

Metaplasticity rendered visible in paint: *How matter ‘matters’ in the lifeworld of Human action.*

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Abstract Recent theoretical and philosophical movements within the study of material culture are more carefully attending to the variety of ways in which human artefacts, institutions, and cultural developments extend, shape and alter human cognition over time. Material Engagement Theory (MET) in particular has set out to map, explore and understand the relational nature of mind and material world as can be read through cultural artefacts. Within the context of MET, the neurological concept of metaplasticity has been expanded to include the affective domains of technology, materials, and things in the neurological development and architecture of the plastic human mind; a ‘transactional’ relationship between a plastic mind and a plastic material world that are correlated at the ontological level. The challenges of mapping this metaplasticity of mind lie in understanding how the mind and material culture should be understood in relation to the constantly changing lifeworlds of humans over time; the ecological, social, technological and environmental contexts that form the historical specificity of cognitive development. This paper explores how the historical specificity of metaplasticity can be made tangible through the study of material culture, focusing upon the particular activity of oil painting. It will be argued that paintings can provide clues to the historical specificity of the mind that crosses the lifeworld of human action; the technological, phenomenological, philosophical, material, and social conditions underpinning the creation of a painted mark. Drawing from a range of sources that have a root within a Deleuzian process philosophy, the paper builds an account of painting that can be read as expressing the encultured and historical manipulation of paint as an expressive material in itself; an action rendered visible that express the historical emergence of mind.

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1 Introduction

Recent developments within the study of material culture have focused attention upon the efficacy of things in the ongoing development of human institutions, recasting the reach, architecture, and development of human cognition across all domains of material culture. Within pre-history, Shryock and Smail (2011) recognise the “long reach of the nervous system” (pp. 62–65), taking cues from contemporary neuroscience, that extends beyond the body and into the domains of cultural artefacts, regimes, and practices as a neurological prosthesis, writing themselves upon the plastic phenotypical and cognitive developments of the body. They cite the thirteenth century *Ebstorf mappa mundi* — portraying the world as one vast body of Christ with hands, head and feet at the extremities of the map itself comprised of settlements rivers, walls, and beasts — as more than just a metaphor, rather as a neurologically accurate description of the human body as a vastly interconnected nervous system (p. 64). Providing examples of how the use of tools and technologies such as language, the exchange of goods, migratory practices, as well as ecosystems and dietary habits alter the phenotypical development of the human body over time, they recognise that the body is something that is written by history; by regimes of labour, diet and tools, but also by letters, sounds and images.

This long-reach of the nervous system draws our attention to how more than just evolving (in a strict Darwinian sense) we alter our own developmental pathways by making and changing the very material means by which we engage the world over time. Within Cognitive Archaeology, Malafouris (2015) has noted that through the design, use and redevelopment of technologies, tools, infrastructures, practices, and ideas we create things that alter the ecology of the human mind – reconfiguring the architecture and boundaries of human thinking and the ways we understand and make sense of the world. We, as Malafouris (2015) recognizes, create new things, embodied situated practices and institutions which in turn expand the architecture of our minds and ourselves. In recognizing more fully this openness of the human mind to a creative model of evolution, Malafouris proposes more of a sustained focus upon the “ongoing relational transaction” between brain, body and world within which evolutionary trajectories are recognized as shaped as much by human activity as they are by traditional Darwinian processes of natural selection.

Recognising that the minds inherent plasticity has a reciprocal openness to cultural influence and variation, Malafouris (2013, pp. 46-47) recasts the Neuroscientific term ‘Metaplasticity’ as referring exclusively to the emergent higher-order properties of synapse plasticity to more broadly including the extended characteristic of neural development that constitutes the intertwining embodied mind and material world through material engagement. Metaplasticity reframed in this way concerns “the mechanisms that mediate these plastic changes, not at the level of the individual, but at the systemic level of enculturation and social practice” (p. 49). This recasting of Metaplasticity takes account of how the human brain is an extremely plastic, and culturally situated, bio-artefact permeated by history and mediated by material culture.

Comparing the brain to that of a piece of clay, Malafouris points out that brain is as much a cultural artefact as it is a biological entity, understood as both an artefact of culture and a cultural artefact:

“Like any other item of material culture, the human brain and body can be grown and molded into different styles. Like a piece of clay thrown on the wheel of culture, the human mind and brain is subject to continuous re-shaping, re-wiring, and re-modelling (2010, p. 55).

Malafouris (2015) calls for renewed attention upon the continuity of action between brain, body and material culture, within which material culture itself plays a fundamental role in cognitive development. To do so, Malafouris suggests revisiting the process philosophy of early twentieth century — comprising the work of A.N. Whitehead, H. Bergson and J. Dewey — which advocates an organism-environment model of life that helps to extend a narrow representational view of cognition into a “transactional” process of mutual co-constitution between brain, body and world. Such ideas help to overcome an inherent limitation to the logic of a passive interaction between brain body and world as discrete domains and to recognize instead the dynamic “transactional” interplay between them over time. This philosophical framework allows for an understanding of the different forms and properties of this transactional co-constitution of brain, body and world through which we are able to more fully understand the metaplasticity of the human mind. The challenges of such an endeavor lie in understanding not only how the metaplasticity of the mind and material culture should be understood in relation to the changing ecological, social, technological and environmental contexts that form the historical specificity of cognitive development, but also how this can be made tangible for empirical analysis.

This paper explores how the historical specificity of the metaplasticity of mind can be made tangible through the study of material culture. The paper grounds its exploration within the development of enactive accounts of mind applied to the study of material culture, particularly Material Engagement Theory (MET) (Malafouris 2013), which aim to better understand the historical specificity of organism-environment coupling and the development of cognition over time. Within this context, I will explore the particular activity of painting, and suggest that paintings can give us clues to the historical specificity of the metaplasticity of mind that crosses the technological, phenomenological, material, and social conditions underpinning the creation of a mark. I will draw from a range of sources that have a root within process philosophy; John Dewey (Bentley and Dewey 1949), who pays particular attention to how the material world of matter and the lifeworld of the embodied subject are correlated at the ontological level, proposing the philosophical concept of ‘transaction’ between entities rather than that of an ‘interaction’ within which matter and meaning exchange characteristics over time; and Gilles Deleuze (1981), who builds a materialist philosophy of painting which promotes the ability of paint to express the encultured and historical manipulation of it as an expressive material in itself; an action rendered visible that express the historical emergence of mind.

Through paying attention to the basic visual elements of an image, its quality of line, composition, thickness of paint, a Deleuzian Phenomenological reading of a work of visual culture - a modernist painting by Manet c1863 - will be undertaken to uncover some of the ecological, technological, perceptual and imaginary determinants of the

period that are rendered visible in the painted marks. Reading the formal characteristic of a work in this way provides clues as to a historically specific mode of action that is rendered visible through the marks that are made, giving clues to the changing technological, perceptual and ecological lifeworld of human action from which the work is brought into being.

2 Enactive mark-making and painting

Material Engagement Theory (MET) (Malafouris 2008a; Malafouris 2010; Malafouris 2013) has focused attention upon the interrelationships between mind and material world as can be read through cultural artefacts, its key aim to better understanding the long-term developmental co-evolution of mind, culture and material world. Informed by Enactive models of cognition (Varela et al. 1993) MET approaches the study of material culture as emergent within human activity and aims to provide access to the metaplasticity of a mind that is coupled to the material world through action. Within the study of material culture, enactive accounts of practices such as drawing reveal the constantly changing and developmental relations between form, hands and surface that result in cultural artefacts, the differences in composition and form over time pointing to crucial differences in the development of cognition over time.

Studied as a result of relations between hand and surface, depictions are understood as an enactive sign (Malafouris 2013) that can help us visualize the constitutive intertwining of cognition, culture and material world. As an enactive sign, mark-making should be approached not as a passive representational object but rather as an active prosthetic perceptual means of sense-making,¹ created through a technologically mediated activity of drawing, scraping or engraving as emergent products of the perceptual dynamics of a non-representational kind. Here, marks are “more than the representational residues of human intentionality [...] not a “trace” of gesture, but an actual part of such a gesture in space and time” (Malafouris 2013, p. 191). Within MET, the study of mark-making begins not in terms of the final image and what it may be of or about but in terms of the most basic visual element of the image (pp. 200–201), the individual stroke itself; the forms contours, and compositions of the lines, which provide clues as to the tools, gestures, materials and experiences involved in the generation of the marks themselves.

To help describe the creative activity of material engagement that underpins human activity, Malafouris (2014) introduces the term *thinging* to articulate the kind of cognitive life instantiated in acts of thinking and feeling with, through and about things in the ‘actual occasion’ of activity. Malafouris’ use of the term *thinging* aims to retain a

¹ In describing drawing as an enactive process, Patricia Cain (2010, p. 55) equally maintains that the final image created by any process of depiction (what it may appear to represent) is the visible and tangible by-product of the entire enactive process that produces it. Cain likens drawing to Maturana and Varela’s (1979) autopoiesis, a system that is brought forth by itself through recursive generation of its own organisation. The kinds of knowledge and sense-making that emerge through drawing are “brought forth through the practitioners own recursive circular patterns of human processes and his or her interactions with the environment” (Cain 2010, p. 48). Drawing, as an activity, evolves through circular patterns of processes between practitioners and his / her interactions with the world, each mark made emerges through negotiation between organism and the material world in relation to its own history of development in a processual way (p. 55).

Heideggerian sense of 'gathering space and time' whilst adding a specific focus upon the kinds of cognitive lives instantiated through thinking with, through and about material things at different points in space and time (p. 142). Malafouris' main focus is with what he terms the *hylonoetic* field of human becoming; the entwined relationships between mind and matter that results in the creation of material artefacts. To explore this field, the concept of *creative thinging* is used specifically to account for the active participatory process by which things are presented to us through the act of material engagement, an activity that involves time-varying and culturally specific bodily techniques which extend to sensory and cognitive domains.

Exploring *creative thinging* through describing the creative activity of forming a vase out of clay, Malafouris (pp. 149–150) uses the term to refer to a saturated entanglement of thinking through and working with materials, exploring creative activity not as the materialisation, actualisation or externalisation of a performed creative idea in the head, but rather as the making of the creative idea itself through action. By looking at the processes responsible for a vase coming to be, Malafouris describes a *feeling of and for clay*, a process of becoming attuned to the forces of matter and form generating skills that require to forms of material consciousness; as a manifestation of material agency – an awareness of working with a specific form of “animate” or “vibrant” matter; and a “tectonic awareness” that becomes realised through the harmonious negotiations and improvisations between fingers and material. These forms of material consciousness are processes of the vase's creation, and as such are expressed in the vase as it is made, an expression of the potters encultured and embodied response to a material at a certain point in time.

This *feeling of and for* materials that Malafouris describes through clay resonates with an alchemic theory of painting explored by James Elkins (2000). Elkins builds alchemic account of oil painting that points to the indissolubility of experience and matter in a collaboration or co-creation of the marks made. For Elkins the practice is a negotiation between body, water and stone through which the ongoing dialogue with the material:

A painting is made of paint—of fluids and stone—and paint has its own logic, and its own meanings even before it has been shaped into a Madonna. To an artist, a picture is both a sum of ideas and a blurry memory of 'pushing paint', breathing fumes, dripping oils and wiping brushes, smearing and diluting and mixing. [...] The material memories of a picture—every painting captures a certain resistance of paint, a prodding gesture of the brush, a speed and insistence in the face of mindless matter: and it does so at the same moment, and in the same thought, as it captures the expression of a face (p. 3).

Elkins' logic of painting is a logic that emerges between painter and material, a thinking *in* and *through* painting as a posed to a thinking about painting. Focusing attention upon the study of Oil painting, Elkins reads the marks created by a number of modernist and modern painters in terms of the gestures that make the marks. Reading a section of a Sessetta (pp. 4–5) he notes how the fine details of the face are created through slow, careful pleasurable, and repetitious manipulation of droplets of pigment. This is in stark contrast to the strokes of a Monet (p. 17) within which he finds a

“timidity and violence, of perfect control and preparation and perfect abdication of control in execution”, a stroke that requires real brute force and a highly stretched canvas to deal with the rough treatment of the paint by the artist. For Ekins, the sum of the painter’s brush strokes is the evidence of the artist’s manual devotion to the image responding to the material medium itself as they paint. It records the most delicate gesture and the most tense, and as an artifact that is “cast in the mode of the painter’s movements” (p. 5) a painting is always a portrait of the painters embodied thinking at that moment in space and time, a portrait that can be read as evidence of the artist’s cognitive development rendered tangible through action fixed in paint.

Elkins’ focus upon the indissolubility of embodied experience and matter resonates with Deleuze’s (1981, Deleuze & Guattari, 2004) philosophy of painting which explores the ability of paint to express a complex of interwoven forces that cross human, non-human, material and environmental worlds. Deleuze (1981) explores the work of Francis Bacon as someone concerned with the expressive materiality of paint felt as “something deeply alive, to be full of thought and expressive meaning, even before it is formed into the resemblance of a landscape” (Ambrose 2006, p. 192). Deleuze develops a radical materialist philosophy of painting, following Henri Bergson, which focusses upon the ontogenesis of forms – the conditions of their becoming – conditions that cross the personal and subjective as well as the non-human, material and cosmic forces of the activity. This shift from a hylomorphic to a morphogenetic model of creativity and life, inspired by Gilbert Simondon, places attention on the laws of “an interior to the earth opposed to the laws of its surface” (Deleuze 2004 p. 7), the material, environmental, geological, and cosmic conditions that lie under the apparent fixed and stable surface – or form - of the world.

Deleuze builds a model of an artistic sensation that results in the creation of works as something more than the internal subjective response to a mechanistic external world, attesting to the reciprocity of subject and object, the immersion of a body within a world that is itself volatile and active:

“Sensation has one face turned toward the subject (the nervous system, vital movement, “instinct,” “temperament”) [...] and one face turned toward the object (the “fact,” the place, the event). Or rather, it has no faces at all, it is both things indissolubly, it is being-in-the-world. [...] [I]t is the same body which, being both subject and object, gives and receives the sensation”. (Deleuze 2004, p. 25).

For Deleuze, a painterly model of sensation is a “telling” at the level of an organism-environment coupling (a being-in-and of-the world), an arrest or snapshot of motion in paint which recompose the movement in all its continuity, speed and violence (p. 29), a movement “in place”, which for Bacon referred to “the action of invisible forces on the body” (p. 30). This moment of sensation has a phenomenological and existential character referring also to the different sense organs that take part; between colour, taste, touch smell, noise and weight. The painter, in arresting forces of the cosmos would do so equally through the character of their own phenomenology, “making visible” (p. 30) an original unity of the senses and the forces of the environment acting upon the body through paint.

For painting (by which Deleuze refers to Modern painting in particular), before any figural formation there is a material logic at play, a logic of vital matter, a matter charged

with energy, which he terms a “material-force” relation that is rendered visible in paint along with the gestures of the artist. Deleuze uses Paul Klee’s formula that the task of art is “not to render the visible, but to render visible forces that are not themselves visible” (1981, p. 40) which Deleuze mobilizes to explore the immersion of the body within an energetic world – with its own invisible forces – that act upon the body. The forces are a condition of sensation as “for a sensation to exist, a force must be exerted upon the body” (ibid), the force giving a character to the sensation and the sensation giving a character to the force. In this way, the task of painting is to paint or ‘capture’ forces (p. 41), to render visible the invisible forces that constitute the conditions - the ontogenesis - of the painting itself. It is in this way that Deleuze (p. 42) finds for Cezanne the task of painting was to render visible the folding force of the mountains, and for Van Gogh it was the capturing of the unheard-of force of a sunflower seed.

3 A historical specificity to organism-environment coupling

These enactive and materialist accounts of mark-making and painting reveal that to study depictions and paintings in terms of the gestures and movements that render the line, rather than what it may depict, gives clues to the cognitive development of the human mind that is shaped by the material world; a *creative thinging* that is brought about through paint. What is also clear from these approaches is that to include the material world into the cognitive equation, we cannot just insert material properties of things, there is a historical specificity to matter itself. Elkins (2000, p. 93) draws our attention to an important aspect of this historicity, regarding painting, that the naming of commercially mixed colours used in the more recent work of a Pollock may look similar to those of the eighteenth century, but due to their alchemic production using metals and stone would have been named and would have *meant* differently, resulting in very different interactions and experiences with the materials themselves, there is no Alchemic significance in Pollock as there would have been in the eighteenth century. To insert the ‘matter’ of material culture — the oils of the painting — into the study of development of cognition over time, we have to equally pay attention to the character of the material world in terms of how it means in relation to the embodied practitioner, their abilities, philosophies, shared beliefs and experiences at that particular point in history and geographical location.

The broader context of enactive organism and environment coupling provides a philosophical framework to investigate the historical contingency of mind and matter within the context of MET; *the extent to which mind and material world are reciprocally co-constituted at the ontological level*. Evan Thompson (2010) summarises Varela and Maturana’s Enactive model of life focussing upon the reciprocity of environment and organism when he describes their co-constitutive relationship:

Like two partners in a dance who bring forth each other's movements, organism and environment enact each other through their structural coupling. Given this view of organism-environment co-determination, it follows that evolution should not be described as a process whereby organisms get better and better at adapting to the design problems posed by an independent environment [...] (Thompson 2010, p. 204).

Just as much as the brain-body-world interact through activity, organism and environment *co-constitute* each other through action at the ontological level, and continue to reconfigure each other through further action over a history of structural coupling. Varela's conception of the organism-environment coupling is inspired by the existential phenomenology of Merleau-Ponty, which he quotes at length:

The properties of the object and the intentions of the subject ... are not only intermingled: they constitute a new whole. When the eye and the ear follow an animal in flight, it is impossible to say 'which started first' in the exchange of stimuli and responses. (Merleau-Ponty, cited in Varela et al. 1993, p. 174).

This intermingling of properties and intentions (or world and lived-experience) enacts a new 'whole' that constitutes an organism's environment – consisting of what Varela terms 'features' of an organism's particular environment (Varela et al. 1993). What an organism perceives is not extracted from a pre-existing world, but are rather "(virtual) 'features' of the world which are enacted by the perceptual guidance of action". It is upon this premise that we can understand Varela and Maturana's (Maturana and Varela 1998) decision to illustrate their model of life through the depiction of a lizard (Fig. 1) who's own tail forms the root of the branch of a tree that itself comprises the organism's environment, its source of nourishment, and its dwelling. Such an illustration reveals the extent to which organism and environment are coupled at the ontological level. As much as we may attend to the interaction between brain-body-world to understand cognitive human becoming, we could equally attend to how the world *is brought forth in relation to a lived experience of the organism*.

4 from *interaction* to *transaction*

Inherent within Varela and Maturana's writing is an organism-environment model of life that rejects a hard subject / object dualism, bringing into question the use of the

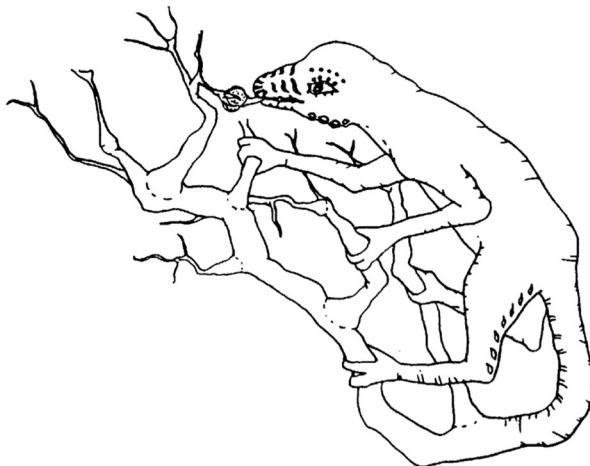


Fig. 1 An Organism-Environment coupling model of life

term 'Interact' – as two pre-defined entities coming together - to adequately describe the causal relationships between entities. John Dewey (Bentley and Dewey 1949) outlined this contention in *Knowing and the Known* where he rejects the widely held atomistic premise by which we can conceive of entities in any exchange which are fully formed prior to their interactions, and are not significantly affected by those interactions. The term 'Interact, he argues, "assumes the organism and its environmental objects as substantially separate existences or forms of existence". (p. 114) In contrast Dewey proposes an account of reality in which dynamic entities are continually undergoing reconstitution through co-constitutive relation with others, reminding us of how, "Organisms do not live without air and water, nor without food ingestion and radiation. Entities live as much in processes across and through their perceived 'skins' or boundaries, as much as within them." (p. 128). To replace 'interact', Dewey suggests the term 'Transact', which allows for a co-constitutive exchange between dynamic entities that comprise organisms and their environments. As Sullivan (2001: 14) has noted, to understand things as 'transactional', "is to understand both as neither completely different and separate nor as completely the same and merged into one. Rather, it is to understand them as formed through a constitutive back and forth between each other."

If we are, following Dewey's lead, to take account of matter's 'dynamism' in understanding cultural activities over time, we should ask how matter is constituted not as *inter-actional*, but as *transactional* with human activities as well as other entities, which requires a subtler and less brute-ish approach to understanding matter itself. Elizabeth Grosz (1999) reminds us that matter is not to be thought of as an irreducible essence that endures unchanged, rather what endures is the morphogenesis and variation of matter over time in relation to other entities. Matter is historically contingent and plural, meaning and matter are always fused at the ontological level — Matter 'Matters', as the Posthumanist theorist Karen Barad (1997) has argued:

Matter and meaning are not separate elements. They are inextricably fused together, and no event, no matter how energetic, can tear them asunder [...] matter and meaning cannot be dissociated, not by chemical processing, or centrifuge, or nuclear blast. *Mattering* is simultaneously a matter of substance and significance, (1997, p. 3).

For Barad, following the quantum theory of Niels Bohr and Werner Heisenberg, an inseparability of observer and observed, of substance and significance, inspires her non-representational shift from the 'properties' of matter to what she terms 'phenomena'. For Barad, the primary epistemological unit of all observation is not that of an independent world of objects with inherent boundaries and fixed properties which mark out a separation between subject and object, but rather 'phenomena' which "mark the epistemological inseparability of "observer" and "observed"; rather, phenomena are the ontological inseparability of agentially intra-acting "components." (2003, p. 815). Barad's phenomena are ontologically primitive relations—relations without preexisting relata— but rather always defined in relation to the observer and mode of observation. Within Barad's performative ontology, matter is not stable, it is always relational to the plurality of entities that surround it at any one moment in time; matter is historically contingent; *mattering* at that point in time differently to another.

5 From Transaction to Correspondence

The recognition that matter *matters* and the inseparability of observer and observed that Barad's performative ontology calls for aligns with the earlier sentiments of the Ecologist Jakob von Uexkull (1934) who formulated a theory of meaning that is rooted within the co-constitution of an organism's lived-experience and their environment through his notion of 'Umwelt' – the lifeworld of an organism. Extending the Romanticism of Goethe, Uexkull builds what he terms a *compositional theory* on nature in which organism and environment do not inter-act with each other as separate, pre-defined entities, but rather run 'counterpoint' to each other at the ontological level. He gives us an example of a flower and a bee:

Were the flower not beelike And were the bee not flowerlike,. The consonance could never work.

Were the eye not sunlike, It could not gaze upon the sun.

Were the sun not eyelike, It could not shine in any sky.

The sun is a light in the sky. The sky is, however, a product of the eye, which constructs here its farthest plane, which includes all of the environmental space. Eyeless living beings know neither a sky nor a sun ([1934] 2010, p. 190).

For Uexkull, any object that enters into relation with the life-world of an animal, human or insect undergoes a change in its hierarchy of properties — bringing into play and putting out of play certain properties in relation to the what is possible for that organism to perceive – taking on what he calls a 'meaning tone'. Using the illustrations of Franz Huth to read such 'meaning tones' Uexkull describes how an oak tree changes in the life-worlds of certain animals and humans; in the rational world of the forester, who must determine which trunks are ready to be felled, the oak is no more than a few cords of wood – taking on a 'use tone'. The same oak in the magical environment of a little girl takes on a 'danger tone' – the wicked face has turned the oak into a dangerous demon. For a fox, the oak possesses neither the use tone of the forester's environment nor the danger tone of the girl's environment, but a 'protection tone'. For the squirrel, the oak, with its many branches takes on a 'climbing tone'. In the ant's environment the rest of the oak disappears behind its furrowed bark, whose peaks and valleys form the ants' hunting ground.

Uexkull draws our attention to how all matter is pluralistic in that it has a contingency to the many life-worlds in which it is perceived at any one time. As matter has this kind of variation within different life-words at any one moment, it follows that the properties of matter are not fixed, they are rather "nothing other than the perception signs [meaning tones] imprinted upon them by the subject with which they enter into a relation" ([1934], 2010, p. 201). Uexkull takes this co-constitution of subject and object right down to the atomic level suggesting that "all properties of things, even when we analyze them down to the smallest details –atoms and electrons – will always remain only perception marks of our senses and ideas (p. 207). The tree is *much more* than its physical properties as a tree in the world of a certain human observer, it is the

accumulation of the meaning tones of all kinds of human that can perceive it, as well as all animals and insects, at that particular moment in time.

The *much more* that Uexkull describes finds resonance with a recent re-appraisal of James Gibson's (1979) notion of affordance within ecological psychology. Diverging from a formal definition of affordance (Turvey 1992) as a dispositional property of the environment which becomes available in some specific circumstances for a specific organism, Stoffregen (2003) recasts the terms as an emergent property of an animal-environment system considered as a whole which does not inhere in either the environment or the animal. Chemero (2003) takes this one step further and suggests that affordances are not properties of any one entity but rather more usefully understood as relations between particular aspects of an organism and a particular aspects of the environment; emergent relations that change depending upon organism-environment relations. Where a tree in the life-world of an ant affords shelter this affordance is not inherent within the tree to be 'picked up' by the ant as an *apriori* property, it is rather an emergent relation that takes on certain characteristics of the tree and the cognitive life of the ant.

Uexkull's notion of counterpoint provide a useful way of approaching the study of material culture as an archaeological trace of a specific counterpoint that runs between organism and environment; the ways in which an artefacts form — much like that of the bee and the flower — expresses a consonance between human and environmental worlds. Ingold (2013) offers an example to begin to read how the kinaesthetic (human), material and environmental worlds 'correspond', and are made readable through the form of artefacts such as kites and pots. Rather than approach the study of material culture through the notion of an *inter-action* of pre-defined domains of object, environments and humans, Ingold suggests that we think of it as a temporal 'correspondence'— a spiral interlacing of all three worlds whose form gravitate around each other.

For Ingold the current appeal to an 'object agency' within the study of material culture tends to arrive at a materialism that is tied to physical properties of a world already cast, or pre-formed, prior to human engagement and as such does not adequately describe the meaningful correspondence between the world of human experience, objects, and environmental conditions. Ingold offers an example of how to address this 'objectness' through the example of flying a kite, a kite-flyer's interaction with the air is not so much a 'dance of agency' — an inter-action between the pre-existing agents of flyer, kite and air — it is more like a dance of 'animacy'; the kite flies because it's very material form expresses a correspondence between kinesthetic, material and environmental worlds:

[F]lyer and air do not so much interact as correspond. The kite, in effect, sets up a correspondence between the animate [kinesthetic] movements of the flyer and the currents of the aerial medium in which he or she is immersed. It is not that you need air to interact with a kite; rather, you need a kite to correspond to the air (Ingold 2013, p. 100).

Following Ingold's logic leads to the premise that any variations in the material form of the kite over time – the differences in it's formal structure- can be said to express an historically contingent correspondence between cognitive, artefactual and environmental worlds. The form of the kite, if studied as an archaeological trace of everything that

is happening around it that allows it to be a kite, expresses a correspondence between body, environment and air – a mattering - captured in the form of the kite itself. Tracing the changing formal structures of kites over time and geographical location can tell us the story of the kite-within-its-environment; of the kinaesthetic movements of the kite flyer (informed by their lived history of experience), the kite itself, the string the binds the kite to the flyer, the air currents that push the kite around the sky, the trees and structures that disrupt the air flow, the grass that slows the human runner, and much more. In this way, *all Human artefacts, in some way, express an historically contingent correspondence between Phenomenal, Environmental and Material worlds expressed through their formal structure*. The archaeological study of the variation of the form of cultural artefacts over space and time allow empirical access to this contingency.

6 Metaplasticity rendered visible in paint

As Elkins' (2000) alchemic reading of Oil painting revealed, a painting is always a portrait of the painters embodied thinking at that moment in space and time, a portrait that can be read as evidence of the artist's cognitive development rendered tangible through action fixed in paint, what Malaforis (2014) has described as *thinging*, the cognitive feeling *for* and *though* paint. The material memories of a picture capture a certain resistance of paint, a gesture of the brush, the fumes of the paint and other studio environmental details, a speed and insistence at the same moment, and in the same thought, as it captures the expression of a face being depicted. The archaeological reading of the formal structure of human artefacts gleaned from the work of Ingold can be applied to artefacts of visual culture to read the historically contingent correspondences between cognitive, environmental and material worlds that may be expressed through their formal characteristics. Such an analysis can give us clues as to the lifeworld of the painter at that particular point in time, an historical specificity to the metaplasticity of mind being rendered visible in paint.

As a case study I will use an example drawn from art history, an oil painting by Manet, *The Luncheon on the Grass* (c1863), which makes for a pertinent case study as, firstly, it has a wealth of art historical scholarship that focuses upon the meaning of its stylistic traits in terms of what is depicted and its socio-political contexts (Bataille 1955; Fried 1996), but less so in terms of the materiality of paint and it's the perceptual / cognitive dimensions. Secondly, the group of sitters at the center of the composition are a re-appearance of a group of river gods taken from Marcantonio Raimondi's earlier engraving of the *Judgment of Paris* (c1510–1520) which themselves can be traced back to an engraving on a Roman sarcophagus depicting the *Judgment of Paris* from the third century AD (Fig. 2). The endurance of the sitters across these works provides stark formal and compositional differences that were created over temporal and geographical locations, differences which provide clues to the historical specificity of the lifeworld of the painter through which we can uncover some of the ecological, technological, perceptual and imaginary determinants of the period that are rendered visible in the painted marks.

Where this particular painting has been discussed in relation to the stylistic details of the human figures and their political, sociocultural contexts, I will focus



Fig. 2 The stylistic reformulation of a group of river gods: (top left) The Judgment of Paris (detail of a Roman sarcophagi, Villa Medici, 2nd-third century AD); (top right) The Judgment of Paris by Marcantonio Raimondi (c1510–1520); (bottom) The Luncheon on the Grass by Édouard Manet (c1863) (Warburg, cited in Gombrich 1970, pp. 276–267)

upon the — often overlooked — environmental details that are rendered differently to those of the figures; the presentation of the ground and the background details within which the figures sit, as an expression of how the ground itself ‘mattered’ within this particular spatio-temporal location of a nineteenth century Europe. This analysis will follow the materialist (Elkins 2000) and enactive (Cain, 2010; Malafouris 2013) readings of depiction surveyed earlier, and begin from the manner in which the ground is depicted focusing upon the most basic visual element of the stroke itself. The forms contours, compositions of the lines, thickness of paint all provide clues to cognitive development of the creator that include the material engagement of the tools, gestures, materials, experiences and lifeworlds involved, rendered visible through the very generation of the marks.

6.1 How the ground ‘matters’

Paul Crowther (2012, pp. 63–65) has undertaken a Deleuzian phenomenological analysis of this work through which he attends to the gestures of the artist as they are rendered visible in the materiality of paint, reading the work itself in terms of the gestures and movements of the body that created it. In doing so, Crowther (p. 63) departs from well versed narratives of the scandal the work may or may not have caused due to its juxtaposition of naked and semi-dressed women with that of two dressed men, as well as its expressionistic rejection of academic painting’s historical and classical modes of representation. and focuses upon other material factors pertaining to the formal composition itself.

Crowther particularly notes how the painting does not conceal the brushstrokes by which it brings about objects, motifs and other representational content, in some areas the work itself appears unfinished — particularly so with the background details — through which the work emphasizes the emergent of figure from a material ground of paint, the figures ontogenesis. The background and foreground details of the flora and fauna are painted with thick, rushed brush strokes in comparison to that of the human figures which are more considered and detailed, they appear unfinished and ambiguous in relation to the more detailed recognizable human figures seated in the center of the composition. The pictorial depth is also flattened — especially in comparison to traditional compositions of painting and of those of his period² — a compressed pictorial plane upon which the figures all appear to be placed, even though one is in the distance, reducing the illusion of depth that is created through classical linear perspective.

In comparison, Raimondi's earlier depiction of *The Judgement of Paris*, the sitters (here a group of river gods) are sat to the right of the composition, next to a river, watching the goings on at Mount Olympus which are the subject matter of the etching. The background details of the etching are presented in the same level of detail to that of the sitters themselves, with grasses, reeds, trees, rocks and soil presented in a rich detail. There is a sense of depth of field within the work with the characters and foreground scenery depicted with finer detail than those further away from the viewer. Within *The Luncheon on the Grass*, the group of human figures sit within the centre of the composition — brought centre stage — upon a background and foreground that is rendered through thick, rushed brush strokes, and in places remains unfinished in relation to the more detailed recognisable human figures seated in the centre of the composition. Manet's composition is flattened, reducing the illusion of depth, compressing the pictorial planes in which the figures appear to sit upon the same plane as the background.

To account for this emphasis toward flatness and the ambiguous and unfinished presentation of the ground Crowther aligns the work with a key feature of nineteenth century continental phenomenology regarding the ontological reciprocity of subject and object of experience that he finds within the Vitalist Philosophy of Henri Bergson. This lineage holds that the ontological relation between subject and object of experience is not passively given to each other, but rather a reciprocal interaction and modification, which Crowther suggests guides nineteenth-century art of this kind (p. 59). For Crowther (p. 65), the particular compositional choice by Manet to represent the ground in an ambiguous, quickly passed over and unfinished manner was used to draw the viewers' attention to the

² It is important to take account of how these details may be experienced differently today than they would have during Manet's time. When looking at this work having experienced the flatter works of later modernism, we may not experience the 'flatness' or the 'ambiguity' that those of the 1850's may have. Hamilton (1969) has noted how "we may read these outlined shapes as three-dimensional form without difficulty, in 1865 to eyes so long accustomed to more complex and gradual transitions from light to dark, [these works by Manet] would have looked like an arrangement of flat patterns lacking the depth and three-dimensionality needed in such elaborate compositions."

group of sitters, and to attend to their postures, faces and gazes,³ of which one is directly addressing the viewer as if they are a part of the composition itself — a direct address that reinforces the reciprocal relation between that which is seen and the one who sees it.

Crowther's reading remains focused upon the relationship between humans and other humans, whether painted or real, the unfinished ground upon which they sit serving the, somewhat passive, purpose of drawing attention back to the human exchange of gaze. This particular treatment of the ground, however, may offer clues as to another way in which the ground 'meant' at that particular point in time across Europe, which we find a logic for within Deleuze's philosophy. Focussing upon the particular move to abstraction, Deleuze aligned modern art and vitalist philosophy upon the challenge of renouncing the domain of representation and taking up instead the conditions of representation as their very object of study (Smith 1997, p. 41). For Deleuze, late nineteenth and early twentieth century painting can be read as aiming not at the reproduction of visible forms, but rather at the "capturing" of non-visible forces that act beneath forms, the task of all painting becoming "to make new forces visible, to formulate the problems they pose, and incite [...] an experimental activity of thinking around them" (Ambrose 2006, p. 196). Seen in this light, the rejection of classical realist modes of representation and the move toward abstraction — particularly that of the emergence of objects from a material ground of paint emphasizing the material conditions — that we find in Manet's treatment of the background and foreground details begins to exhibit these signs of a philosophical attempt to 'get at' or explore the new ontogenetic conditions that lie beneath the very surface of reality that amounts to the recognition of the embeddedness of human life within a vital and energetic material world.

The kind of ontogenetic conditions that this formal treatment may be 'getting at' reveal themselves through surveying the wider philosophical context of the period. There is an important shift in the theory of causation that occurred during the nineteenth century between Raimondi's engraving and Manet's painting that begins to reveal a geological determinant to the nature of the representational treatment of the ground. Studying the re-emergence of this particular group of figures, Aby Warburg notes how Manet's depiction was created amidst the gradual emergence of the laws of natural science that was brought about by a secularized Europe gradually sterilizing the divine ruling of earthly events by the gods. He states that between the depictions within the Judgement of Paris and the Luncheon on the Grass:

[...] mankind witnessed the decisive change in the theory of causation relating to the basic phenomena of nature. The idea of an immanent and impersonal law

³ Crowther's focus upon the stylistic depiction of the human bodies follows an art historical tendency of those who have discussed the stylistic shifts within Manet's work as a part of a modernist regime of spectatorship and subjectivity. Such narratives focus attention upon the presentation of certain details of the human figures, the careful presentation of face, hands and other body parts as "par excellence the substance of expression of the signifier" (Crary 1992, pp. 92–112) of Manet's modernism. Crary's reasoning is informed by the important work undertaken within Charles Darwin's (1872) *The Expression of Emotions in Men and Animals* which analysed the psychological state of an organism expressed through anatomical and physiological functioning. The face, hands, eyes and the posture of the human body within the work of Manet. Crary argues, are of significant meaning in this regard, being a sign of the continuum between the somatic and social (p. 99).

ruling natural events sweeps the whole haggling governing body with its all-too-human foibles from the heavens. ... the major Olympic divinities have ceased to be the subject of active sacrificial rituals since they have been archaeologically sterilized. (Warburg, cited in Gombrich 1970, pp. 276-267).

One important replacement for the divine model of causation was the gradual discovery of a ‘deep geological time’ to the earth; a self-organising model of the earth promoted by the work of James Hutton and George Lyell who’s development ran much deeper than that of the biblical timescale. This discovery ‘sterilized’ the gods of their stake in natural events within the geological imagination, Geology was no longer the mechanical play thing of a vengeful Christian God with earthquakes being the result of temper of a vengeance as theorised in Reverend Stukeley’s *Theory of Earthquakes* (1777), it had its own deeper history of non-linear development free of any theological dogma, with its own metaphysics of self-organisation; geological uplift, thermodynamics and morphogenetics with no beginning or end.

Stephen Jay Gould (1988, pp. 61–63) has described the impact Hutton’s *Theory of the Earth* (1777) had within British Geological thought during the eighteenth and nineteenth century. Hutton postulated that the history of the earth includes three cycles of deposition, uplift and repair – the complex panorama of history that can be inferred from the observation of the simple geometry of horizontal strata above vertical. What Gould makes clear is that Hutton’s ideas brought about a revolutionary shift in the metaphors used to conceive of and think about the timescale of the earth itself, the earth does not follow a mechanical *arrow* of time set in place by an origin point from a creator that will lead to inevitable erosions, but rather follows numerous *cycles* of decay, repair and uplift. The Earth, as Hutton declared, has “no vestiges of a beginning, –no prospect of an end”, but is rather self-organising based upon a geological causality.

The frontispiece (Fig. 3) of Hutton’s (1777) *Theory of the Earth* depicts a drastic change in the sense of the role and scale of humanity itself as a part of the emerging ‘deep time revolution’ of the nineteenth century. The artist, John Clerk of Eldin, chose

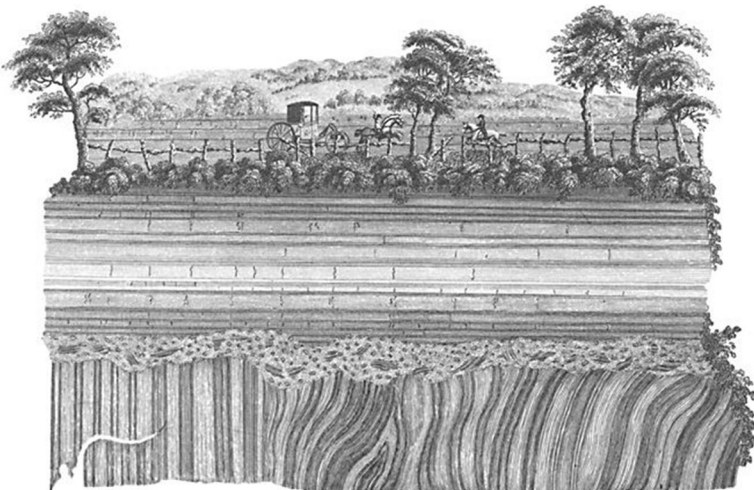


Fig. 3 John Clerk of Eldin’s engraving of Hutton’s ‘Unconformity’

to compose the space of the engraving as dominated by Hutton's horizontal and Vertical strata upon which tiny humans on horse and carriage go about their daily routines upon the thin crust of Hutton's vast 'Machine without a history'. Hutton's self-organising model of geological causality emerged alongside a drastic change in the sense of the role and scale of humanity itself as a part of a 'deep time revolution' of the nineteenth century unifying Geological and Biological timescales. As Shryock and Smail (2011) have suggested, the emergence of deep geological time co-incised with that of Charles Darwin's (1859) *On the Origin of Species* which brought with it an imaginary in which the human's role was no longer seen as essential and permanent, the origins of humanity itself had a deep time, a much deeper relation to the living, dangerous and energetic environment in which it are situated, a geological timescale that had an unknown history, unknown determinants and unknown implications for humanity.

The gradual realisation of unknown and indeterminate origins of a unified geological and human timescale during the late nineteenth century – the sterilization of divine causality - we can find expressed within the formal composition of the ground within Manet's *Luncheon on the Grass*, a composition which aimed to not represent the subject matter - the ground - but rather to sincerely express the artist's sensation within the world. Manet's generation of European painters were indifferent to how important the subject matter of a painting may be, the purpose of the art of Manet, Barasch (1998), suggests, was that "[t]he artist does not say today, 'Come and see faultless works', but 'Come and see sincere works'" (p. 48). Barasch (pp. 48–49) notes how around the middle of the nineteenth century, the artistic concept of sincerity within painting acquired a different connotation to its earlier Romantic notion, focusing upon the extent to which the artist may be moved by what they were relating, by moving away from the idealization of reality that was being painted, painting should search for truth, and be truthful in its representation of reality. This truth was not that of a Renaissance truth – scientifically correct – but rather a truth of reality "not embellished" by interposing inherited cultural patterns of the past. By sincerity, Barasch (p.50) suggests Manet means "that the sensual impression should be reproduced on canvas without the artist's ideology and education transferring with what he perceived".

Within the context of Deleuze's account of artistic sensation – that attests to the immersion of a body within an affective and energetic material world – the minimizing of the importance of subject matter, the move to abstraction, the 'sterilization' of the ground, the focus upon 'how' the subject matter is depicted, suggest that the unfinished and rushed brush strokes that Manet uses to depict the ground in *Luncheon on the Grass* was a way of getting to the sensation of how the ground mattered at that particular point in time. The subject matter *is* the sense impressions of the artist, sense impressions that obtain a character from the forces of the ground itself (geological deep time) that penetrate the body of the artist 'captured' in the brush strokes themselves; how the ground is depicted expressing a growing sense of an unknown emerging deep human history.

The revealing of the brush-strokes to present some background details such as trees and other flora and fauna expresses an unfinished character to their form and emphasizes the emergence of figure from their material ground of paint and canvas, an emphasis that echoes the revealing of new origins of biological time from a material ground of deep geological time. The partially indeterminate presentation of these very unfinished background details in relation to the more realistic and detailed presentation

of human figures corresponds to the emerging sense of unknown human origins within the deep time of a geological environment that is itself unpredictable, harsh and not yet fully known or realised. This is emphasized more through the flattening of the depth of field, the appearance of the figures and the background as being upon a single plane, emphasizes the shared origins of human and geological deep time, the fusing of biological and geological timescales, both emerging from the same flat ground of paint and canvas.

7 Conclusions

The formal characteristics and details of a work such as Manet's *Luncheon on the Grass* read not as an intentional representation of the ground by the artist, but as an expression of how the ground mattered, at this particular period of time, provide some clues to better understanding the historical specificity of the relations between mind and matter within the lifeworld of the artist Manet. The compositional choices made to render the subject matter of the ground across the three artefacts discussed above are an expression of the very historical contingency of mind-matter relations themselves; a matter of substance and significance in equal measures that changes in relation to technological, ecological and philosophical contexts. This mattering provides clues to some of the characteristics of the historical specificity of the metaplasticity of the minds architecture and development as coupled to the material world, extending not only through technologies of the period and through the very materials of paint, brush and canvas being used, but also into the very geological time of the earth itself to which the biological time of the human body is coupled.

What Malafouris (2015) has highlighted as the historical specificity of the metaplasticity of mind extending into constantly changing technological, material, ecological and social contexts, asks us to re-appraise the interrelations between mind and matter in the study of the development of human cognition over time. This interrelationship between mind and matter is usefully understand as a kind of 'mattering' (Barad 2003); how the material world *means* in correspondence to a specific lifeworld of human activity, rather than through the insertion of fixed material properties into the development of cognition. This *mattering* is rendered tangible for analysis within cultural artefacts, through a process of feeling (and thinking) *for* and *through* materials over time, a *creative thinging* (Malafouris, 204) that manifests the emergence of an idea, or thinking with materials and tools, visible for analysis.

In facing the challenges of studying the complex historical specificity of cognitive development within the study of material culture (Malafouris 2015; Shryock and Smail, 2011) a 'transactional' account of organism-environment coupling and meaning offer a framework within which the technological, ecological, philosophical and socio-cultural context of this development can be made tangible for empirical analysis within cultural artefacts. Through asking how matter 'matters' within the context of an organism-environment system, the study of mark-making, beginning with most basic visual element of the image; the forms contours, and compositions of the lines, providing clues to the tools, gestures, materials and experiences involved in the generation of the marks themselves, can be read as a 'capturing' of mattering rendered visible within the marks made.

The materialist philosophy of Deleuze (1981) provides a strong guiding principle in which he argues we can learn much from the painters and from painting regarding the ontogenesis of forms, both in terms of their sensitivity to and practice of 'capturing' the conditions of the emergence of form attesting to the immersion of lived (and living) body within an equally energetic and responsive material world. What Deleuze's lineage of thinking offers the study of material culture and the study of cognition is an insight that what is depicted – the image – can be read as the 'capturing' of the liveliness of the lived body locked in a dance with the liveliness of the medium and tools being used within the context in which it is being created. A body that pushes oil paint around the canvas at the same time as the paint itself pushes back all happening as the painter renders the expression of a face, tree or blade of grass at a certain moment in technological, philosophical and socio-cultural history. What is depicted – the motif, subject matter, or line – has the potential to express how the object being depicted may have meant that that point in time, an expression through which an archaeological analysis with the sensitivity and affinity of that of a painter with their materials may discover important clues.

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