to continue, this requires redundant but still

active intentional states to withdraw and drop away from the *hylonoetic* field. At art school when we students were confronted by the impossibility of maintaining two beloved but incompatible ideas, our tutor Philippe Barde would advise us to "*faire le deuil*", to mourn the loss. I found this sensitive advice. It places feelings of pain, loss and letting go at the centre of the creative process. Having said that, the traditional notion of mourning is one that presents emotion as a response and in the previous section I introduced the concept *affective intention* precisely to get away from the tendency to separate decisions from feelings and then line them up in order of cause and effect. Letting go, as an affective intention, does not describe a decision that brings about an emotion. Letting go is an auto-emotive intention-of-loss.

Affective intention brings me to yet another reason why the role of material dis-engagement may be overlooked. Creative thinging intends engagement, hope and expansion. "We like to 'wrest from nature' because that enhances the ego", as Follett puts it (1924, page 119). Likewise, being solicited by an affordance is an affirming experience because it holds the promise of reward. Building a sculpture, writing a paper or constructing a theory are all self-reinforcing. In contrast, as I have just described, letting something go must intend discomforting feelings of separation (and feelings of separation must intend letting go). The misery of these feelings means that instead of experiencing them as creative, letting go is portrayed as the opposite and sometimes as evidence of something going wrong, something to be to turn away from as quickly as possible. As Heidegger (1998) points out:

> Ordinarily we speak of letting be whenever for example, we forgo some enterprise that has been planned "We let something be" means we do not touch it again, we have nothing more to do with it.

> To let something be has here the negative sense of letting it alone, or renouncing it, of indifference and even neglect. (page 144)

I want to make a tentative link between this attitude of summary dismissal and the way we dispose of the debris of mass production and consumerism.

The vast amount of stuff that we refer to as waste is taken away and hidden from us as quickly as possible[4]. I want to contrast this with evidence from *Jōmon* culture which featured in CHAPTERS FOUR and FIVE. Vast shell middens, dating from the *Jōmon* period are found throughout Japan. Situated very close to the settlements that produced them and with diameters reaching more than 100 meters, Uchiyama (2011) estimates that some middens were used for over a thousand years. He demonstrates that the development of *Jōmon* communities and their waste heaps were closely integrated and suggests that the very concept of waste did not exist:

> the manner of disposal found in a shell midden block is totally different to that in the contemporary world. Today we dispose of our waste sending it quickly as far away from our residence as possible, while in J mon culture, the debris of meals, artefacts like pottery and stone tools were placed in the designated block close to the residential area. Moreover, disposal was not limited to the resources since quite frequently human bodies are found in the shell layers. In view of this, shell middens seem to represent the idea that everything should be treated in a proper manner even after the cessation of its practical use. (page 144)

Uchiyama compares the findings from *Jōmon* sites with the archaeological evidence from the Yayoi period which superseded it and replaced the *Jōmon* hunter-forager system with an agrarian culture that arrived from mainland China ca 3000-2500 BP. In Yayoi settlements:

[4] Hidden and yet, as Hodder (2016) argues, our attempts to disentangle ourselves from our own waste are doomed to failure and only result in greater entanglement as he illustrates with the story of the fate of discarded Christmas lights (2016, CHAPTER TWO)

> There is no specific place for collective disposal of household waste. Small shell accumulations are often found within individual dwelling pits instead. This fact implies that, in the Yayoi period, waste treatment became a matter for the household rather than a social ceremony (page 148).

The contrast between the two practices suggests to Uchiyama that the ontological backdrop to the *Jōmon* period was also very different, and he goes on to link the careful disposal of things by *Jōmon* communities with the ritual of *iyomante* performed, until recently, by the *Ainu* people of Hokkaido Island in northern Japan. There are repeated claims that the hunter-forager-subsistence culture of the *Ainu* may have *Jōmon* heritage (see Hudson (2022) for a review) but whether or not this is the case the *Ainu* are certainly culturally, ethnically and linguistically distinct from mainstream Japan. For the *Ainu* there was a circulating relationship between the living and the spirit world. Anything that is acquired in this world, as part of subsistence activity, is seen as only a visitor here.

> Consequently, once the process of consumption is over, the remains of every living being should be sanctified and sent back to the spiritual world in a proper ritual, lest the deities decide to stop sending new goods. (Uchiyama, 2011, page 145)

This is the function of the ritual of *iyomante* which literally means "sending the blessings back". Uchiyama proposes that *Jōmon* shell middens performed a similar function to the *iyomante* ritual. If Uchiyama is right, then for both the *Ainu* and the *Jōmon* there was an explicit and careful acknowledgement of the importance of letting go, with everything being incorporated into a cycle of life and death, a cycle not found in contemporary waste disposal practices. [5]

To complete the cycle of spiritual power between the earth and the other world, Uchiyama suggests that the *Jōmon* people may have performed a complementary ritual, a reversal of

[5] There are examples from contemporary art that explicitly undermine the summary disposal of material culture e.g. Whiteread's House (1993-4), Matta-Clark, Conical Intersect (1975)

"sending the blessings back" to celebrate the arrival of spirits (in the form of prey or foraged things) into their community. He assigns a role to *Jōmon* pots which he describes as performing the task of attracting the spirits into the community. Uchiyama's suggestion is conjectural and in CHAPTERS FOUR and FIVE I summarized Bailey's (2017) critique of the role of such anecdotal explanations in archaeology, so it is enough to say here that it is impossible for us to know if Uchiyama's purported ritual, which he calls, "welcoming the blessings" (page 145), ever took place and if so, whether *Jōmon* pots had a role to play in it. Whether or not the ceremony ever existed *welcoming the blessings* took on a new life as the title of a contemporary art installation (image 2). In the light of the argument that letting go may play an important but overlooked role in creating knowledge, I want to return to the account I gave of that project in CHAPTER THREE to search for signs of letting go. But before doing so I will need to say some more about Heidegger's concept of *Gelassenheit, composed releasement,* so that it can help reveal the role of letting go in artistic activity.

Image 2. Close up of the installation, Welcoming Down the Blessings

You may remember that Heidegger identifies and contrasts two modes of thinking: calculative and meditative. In broad terms, these two modes align with divisions that are already familiar from models presented in the conclusion and in the previous chapters. What Heidegger calls calculative thinking is essentially an objective (left hemisphere/*pleroma*) approach to knowledge making. The meditative mode is more complicated, and I need to be more careful about making a close comparison with right-hemisphere/*creatura* modes of thinking. Meditative thinking certainly exhibits polyherence and a capacity to tolerate negative capability. In addition, the oxymoronic quality of *Gelassenheit*, a state of participative letting go, invites parallels with Milner's notion of contemplative action that we met in CHAPTER ONE. But there is something very particular that Heidegger is trying to get at with *Gelassenheit* and so I want to take you along the same steps I took as I tried to follow Heidegger's analysis.

The first step is to distinguish meditative from calculative thinking. Heidegger believes that both are necessary and yet, as I understand it, their modes of functioning are incompatible. Even if we accept that each mode has different functions in different domains, the inconsistency between necessity and incompatibility is only partially resolved. Calculative thinking is purposeful. It concerns itself with acquiring the necessary resources for staying alive. This concern is not about finding meaning but about fuelling being. Such acquisitional behaviour is presented by Heidegger as antithetical to the meditational mode, and here follows the contradiction that Heidegger allows but does not attempt to solve. Calculative thinking creates and maintains the physical conditions necessary for meditative thinking to enter a state of purposeless intention, a releasement from acquisition.

Putting the contradiction aside, let me move onto look at the qualities of *Gelassenheit* or *composed releasement*. First, it is not concerned with renouncing will because renouncement is, in itself, an act of will. What Heidegger means by releasement is neither an avoidance of activity nor a collapse into passivity. It involves the letting go of subjective experience in favour of an openness to correspondence, a preparedness to abide with (rather than acquire with intent) the manifestations of surrounding beingness.

> to let things be – does not refer to neglect and indifference but rather the opposite. To let be is to engage oneself with beings… that is, to let beings be as the beings that they are – it means to engage oneself with the open region and its openness into which every being comes to stand, bringing that openness , as it were, along with itself…
>
> …To engage oneself with the disclosedness of beings is not to lose oneself in them; rather, such engagement withdraws in the face of beings in order that they might reveal themselves with respect to what and how they are, and in order that presentative correspondence might take its standard from them. As this letting-be it exposes itself to beings as such and transposes all comportment into the open region. (Heidegger, 1998, page 144)

In his confusing way, Heidegger is suggesting that we find human nature in something that is other than human nature. For example, earlier this morning, before sitting down to write, I was cycling in the mountainous forest above my house. The rain is easing as I leave and, by the time I arrive at the top of the climb, the road is gently steaming, and I can smell freshly cut wood. Now, to try and indicate what I think Heidegger means by *Gelassenheit* , I will remix the last sentence. Water and odorous, sap molecules envelop bike, body, road and forest and, as they pass through my nostrils and into my lungs, the horizon of being releases itself into freshly cut wood.

Follett's (1924) difficulties in describing the nature of the "adjustment" (page 117) between human and environment can help to give a perspective on releasement. She writes, "we are

neither the master nor the slave of our environment…but also we cannot…say that the organism adjusts itself *to* the environment." (page 117) Like *Gelassenheit,* it is easier to say what adjustment is not than what it is and Follett, at a loss to give an abstract positive account, gives instead an agricultural metaphor which not only meets her needs but can be applied to *Gelassenheit*.

> We prune and graft and fertilize certain trees, and as our behavior becomes increasingly that of behavior towards apple-bearing trees, these become increasingly apple-bearing trees. The tree releases energy in me and I in it; it makes me think and plan and work, and I make it bear edible fruit. It is a process of freeing on both sides. And this is a creating process. As we have seen, the release and the integrating are the same process: this is one of the profoundest truths which psychology has given us. (1924, pages 118-9)

Now with an unsteady understanding of *Gelassenheit* in place, I can review the project, *welcoming down the blessings* from the perspective of letting go. In CHAPTER THREE I describe how a novel composite of clay and fibre developed itself into an installation of unidentifiable, tuberous flowering plants. I normally add a small amount of flax and/or paper fibre to clay to improve strength and workability. Out of curiosity one day, I significantly increased the proportion of fibre to clay, by a factor of 1000, creating an odd new composite material that exhibited qualities (as expressed by its relationship with sculptural gestures) that were quite unlike those found in ordinary clay. The project therefore begins with an affective intention: the excited, gesturally mediated realization that fibre-clay could serve as the basis for exploring the process of material engagement. Specifically, it could offer a way of investigating how gestures develop that correspond to and with a novel material. This new intentional state brought forth a hand-clay system that invited a hesitant, uncertain attitude of free-floating gestural exploration but the flip side of bringing forth was the need to let go of habits, by which I mean the well-established artistic intentions of the workshop. This felt unsettling, as the notebook entry below indicates:

> Artistically there is little clue that I am making art. But I am making something. What does it mean to

> have no sense that I am in a creative relationship with material? If I continue, how will this develop? Not interesting for my art but interesting for PhD – so now the two have become fused and it feels pretty numbing. I am used to having gestures that feel like they mean something and here they do not…it does not seem to be pulled forward by an artistic enterprise. (7.11.18)

Follett (1924) sees the formation and organisation of habits to be critical to being and the expression of being.

> While habits are being formed the whole organism is affecting the formation of each separate habit. That is, that organization of action systems which we call the organism is influencing each separate action system even while the action systems are making the organism. (pages 99-100).

Which is why disrupting them is so unsettling.

In terms of *Gelassenheit*, the alignment between gestures and the sensation of fibre-clay is like the release-of-being into freshly cut wood that took place during the cycle ride. But there is also an important difference. In the case of fibre-clay, years of habit-forming/being-forming offered resistance to release. The first part of the account in CHAPTER THREE ends with the following sentence:

> The activity continued in this desperate mood and a work-rhythm eventually established itself as, one after another, lumps emerged with the form and regularity of dung, with nothing to distinguish one from another. (CHAPTER THREE)

I examine the next section of CHAPTER THREE in detail and so I cite the two relevant paragraphs in their entirety:

> A week later, I was at a meeting at the United Nations in Geneva as part of my work with an NGO. After about 20 minutes of careful concentration, my mind began to wander as we can see in my notebook (Image 3, left) At the foot of the page, I am doodling lumps while thinking about the Swiss Ceramics Museum, an ostentatious building set in spacious grounds just beyond the UN conference hall. Earlier that summer, while wandering the museum gardens I came across a cloistered area containing a rectangular basin. Perhaps a former water basin, it was now beautifully planted with wildflowers and grasses. (Image 4). Someone on the podium said "... call to action... systemic response...". In my notebook, I wrote these words at the top of the next page where there is also a recognisable sketch of a flower and the word *Hortus.* (image 3, right) Latin for enclosed garden, I had learned the word a few weeks earlier when the theme for a biannual ceramics competition was announced - '*Hortus*. The Garden Invades the Table'. Perhaps it appears here because of the proximity to the cloistered area in the museum gardens.

As the doodle creatively thinged about *hortus*, it provoked a memory of two themes in the paintings of Anslem Keifer; ancient landscapes and sunflowers (see for example Osiris and Isis [1985-7] and Morgenthau Plan [2013] at the Royal Academy website, London). The memory led in turn to thinging-through-doodling about whether it was possible to conceive of something that was both a flower and a landscape. As the doodle conceded with disappointment that it was not, the possibility of fibre-clay developing into flowers did become a thingeable idea.

Back in the workshop that afternoon, I returned to the familiar gesture of pressing fibre-clay between thumb and forefinger but now the gesture enacted a different significance- a damaged, desiccated petal was learned into existence in front of me, one that suggested a fossilised flower or one that had been petrified by the ash of Pompei.

Image 3. Left: At the bottom of the notebook page my mind wanders back to the preoccupations of the workshop. Right: a systemic call for action provokes further doodling.

Image 4. The enclosed basin of the Musée Ariana

The first thing to draw attention to in the above passage is how the action moves away from the workshop. This imposes a separation, a disengagement from the materially configured monotony that the fibre-clay gestures had established there. Then, after twenty minutes of careful concentration at the UN, a second disengagement takes place. A doodling reverie moves attention away from the work of the NGO. The content of the doodled sketches suggests a return to the preoccupations of the workshop. Thing-ideas begin to congregate on the pages of the notebook: a flower, an enclosed garden, the paintings of Anselm Kiefer, etc. As these elements gather, the doodling puts in motion an impulse to consider whether a flower and a landscape could become a single thing-idea.[6] This notion, considered and

[6] Woolf (1935) gives a good example of the revelatory powers and the affective intention of doodling "Anger had snatched my pencil while I dreamt…" (page 24)

regretfully rejected, marks a *Janusian* transition. One face (the right?) sees an affective-intentional moment of letting go, a release that allows the nature of the developing gestural action in the workshop (its being) to reveal itself as petal-making. The other view (the left?) looks out not on release but on return. Here we see that the regretful rejection intends to turn away from the uncertain miasma of doodling possibilities and flee towards a process of production, one that delineates things by making them, a fixing action that turns *being* into *been*.

To explore the concept of material dis-engagement a little further, let us return to the workshop two months after the doodling reverie at the UN. Having resolved themselves into flower petals, the gestures and attention of the workshop turned next to the other end of the flower, the base. A provisional solution, in the form of a self-standing tuber, soon developed but by 7 November, despite weeks of work, I found myself staring at yet another unconvincing iteration (image 5). I turned to two other examples (image 6), recently fired, and I set them on the worktable in an effort to address the situation. I recorded the following in my notebook:

> The little one looks more interesting. Its form is less soft. It has more attitude. The big one has the visual appeal of a sausage. The small one of stones. (see photos 7/11/18, 16:15, *image 6*). In making the rhizomes there is little sense of creativity – no feedback. The rhizomes make themselves but with little idea to what end.

The situation continues for a further couple of weeks until, early one Saturday morning (24.11.18), I record the following thoughts:

> I have woken up but remain in a hypnogogic state. I am thinking of the flower… mainly I am bothered by how interesting *I think* they ought to be and that they do not seem to be able to achieve their potential. I am particularly bothered by the rhizome which, following Marianne's comment, now

looks too much like shit (*Marianne is one of my gallerists. She had visited my workshop two weeks before and, seeing the rhizomes (tubers) had said she thought they looked like "crottes de merde" (turds).* There is no tension of creation in them. They come to hand too easily. This realization comes about *as I am thinking* about the base (*the tuber*) being in the shape of a bulb – like an onion/daffodil/tulip – but craggy, like a rock.

In a state of contemplation, I feel the stem growing out of the bulb. (*and in so doing*) The bulb fulfils its purpose and (*I imagine that*) the act of sculpting follows this purpose – the stem grows from this purpose.

Up until now I *was waiting* for the forming rhizome to give a clue as to it whereabouts – *where* the stem might arise from - *what part of the rhizome* - as though the stem is an after-thought to the rhizome, not its raison d'être. The base (*the rhizome/tuber*) needs to assert itself sculpturally as the agent of the stem.

This hypnogogic state subtly influenced the subsequent behaviour of the stemmed flowers and the tubers and, more importantly, the gestures relating the two. Before this episode of hypnogogic contemplation, although the system of creativity manipulated the flower-stem and the tuber as though they belonged together there was a failure to inhabit and thereby enact their union. Let me present this from the perspective of Heidegger's two

Image 5. A moment of discouragement that stretches into weeks.

Image 6. Little sense of creativity here.

modes of thinking. The desperate reiteration of similar gestures, the intention of which was to find the right form for the sculpture suggests that the gestures were seeking solutions rather than sense; that they were calculative, not meditative. For the system to gain release from these repetitive attempts to reach a resolution, it was necessary to consider the problem in the absence of a material agency that had got itself stuck in a cycle of enactive non-signification. Away from the workshop and released from the activity of making, the system was able to sense the stem growing from the bulb and to develop similar intentions to those of a tuber growing a flower.

By considering the role of letting go, I am not trying to retrospectively repair an oversight in the thesis, nor to develop a detailed description of releasement and the processes involved.

By presenting the above example, in which dis-engaged, hypnogogic meditations about recent patterns of un-creative thinging released the subsequent process of thinging from those unproductive material constraints by postulating an alternative intentional state, I am thinking about future research into knowledge-making systems and the potential benefits of looking at the interplay between engagement and material disengagement. I am not suggesting by this that we go back to the notion of prior intention. I am thinking instead about letting go in terms of a releasement from the constraints of context (in this case the workshop) and how this might facilitate the formation of *intention-in-inaction*. The first step towards the future might be to use blending theory (Fauconnier, 2018, Seligman, 1976, Kirsh, 2009 Minissale, 2013) as a framework for looking at the role of context, or more precisely, the removal of context in the development of intention-in-inaction.

To sum up, I have claimed that the thesis presents enough evidence to warrant taking seriously the systemive account proposed therein. Having said that, extended sentience as a mode of being proved to be elusive, transient and emotionally troublesome. Whereas it is easy to distinguish clayful phenomenology from objective and analytical modes of knowledge-making, the final sections of the conclusion on sculpting as curious intent, polyherence and letting go indicate how tricky it is to separate systemive from subjective perspectives. Perhaps these divisive efforts were ill-conceived and the conclusion ends with an appraisal of the role of releasement from the perspective of Heidegger's mediative mode of thinking, a perspective which focuses not on distinguishing subjective from systemive but on an understanding of human becoming as an openness to the dispersal of subjectivity into an expanding horizon of non-human beingness.

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