

MULTI-DIMENSIONAL PAINTING

INTRODUCTION

Painting is a multi-dimensional practice, including both four-dimensional and five-dimensional qualities.¹ These dimensions are active through pictorial forces within the ground of a painting—an interface that Antonin Artaud called the subjectile, a conjunction of the words subject and projectile.² The current embrace of materiality and vitalism within contemporary art practices locally and internationally,³ draws attention to place-based relationships with biological and geological matter that traverse colonial dualities and categorisations of nature and culture.⁴ Further understanding of multi-dimensional and more-than-human approaches to painting can be developed through extension of Artaud's ideas, using the subjectile to consider biological and geological figure/ground dynamics and forces. This article extends Artaud's ideas by proposing the terms biosubjectile and geosubjectile to consider paintings and their surfaces as both living and inorganic systems. I reflect on my own bio and geo-based artworks, which generate multi-dimensional and polymorphic forms with a view to resisting or complicating both subjective experience and objective judgements of pictorial resolution, craft and aesthetics.

PICTORIAL SPACE

This paper develops a vitalist understanding of painting and pictorial space that expands consideration of Antonin Artaud's subjectile, along with the 'pictorial forces' observed by Artaud and later by German-American modernist painter Hans Hofmann.⁵ Hofmann promoted the terms 'push' and 'pull' to talk about the *expanding and contracting forces* within figure/ground dynamics. He focuses on geometric elements and colour as the 'carriers' of these forces. Although Hofmann encourages sympathetic or empathetic approaches, acknowledging that forces have spiritual dimensions, he leaves many other possible material, physical, contextual, energetic, alchemical, biological, and procedural features ripe for discussion as carriers of pictorial force and escape from the dualism of figure/ground.

"The picture should be alive, the statue should be alive and every work of art should be alive." Hofmann's provocation here is full of vitalist potential. His students are

encouraged to 'feel into' both animate and inanimate things, albeit with a narrowing sense of purpose—to 'civilise' the nation. Contemporary visual artists who, like Hofmann, choose to work within the continuums of abstraction offer new understandings of vitalist engagement with pictorial forces and the politics of their aesthetic impacts. Current forms of vitalism are influenced by anti-colonial and Indigenous thinking, along with ecology and materiality-focused theories such as those of Gilles Deleuze and Jane Bennett.⁶ This vitalism moves beyond the dualisms of physical/spiritual or human/non-human that Hofmann's sympathetic mode retains and destabilises the assumed anthropocentric authorship of artworks.

Contemporary bio-based materials (marketed as 'new' sustainable materials) are often porous and membrane-like. In art making, their porosity and sensitivity expose different pictorial forces, and provoke use of techniques, tools and working methods that encourage empathetic material approaches⁷ and regenerative practices. This generates a need for reassessment of the scope and judgement of aesthetics, craft and value. Experimentation with pictorial forces and their carriers is one of the ways that artists have resisted the conventions and strictures of pictorial temporality, organisation and evaluation, whether their substrate is a porous piece of paper, a canvas or a rockface.

Artaud referred to the creative interface of an artwork as the subjectile—a conjunction of the words subject and projectile, the boundary or threshold where pictorial forces intersect. Ros Murray writes of the agency of 'betrayal' that Artaud gives the subjectile: "The first time Artaud uses the word it is in a letter to André Rolland in 1932: 'Ci-inclus un mauvais dessin où ce que l'on appelle le subjectile m'a trahi' (I'm including a bad drawing in which what is called the subjectile has betrayed me)."⁸ Jacques Derrida explained that, for Artaud, "The subjectile here appears almost as a subject that is capable of betraying the artist; the drawing is bad because the surface on which it was created had an active role, rather than simply being an inert, blank page."⁹

In the 1920s and 30s, the term 'subjectile' was picked up and used predominantly in reference to the material surface or ground of a painting or drawing. But this interface could also be less material, unbounded and transitive. For example, Derrida interpreted the subjectile as simultaneously "the throw and the thrown." In material terms, he described it as "a sort of skin with holes for pores," historically, and perhaps persistently, devalued because "we oppose just those subjectiles that let themselves be traversed (we call them porous, like plasters, mortar, wood, cardboard, textiles, paper)."¹⁰

For Artaud, the vitalism and material agency of pictorial forces were directly linked to earth and nature, and although his writings preceded Hofmann's popularisation of the terms 'push' and 'pull' within painting, those terms are also used to identify geomorphic forces that drive Earth's processes of erosion, deposition, sedimentation, deformation and the extreme pressures involved in metamorphism. Artaud thought of the subjectile as the space where work occurs, where matter is 'volatilised' and where the form of a 'work' emerges through processes of force that are connected to Earth.¹¹

I interpret the subjectile as an interface where creative incidents or events take place. Within this subjectile interplay, there are a series of events between subjective and objective modes. This occurs within particular conditions and material assemblages, with a range of agencies and forces at work. Agents include the artist and their audience



Figure 1. *Autumn Sunday* (2018), still shot from stop-motion animation. The substrate is a mix of agar and cellulose. Made at Enough Room for Space in Drogenbos, Belgium. Edited as a music video for William Henry Meung's track *Autumn Sunday* in 2019 by Jo Sanders.



Figure 2. *Greywacke love poems: returns* (2019). Snails inhabit the bacterial polyester painting that coats a boulder at the old Owhiro Bay quarry site. Although the snails do not physically alter the paint material, they do alter the composition of the artwork as an assemblage. The snails were likely attracted to pockets or folds within the bioplastic that had trapped moisture.

or actors within a social context, along with more-than-human agencies like microbial organisms, weather and the atmosphere of the social and physical world. Material scientists might call these conditions 'interfacial forces,' where conflict or stress play out in generative ways, altering the material structure or object as it forms.¹²

Later in this article I use a posthumanist lens to propose biological and geological subjectiles that might host the kinds of pictorial forces associated with multispecies assemblages theorised by Donna Haraway.¹³ An example of a biosubjectile might be as simple as a painting made through more-than-human mark making or figuration within a biofilm (a live microbial assemblage that has formed a layer or coating). But we could also consider the biosubjectile at work within a city, where elemental and human forces come together to channel wind through human-made structures and streets, bouncing off walls, depositing microbial spores onto their surfaces and painting the city with algal growth. Rock walls painted by the wind also invoke a geosubjectile at work within the geological formation of stone, involving the push and pull of processes that earlier deposited sedimentary substrates over extended periods of geologic time.¹⁴ Geomorphic forces of compression prepare sediments to become stone, aggregate blocks or cast planes.

The ongoing anthropogenic geology of the city also invokes forces of labour and socio-political power structures. And as artists work with biological and geological materials and forces, the artwork itself may contribute to ongoing processes of anthropogenic and transhuman biology and geology, including the creation of biomorphic and geomorphic forms that expand on established visual abstractions and representations.¹⁵ These creative activities also invoke practices beyond art making, including the extractive injustice and racialised violence associated with ongoing colonial capitalism, enslavement and forced labour. The work of Otobong Nkanga, Yvette Mutumba, Donna Haraway and Kathryn Yusoff offers examples of recent creative practice and writing that consider the past and present of extractive human activities within the biosphere and geosphere.¹⁶

In the bio-based polymer artworks discussed in this article, the paint material is its own substrate and its own ground. This means that the power dynamics and duality of passive or active ground are embedded within the painting material itself; the figure is already working from within the ground, and vice versa. In humid conditions, cellulose paint material can also become a biofilm, supporting the growth of lifeforms and biomorphic figurations.

I link pictorial forces and the subjectile to multi-dimensional qualities of painting.¹⁷ Beyond two-dimensional visual language, there are a range of ways that multi-dimensional time, duration and energy transfer can be seen within the activities and materials of painting. This includes four-dimensional (temporal) and five-dimensional (energetic) qualities.

FIGURE/GROUND

My own understanding of figure/ground dynamics and pictorial forces is particular to Aotearoa New Zealand art education within university art schools during the early 2000s. My experience was that international influences from social practice and site-responsive approaches to art making intersected with the beginnings of personal, ongoing, learning about Tangata Tiriti (non-Māori people) relationships with place and Te Taiao (the natural world).¹⁸ These intersecting paradigm shifts influenced my understanding of painting and abstraction, particularly in the relationships between site-responsive approaches and various forms of provisional and transitive practices that drew international attention during the 2000s.¹⁹ The context of Aotearoa continues to inform my curiosity about how painting practices are altered through place-based relationships and anti-colonial critiques that destabilise hierarchies of knowledge, materials, conceptual frameworks, representation and judgements of value and craft.

More recently, a decentering of colonial art paradigms has occurred in interaction with the paradigm shifts of new materialist philosophies. Particular artists and art theorists are grappling with their understanding of more-than-human relationships—in ways that are not new to many Indigenous world views.²⁰ Within these ontological shifts in ways of being—and being in relationship—I'm curious about reconsiderations of the more-than-human figure/ground dynamics and pictorial forces that are possible or already present within painting.

A new materialist consideration of figure/ground relationships can be brought into conversation with historical materialism through the writing of Nancy Fraser, who uses the structures of Early Modern pictorial space as a metaphor to describe capitalist systems. Fraser notes that ontological divisions are fundamental to both colonisation and capitalism, where there are pre-existing but massively intensified separations between a (nonhuman) 'natural' background and an apparently nonnatural 'human' foreground.²¹ In Fraser's description, the forces and divisions within the pictorial space or 'stage' of capitalism are not limited to a simple binary of figure and ground relationships. The legibility and differentiation of figure and ground is unstable, and the agents and formations of productive and reproductive labour are recognised and rewarded in different ways at various times. The pictorial space of colonial capitalism morphs, mutates and decomposes, depending on how specific communities and societies choose to represent labour and production.

Fraser's thinking has informed how I think about the role of bio-based materials and aesthetics within 'just transitions' towards circular bioeconomy models. These economic models reconfigure evaluation of costs and value/s, material relationships within natural and cultural contexts as well as systems of production and profit distribution.²² Artworks that use these materials contribute to the development of biobased aesthetics that add and shape value.²³

Over recent decades, many artists have been moving away from petrochemical materials and extractive modes of material relationship, making and seeking out materials that are produced using more symbiotic and sympoietic (making-with) approaches.²⁴ This is evident in the past thirty years of bioart practices that have intersected with ongoing experimental and DIY material practices that in turn grew out of earlier twentieth century process-based work, coinciding with environmental and circular economy movements.²⁵

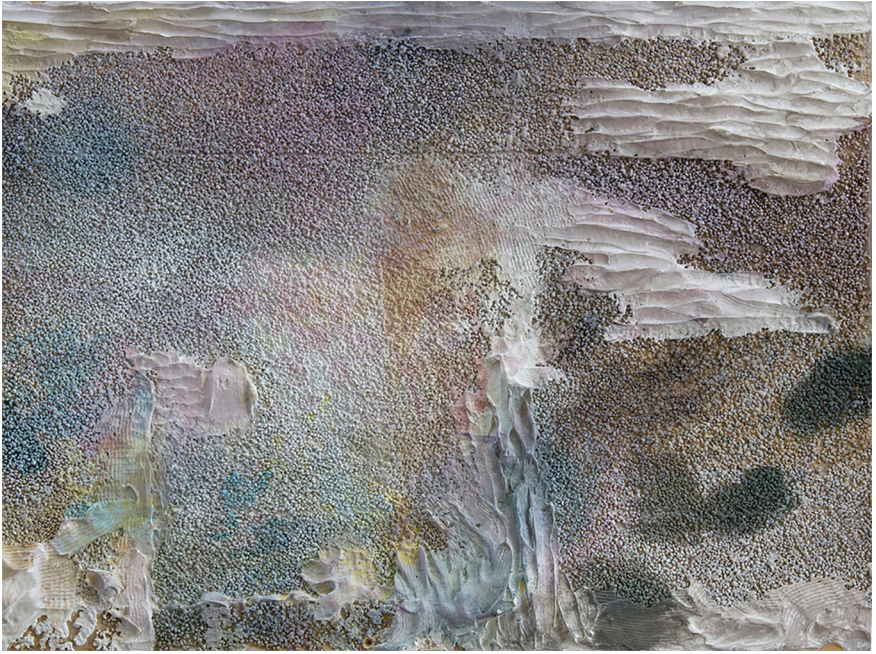


Figure 3. Untitled painting made in 2001 during BFA study, sandpaper, plaster, polyfilla™, and watercolour on panel.

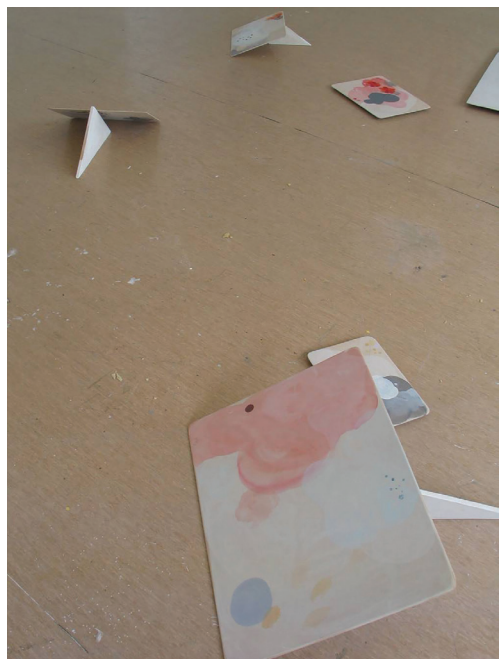


Figure 4. Untitled self-supporting paintings made in 2004 during BFA study.

Studying in the early 2000s, access to digital image-making technologies like Photoshop enabled experimentation with the layering and manipulation of images and 'paint' transparency. The profusion of layers and capacity to project these layers within a photograph of a site, or into actual physical space using a projector, carried over into physical approaches to paint-handling on canvas, panel, wall and floor. Increasingly, artists engaged in playful experimentation in which tensions between 'human' gesture and the emerging digital aesthetics could be teased out and explored.²⁶ I began a series of reconfigurable and 'self-supporting' paintings with translucent washes and fleeting glyphic gestures that moved across the surface and involved unstable figure/ground relationships (Figure 4). I later understood this 'incidental' mark-making in relation to theories of provisional, indexical and transitive visual languages.²⁷ The works were made of thin fibreboard (MDF) that was freely available from hardware stores where it was used as cover sheets for other construction materials. I used full sheets 'arced' in tension, held by friction with the studio carpet to become self-supporting, while other panels were cut down and shaped into the format of laptop screens, a shape that became a novel feature of everyday life and a newly portable interface with the digital sphere.

Working as a high school art teacher in Wellington (2007–2011), I worked on the walls and floor tiles of the Lyall Bay Studios building (Figures 5 and 6). Installations like *Landing* (2008), *Waterwall* (2009), *Transparencies* (2011) and *Glover Park Daybeds* (2011) developed from this time. In playful studio work, an accident or mistake becomes a tool for invention in the creative process and in language, mediating rifts between rational and irrational forms of knowledge production and expanding the range of 'craft.'²⁸

Subsequently, in my large studio at VCUArts in Richmond Virginia, I made quick-fire wall paintings, progressively redacting them with white petrochemical 'latex' house paint in fast succession. This resulted in a happy accident of 'delaminated' paint, with several layers beginning to peel off the wall in sheets (Figure 7). With further experimentation, I began engineering these delaminations so that the material could extend out into space while staying attached to the wall, extending existing metal conduits within the space to create supports, seen in works like *Untitled* (2012) (Figure 8). The moments of transition between surface and material were compelling. These works produced a different range of figure/ground relationships within spatial installations and wall works, including 'inside-out' paintings where underpainted images were revealed through peeling. The material precarity and time-based processes of gravity also generated four-dimensional possibilities within pieces like *Room 306b* (2012) and *Dayfolder* (2013).

These paintings came out of a conceptual interest in the possibility of making a painting that could rehydrate and have a circular material transformation—the desire to make a painting that could then become liquid again. However, the works generated a lot of waste and were dependent on the petrochemical paint industry. This prompted me to find out more about polymers that are generated from plants, algae and bacterial sources, some of which can be used as water-soluble paint binders. During 2016, I worked to develop this 'hydrophilic' (water loving) paint and used it within durational installations and to invoke time-based biomorphic grafting and growth within the exhibition space (Figures 9 and 10).



Figure 5. Untitled studio work on the wall at Lyall Bay Studios, 2008.
Watercolour, acrylic wash and paper glued to the wall and torn away.



Figure 6. Untitled studio work made on the wall and floor at Lyall Bay Studios, 2008. Acrylic wash and paper.



Figure 7. Untitled studio work made with delaminated acrylic latex paint on the studio walls at VCUArts, 2012.



Figure 8. Untitled studio work at VCUArts that involved additional metal conduit, 2012.



Figure 9. *Medium (reconfigured)*, (2016-2017). A durational and reconfigurable cellulose-based biopolymer installation made over nine months while I was at the Jan van Eyck Academy in the Netherlands. Cellulose is a biopolymer that can be derived from algae, plants or kombucha SCOBY.

MULTI-DIMENSIONAL PAINTING

In this section, I return to discussion of the multi-dimensional qualities of painting and the forms that are generated through attention to time-based and energetic possibilities of the medium. I'm particularly interested in how these qualities are associated with biomorphic (biological), geomorphic (geological), hydromorphic (liquid) and polymorphic (diverse) forms. These shapes, patterns and material assemblages infer multi-dimensional movement, growth and transitions between physical and psychic states.

Four-dimensional (time-based) painting can develop polychronic and anachronic characteristics, with many things happening at once within an artwork or exceeding the boundaries of its own chronological moment. This holds some similarities to non-linear perceptions of time within Indigenous artmaking. Five-dimensional (energetic) qualities of a painting can be present physically within the radiation of pigments and psychologically within the affective energies (and 'vibes') that are involved in creation and encounter.²⁹

Multi-dimensional qualities are present within many customary artforms, including in Scotland, Ireland and England where my own ancestors came from.³⁰ Modernist movements also produced artworks that reference biomorphic and geomorphic forms and processes that were inherently time-based and inferred lively energetic forces. Multi-dimensional qualities were explicitly recognised in art nouveau, impressionism, cubism and the fascist-aligned movements of futurism and Lucio Fontana's *spatialismo*.³¹ Within later twentieth century process-based practices, composting, sedimentation and erosion, entropy and ruin, transfer, transformation and creative destruction are multi-dimensional processes that complicate dominant perceptions of time, energy and art



Figure 10. *Untitled* (2017). Part of the group exhibition *The Fox and The Grapes*, Kunstvereniging Diepenheim , 2017.

experiences.³² Examples include Jay DeFeo's durational work *The Rose* 1958-1966), Gustav Metzger's acid paintings, such as *Recreation of First Public Demonstration of Auto-Destructive Art* (1960, remade 2004, 2015), Gordon Matta Clark's agar work *The Land of Milk and Honey*, part of the larger in-extant series *Museum* (1969), Andy Warhol's urine-induced *Oxidation Paintings* (1977) and Helen Chadwick's actively composting vitrine-like sculpture *Carcass* (1986).

The provocation to think about a painting as four or five-dimensional allows us to recognise that images remain fluid even once the paint has dried. Material, signification and interpretation continue to change and circulate through time. This way of thinking about any artform enables reinterpretation by extending time and space for playful subjectivity and intersubjectivity when engaging with objects, sites, relationships and inheritances. Playful approaches to the material processes of painting holds ground for the medium to 'play out', incidents to occur and for processes of 'tinkering' and 'hacking' to alter relationships and formations within the pictorial forces at work.³³

Time-based and intersubjective social relationships involve a 'resocialisation' of painting—not new, but a continuation of what painting has always been capable of doing through presence in public space and through intergenerational practices and relationships. These social dimensions are present within twenty-first century theories, including transitive, indexical, transitional and reparative qualities that enable painting to move between media, sites, situations, communities and contexts.³⁴

In my own work, the place-based and four-dimensional qualities of bio-based materials became more explicit after my MFA study. This developed into my Massey University doctoral work at Scion, a Crown Research Institute in Rotorua, with a range of thermoplastic bacterial polyester materials developed for *Greywacke love poems: returns* (2019) (Figure 2; Figure 12). This project began as a Wellington City Council Public Art Panel commission for the Owhiro Bay Quarry beachfront on the South Coast of Te Whanganui-a-Tara. The quarry began in the nineteenth century, with greywacke aggregate from beach shingle and the quarry face displaced into roading, foundations and building materials throughout the city.

Both the cellulose and bacterial polyester materials use greywacke pigments to produce a range of greys and oxidised oranges, while a complementary colour palette is generated with use of additional mineral, plant, and synthetic pigments that have ecological and art historical resonances, like the calcite used in gesso (a biogenic substance which eventually sediments, sequestering carbon and becoming chalk rock).

The three phases of *Greywacke love poems: returns* include the April 2019 lightbox installation in Pōneke's Courtenay Place—along reclaimed land on what was the foreshore—and the November 2019 installation of biodegradable paintings back out at Te Kopahou Reserve on the old quarry beachfront. In 2021 this project was reconfigured for the exhibition component of my PhD at Te Pātaka Toi Adam Art Gallery, as part of the group exhibition *Listening Stones Jumping Rocks*, curated by Sophie Thorn and Su Ballard (Figures 13 and 14). This version reconstituted materials produced during the earlier phases, grafting them into the lower level of the Adam gallery stairwell walls as an architectonic skin. This relocation of the work recognised the displacement and ongoing presence of materials from the Owhiro Bay quarry face into the city where it was



Figure 11. *Greywacke love poems: returns* (2019), hydrophilic cellulose grafted onto driftwood and boulder in the carpark at the old Owhiro Bay quarry site. Cellulose can be derived from algae, wood-derived cellulose or kombucha SCOBY, as a medium that is amphiphilic – both hydrophilic and hydrophobic (water loving, and water shy). It has the capacity to rehydrate and 'self-heal' tears, and to support biological activity.



Figure 12. *Greywacke love poems: returns* (2019), bacterial polyester paint moulded around a boulder in the old quarry carpark. The same piece of material features again in Figure 14.



Figure 13. *Greywacke love poems: returns* (2019-2021), materials from the 2019 installations reconstituted as an architectonic skin as part of *Listening Stones Jumping Rocks*, Adam Art Gallery, 2021.



Figure 14. *Greywacke love poems: returns* (2019-2021), detail image of thermoplastic used at the quarry site, heated and reconfigured in a variance of shape memory within the Adam Art Gallery stairwell space.

used throughout the nineteenth and twentieth centuries within building foundations and roadways of the city, remaining visible in many older kerbstones and gutter ways. *Biobitumen a Greywacke love poem* (2019) (Figure 15), made for the Circuit Festival, was situated in a Newtown gutter that is likely made of Owhiro Bay aggregate.

The stairwell iteration of the work was located as the base layer of the curatorial construct; it became a shifting sedimentary ground and substrate within visitors' own figurative experiences of the group exhibition. Within the composition of the cellulose adhering to the stairwell surfaces, derangement and decomposition allowed fragmented figuration to destabilise a static gestalt. The 1960s stairwell wall was historically an exterior wall, integrated into the interior architecture of the new Adam Art Gallery building in 1999. It is a site of exchange between dimensions and boundaries of above and below, inside and outside, past and present. Such interfaces within the physical world can be understood in analogy with the creative subjectile.

Multidimensional painting produces forms that are contingent and unstable. Visual psychologists describe 'multi-stable' polymorphic forms and phenomena, including pareidolia, the recognition of an animate or representational form within a geomorphic rock or atmospheric cloud formation. Biomaterials often lend themselves to taking on unstable geomorphic, biomorphic and hydromorphic forms, resonating with the organisms and geologies that their substances originate from and remaining sensitive to environmental conditions and processes.

The plant-based and bacterial polyester thermoplastics developed at Scion also have capacity for polymorphous 'shape memory'; they can be moulded into one shape at a particular temperature and then reheated and deformed into another shape. When it is



Figure 15. *Biobitumen a Greywacke love poem* (2019), temporary site-specific intervention made several days before the Circuit Festival began. This action was filmed in digital format by Rachel O'Neill and edited into a moving image work by Johanna Sanders. During the festival, the video featured on a monitor in a nearby Newtown storefront, along with remnants of the gutter work that were reconfigured for the indoor space.

reheated a third time, back to the initial temperature, it remembers the prior moulded shape. In shape memory, heat (and moisture) can become triggers for four-dimensional bio-material memory, akin with human muscle memory or the physiological and psychological experiences of neural plasticity, where pathways within the brain can be established and/or reorganised under particular conditions.³⁵

American artist Lynda Benglis' use of poured paint and latex invites a multi-dimensional perception of painting and gesture, with attempts to understand this through the physics of material movements that are involved in geological and geomorphic processes. Benglis' work has been interpreted by physicists who have analysed the material flows and cantilevers in her artworks, where there is interaction and intra-action of forces like gravity.³⁶ Robert Smithson's work also provides examples of the geosubjectile in action. Smithson's *Glue Pour* (1979) exchanged Helen Frankenthaler and Lynda Benglis' paint tins for a can of glue, poured down a clay bank. Smithson was attempting to develop an 'erosional aesthetics,' recognising the violence and energetic material shifts of entropy within geological time.³⁷

BIOLOGICAL AND GEOLOGICAL SUBJECTILES

As described earlier in the paper, for Artaud, the subjectile is where matter is 'volatilised' and form emerges through processes of force that are connected to Earth and 'nature.'³⁸

The concept already suggested an interface that goes beyond the human. Artaud and his contemporary Georges Bataille made work that recalibrated their material relationships, contributing to a liberatory and emancipatory politics where the hierarchies and status of matter were challenged. Bataille's base materialism was a provocation for reevaluation of materials and the thresholds between high and low.³⁹

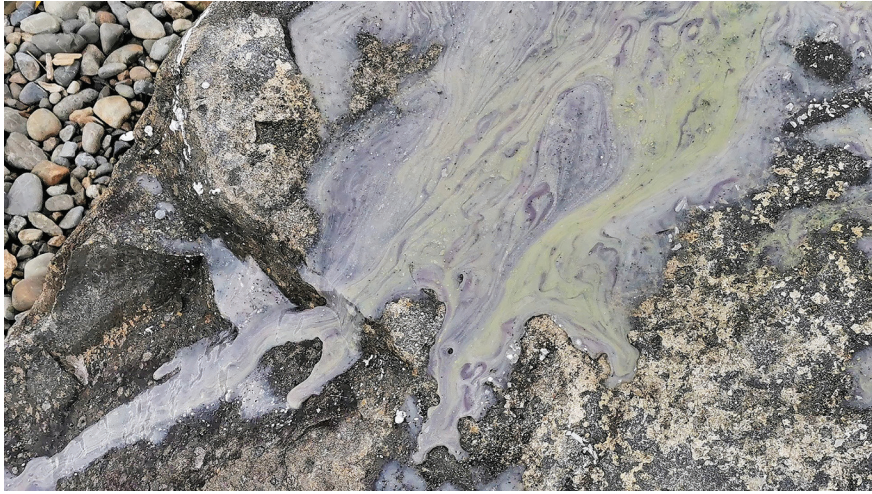


Figure 16. A photograph of rehydrated cellulose after a night of rain, as part of *Greywacke love poems: returns* (2019).



Figure 17. *Hydrophillia and the Love Seat*, partially rehydrated cellulose on a driftwood 'love seat' on the beach in front of the old Owhiro Bay quarry site after a night of rain. When rehydrated, the cellulose became very similar to the seaweed (a cellulosic plant).

In the work of the politically-engaged American artist Nancy Spero from the late 1960s and early 1970s, the subjectile enabled painting to move beyond dominant semiotic and symbolic orders, including a phallogocentric field of vision that privileged singular and vertical elements and frames. Lucy Bradnock writes that Spero's feminist interest in Artaud explored "insertion of the body into the linguistic order, the dislocation of meaning and the destruction of the self, that Spero would discover in the 'fissured, deteriorating, petrifying, liquefying, coagulating, empty, impenetrably dense' mind of Artaud."⁴⁰ This aligns with my own thinking about the figurations that emerge from decomposition in the Adam Art Gallery work, along with the part of the stairwell installation that became known as 'The Oyster,' for its yonic qualities.

Contemporary bioart and biological painting that reconstitutes waste materials align with aspects of Bataille's base materialism, tempered through new materialist understanding of biological, physical and vitalist agency (including pseudo-agency). The materialism of bioart is influenced by feminist practices of the 1970s, where embodied knowledge and subjectivities were explored in relationship with beings and environments beyond the self. For Bataille and Roland Barthes, base and superstructure exist in material entanglement, as base matter is active and does not stay put within a binary of high and low. This base entanglement risks overburdening the affective potential of matter with a revolutionary intent, but can still provide "a cultural medium to carry the contagion of base matter, in the same way that a virus or a bacterium are grown and developed ... [as] an infectious thought."⁴¹

In a 2018 article, "Biosemiotics and Phenomenology," Morten Tønnessen et al. ask whether there is phenomenology beyond the human.⁴² They note Maurice Merleau-Ponty's discussion of flesh and skin as a corporeal and metaphorical boundary and threshold between human and more-than-human sensory experiences. This could be human skin or skins more generally, whether they be biologically specific (attached and living as part of a particular organism) or detached as waste (circulating in the material world, transferring energy or becoming assemblages).

Revisiting the subjectile with a new materialist and posthumanist lens on subjectivity, we can acknowledge the liveness of this interface, including the possibility of more-than-human subjectivities and energies. A more symbiotic biological or geological subjectile becomes a site of human and more-than-human assembly, agency and image making, with recognition of more-than-human intersubjectivity (shared experiences) and subjectivity (personal experiences) beyond the human. This complicates assumptions about the stasis of pictorial space, authorship and figure/ground relationships. It also emphasises visible and invisible systemic processes like diffraction, aggregation, action and intra-action of matter within the composition of images and surfaces.⁴³ As I have written elsewhere:

Paintings are one of many potential aggregates, operating as microbial biofilms —anthropogenic or otherwise. Biofilms are slimy, cumulative, and often hospitable communities of living and dead matter that adhere to surfaces over time: coating pebbles in a riverbed; arterial walls; cave walls; abattoir floors, and our teeth. Within these biofilms, surface active agents (surfactants), alter interfacial and surface tension, influencing initial aggregation of the film, and future changes.⁴⁴

Historical and ongoing examples of biologically active paintings include the Gwion Gwion rock paintings, made 12,000 years ago by the Ngarinyin-speaking people of Wilinggin country in the Kimberley area of Western Australia, now hosting cyanobacteria and fungi that produce continuous restoration of the images. These are surfaces that hold intergenerational and symbiotic qualities, prompting speculative discussion about paintings as living systems.⁴⁵

In biogenic image-making processes, trace and indexical mark making work at a molecular and biological level as microbes make marks in many ways. Biological and ecological activity is also seen in the agar substrates of Alexander Fleming's bacterial paintings (c. 1920s); Gordon Matta Clark's *The Land of Milk and Honey* (1969); Liz Larner's *Culture* (c. 1987); and Anika Yi's *You Can Call Me F* (2015). These paintings and artworks become temporary living systems—not only representations, but pictorial spaces where 'another world is possible' through processes of multispecies 'worlding' and sympoetic kinship.⁴⁶ The phrase 'another world is possible' invokes the use of imagination within contemporary crises and the alter-globalisation movements that try to demonstrate the possibility of 'other worlds.'⁴⁷ Artists manipulate affects and narratives to influence our imaginaries every day, contributing to this sense of what is possible beyond the status quo. The works listed above extend this within a biological subjectile.

Antonin Artaud's liberatory idea of the 'body without organs'⁴⁸ can be used as a tool for considering the fluid materiality of paintings that are unbounded by representational 'organs.' These bodies without organs extend beyond the surrealist approach, with which Artaud was associated, via the materiality of fluid mediums used by American colour field painter Helen Frankenthaler, who acknowledged the influence of surrealism (if not Artaud) through her teacher Rufino Tamayo. Engagement with the contingency of paint as a medium can be seen in Frankenthaler's soak-stain method and in Lynda Benglis' pour processes (*Blatt*, 1969). Both artists used fluidity to resist pictorial organisation and individual gestures or strokes. Many of their works feature largely unmodulated and decompartmentalised compositions, where paint fluids move freely. "I realized that the idea of directing matter logically was absurd," Benglis has said. "Matter can and will take its own form."⁴⁹

Artaud wrote about the materiality of Vincent van Gogh's painting in his essay "Van Gogh, The Man Suicided by Society," which circulated widely in the mid-late 1960s, influencing artists like Clyfford Still and Carolee Schneemann.⁵⁰ In this essay, Artaud describes what we might now talk about as more-than-human relationships with both nature and the materials of painting: "Van Gogh is a painter because he recollected nature, because he reperspired it and made it sweat, because he squeezed onto his canvases in clusters, in monumental sheaves of color, the grinding of elements that occurs once in a hundred years ... ocular collisions taken from life, blinkings taken from nature, have the luminous currents of the forces which work on reality."⁵¹

As living matter becomes non-living matter (and vice versa), the cellular becomes the extracellular, moving beyond the confines of an individual organism. Agency within Artaud and Bataille's work is often linked to such processes of transition and energy transfer between living and non-living things. This agency happens (and is observed) within processes of differentiation and within human and more-than-human excretion

and separation. Bataille writes: “The notion of the (heterogeneous) foreign body permits one to note the elementary subjective identity between types of excrement (sperm, menstrual blood, urine, faecal matter) ... a half-decomposed cadaver fleeing through the night in a luminous shroud.”⁵²

The paint films I created using bio-based polymers for the exhibition *Not standing still* (2018) (Figure 18) at Blue Oyster Art Project Space in Dunedin, and for the music video *Autumn Sunday* (2018) (Figure 1), contain both living and non-living matter. In the untitled work made for *Not standing still* (2018), wood-derived cellulose and calcite created a medium for biofilm growth of marine algae cultures, a composite of terrestrial and aquatic origins. This biofilm quickly failed, dehydrating into dead algae matter that lent a leather-like strength to some parts of the material. Other parts became porous through a pseudo-biomineralisation process, as seawater reacted to calcite pigments and cellulose, precipitating salty crystals.



Figure 18. *Untitled* (2018), made for the Blue Oyster Project Space exhibition, *Not standing still*.



Figure 19. Documentation of the gel casting process while making the work for Blue Oyster. Live seaweed culture was added to the cellulose medium.

To understand the forms of language that appear within a biological or geological subjectile, we can look to semiosis. Artworks that are 'grown' biologically and/or geologically become sites of biosemiosis and geosemiosis, where meaning-making and signalling emerge within 'live' biological and geological processes.⁵³ For example, this occurs during the formation of biofilms and sediments, signalling that a surface has become a hospitable environment for other organisms or is stable enough for the accumulation of matter. Very basic signals between microbial organisms can work like signs or 'proto signs.'

Biosemiotics and geosemiotics can be seen as part of what Emily Apter describes as planetary aesthetics. This expands semiotic signals and relational interfaces into a cosmological frame,⁵⁴ with a planetary level of semiosis present within the visual languages of biologically active paintings, or in the interactions of biological and geological matter that occur within the calcifications of artworks by artists like Glasgow-based Ilana Halperin (notably the ongoing *Physical Geology* series, including *The Hall of Rocks and Minerals*, 2014).

Greywacke love poems: returns (2019–2021) (Figures 13 and 14) used bio-based materials at a large scale in a series of installations. In these works, material becomes both figure and ground, medium and support. This means that the figure is already working from within the ground, and vice versa. In more recent work, I have been thinking about how these figure/ground dynamics lead to multi-dimensional semiotics, as when paint materials, biosemiosis and geosemiosis come together within the time-based and energetic, biogenic (biologically driven) oxidation of pigments.

Autumn Sunday (2018) (Figure 1) is an animation made with photographs of biologically active paintings created at the Enough Room for Space residency in Drogenbos, near Brussels. The agar and cellulose medium was cast in sheets and exposed within the Senne valley, known for the *Brettanomyces Bruxellensis*, a wild yeast. The yeast spores became agents within the biofilm, creating biomorphic fungal growth patterns across the biological subjectile. The atmospheric and biological sensitivity of the cellulose/agar biofilm is analogous to the light sensitivity of celluloid film, measuring or graphing the drift and 'exposure' of the yeasts, creating a 'biograph.'

Apter's concept of planetary aesthetics provokes speculation about how biosemiotic and geosemiotic signalling might generate material archives within the cosmological framework she has described.⁵⁵ In the larger pictorial space of planetary aesthetics, biopolymers like cellulose are found circulating within living and dead organisms. They are involved in processes of transfer and recordkeeping between land and sea, through biodegradation, sedimentation and air-sea exchange, cycles within the hydrosphere, atmosphere and lithosphere. Cellulose becomes a medium, carrier and binder of biosemiotic archives of many kinds, including interactions within energy and carbon cycles where particulate matter is quantitatively related to emissions. This is perhaps a more intimate level of planetary aesthetics. But perceived at the scale of atmospheric carbon exchange, it is part of a cosmological or planetary subjectile.

METABOLIC RIFTS IN THE PICTURE PLANE

Industrialisation altered human relationships with the materials they use in everyday creative activities, including art making. The current return to material practices and artist-made materials has resulted in a reconnection with and reimagining of what is materially possible in the world. Karl Marx's concept of 'metabolic rift' acknowledged the ways that colonial industrialisation separated nature and culture, town and country, human and non-human, contributing to social and ecological harm. His theorisation of this rift influenced George Bataille's base materialism.⁵⁶ Both biological and geological subjectiles offer themselves as sites for metabolic intersections, rather than metabolic rifts, offering conceptual tools that create opportunities to move through these rifts.

Within modernist vitalism, Wassily Kandinsky outlined a non-objective theory of the picture plane, beyond the conventions of pictorial space that Early Modern linear perspective had driven. For Kandinsky, glass windows were a metaphor for what he called the Basic Plane (BP), a "transparent, but definite glass-like partition, abolishing direct contact from within ... here, too, exists the possibility of entering art's message, to participate actively, and to experience its pulsating-life with all one's senses."⁵⁷ There is animism to Kandinsky's description of the elements of a painting, including this basic plane of activity: a point "digs itself into the plane and asserts itself for all time," and the BP is a "living being."⁵⁸ In the current moment of climate crises and conditions associated with the Anthropocene, speculative thinking about geological and biological subjectiles develops further understanding of pictorial spaces that approach Kandinsky's living partition in diverse ways, furthering a non-dualistic approach to nature and culture.



Figure 20. Work in progress toward an installation within the corridor windows of the Cockburn Geological Museum at University of Edinburgh, September 2025.



Figure 21. Work in progress toward an installation within the corridor windows of the Cockburn Geological Museum with Dr. Gillian McCay, curator of the Cockburn.

Posthuman and new materialist frameworks for painting can question anthropocentric approaches to retinal experience and viewpoints. Screen-based experiences of artworks and images of the world around us distance people from in-person experience of physical objects and sites, reinforcing a separation between nature and culture. However, there is also another kind of intimacy that is created through ease of access and the range of perspectives that are available through our fingertips. By experiencing the pictorial space of applications like Google Earth—celebrating its twentieth year in 2025—many contemporary artists have become accustomed to a more-than-human perspective. Roof-mounted cameras and satellites continue the work of nineteenth

century pigeons (who were made to carry cameras), and the digital picture plane allows us to zoom in and out, sharing the perspective of extra-terrestrials, rivers, herds of sheep and potentially insects. These are technological augmentations of day-to-day experience of urban environments and landscapes. Earth is now a blue marble that you can zoom back into and view from multiple viewpoints and multiple moments in time (past, present and arguably future—depending on your time zone). Hand-held glass windows in various forms enable interactive intervention in these images and have impacted the visual language of painting even when they are not the immediate source material or subject matter. I have spoken to several painters who have had similar experiences of catching themselves trying to use screen-based finger gestures to zoom into their physical drawings or paintings.

In contemporary practices, painting and drawing move freely between mediums, media, and within physical, biological and digital substrates. Artists have many ways of inhabiting, 'subjecting' and subjectifying the ground. But questions of figure and ground dynamics are still vitally important within pictorial and compositional systems that are used to make representations and abstractions in our image-laden world. These dynamics are also relevant to understanding bio-based substrates as 'live' subjectiles where subjectivity is present in human and more-than-human ways. This ongoing development of subjectivity may well be crucial to our future relationships and actions within the Earth systems that we live within.

The reach and distribution of a biological or geological subjectile is wide—in the manner of Timothy Morton's hyperobjects—resisting various forms of centring, including the geographical and the human.⁵⁹ Cellulose, for example, is a hyperobject (or hypermedium) that moves between different spheres and between human and non-human production and creativity. Fossil-derived petrochemical microplastics are another example.⁶⁰ Our relationships with petrochemical plastics and waste are reasserted in a conversation between Tina Ngata (Ngāti Porou) and Max Liboiron (Métis), who note that even these plastics are derived from fossil ancestors at the in-between of biological and geological processes, and can therefore be considered kin.⁶¹ Making these connections also prepares us to reconsider the plasticity of our personal biological systems and relationships in the larger social, economic, and ecological systems that we are part of—not in rift or adrift from.

Thinking through the possibilities of metabolic intersections and interfaces in the subjectile, activates links between Bataille's interest in the nineteenth century metabolic rift and the biological alter-globalisation described by French philosopher Catherine Malabou. For Malabou, the kinds of neuroplasticity that become possible during personal crises or physiological trauma enable alternative formations of consciousness at a biological level. This biological plasticity contributes to shifts in individual and collective consciousness that enable plasticity and transformation in social and political formations and movements. Like Bataille's base materialism, Malabou's biological alter-globalisation recalibrates our human and more-than-human connections within cycles of production and consumption, resisting the exclusionary impulse to separate ourselves from disorder and waste. For Malabou, disorder and waste present opportunities for plastic formation and reformation, whether that be at the scale of biological neuroplasticity or within larger social and ecological systems.⁶²

CONCLUSION

Art historical understanding of pictorial space often defaults to an Early Modern interpretation, constructed with background, mid-ground and foreground. In representational genres, the 'natural' is often pushed to the background with clear hierarchies and divisions between human and non-human features. Figure/ground dynamics and pictorial forces can reflect these hierarchical conventions, even within less representational imagery and more abstract painting.

Our understanding of interfaces within the physical (and conceptual) world is important for establishing and supporting systems that provide more equitable conditions for life. Surfaces and boundaries, the meeting point or interface for such symbiotic relations, and access to those interfaces—freedom of interaction.

This article has argued that pictorial space and subjectile space have always involved more-than-human agency. In academic contexts, the systems used to interpret paintings and images continue to prioritise human authorship and pictorial forces over more-than-human ones. This bias has an impact on our understanding of the relationships between materials and place, nature and culture, human and non-human, by entrenching binaries. In my own practice, and in interpreting work by a range of artists—including but not limited to those mentioned in this essay—I have found it useful to consider the possibilities of the terms biosubjectile and geosubjectile as creative interfaces that often intersect, enabling artists and audiences to understand pictorial forces beyond the human. These forms of subjectility can be understood within the context of multidimensional painting.

Beyond the scope of this paper, there is further work to be done understanding the biosubjectile and geosubjectile in relation to Deleuze's 'objectile,' an object that exists in the subjective imagination and in fiction, and that may well remain speculative or anticipatory, rather than materialising in the physical world. Examples include Alfred Jarry's pataphysical inventions, Paul Klee's *Twittering Machine* (1922) and Marcel Duchamp's *Large Glass* (1915–23). These artworks bring together paradoxical materials and forms and/or, by way of their incomplete physical state, create anticipatory objects. Such speculations and anticipations are time-based, messing with past and present.⁶³

Raewyn Martyn is an artist from Aotearoa New Zealand, currently a lecturer and researcher in Fine Arts at University of Canterbury in Ōtautahi Christchurch. Her family arrived in Aotearoa during the 1860s, from the north and west of Scotland, Cornwall and Ireland. Raewyn's exhibition practice involves gallery and site-based work made in Aotearoa and internationally. Her site-responsive paintings and installations are composed during attentive occupation of particular situations. She thinks about how paintings can change through time, challenging the stability and temporality of painted surface, medium and site. Raewyn studied toward an MFA in Painting and Printmaking at VCUArts in Richmond VA. (2011–2013) and then worked as an assistant professor of visual arts at Antioch College in Ohio (2013–2016). She was a research participant at the Jan van Eyck Academy in the Netherlands (2016–2017) and completed a practice-based PhD at Toi Rāuwharangi College of Creative Arts, Massey University (2023).

1. Sabine Breitwieser, Branden W. Joseph, Mignon Nixon, Ara Osterweil, and Judith Rodenbeck, *Carolee Schneemann: Kinetic Painting*, (Munich: Prestel, 2015); Yin Ning Kwok, "A Five-Dimensional Approach to Conceptualizing the Interplay of Image, Emotions, and Senses," *Studies in Visual Arts and Communication* 3, no. 2 (2016).
2. Derrida writes: *The notion belongs to the code of painting and designates what is in some way lying below (sub= jectum) as a substance, a subject or a succubus. Between the beneath and the above, that is at once a support and a surface, sometimes also the matter of a painting or a sculpture, every-thing distinct from form, as well as from the sense and representation, which is not representable. Its presumed depth or thickness can only be seen as a surface, that of the wall or of wood, but already also that of paper, of textiles and of the panel.* Jacques Derrida and Mary Ann Caws, "Maddening the subjectile," *Yale French Studies* 84 (1994): 154-171.
3. For further context around vitalism and agential matter see Jane Bennett, *Vibrant Matter : A Political Ecology of Things*, (Durham: Duke University Press, 2010); Jennifer L. Roberts, "Things: Material turn, transnational turn," *American Art* 31, no. 2 (2017): 64-69.
4. My understanding of nature and culture through the lens of new materialisms and Indigenous perspectives on the ontological turn have been informed by the following texts. Iris van der Tuin and Rick Dolphijn, *New materialism: Interviews & cartographies*, (Ann Arbor: Open Humanities Press, 2012); Zoe Todd, "An indigenous feminist's take on the ontological turn: 'Ontology' is just another word for colonialism," *Journal of historical sociology* 29, no. 1 (2016): 4-22; Emilie Rākete, "In human: Parasites, posthumanism, and Papatūānuku," *The Documenta 14 Reader* (2016): 633-642; Christian Kock, "Burke on psychodynamic aesthetics: Forms that help us cope," *KB Journal* 12, no. 2 (2017); Ben Buchanan, "Moderne Theory mines indigenous knowledge, un ironically calls it 'post-human' or something," Ben Buchanan Art, blog post 20th September 2019 <https://benbuchanan.art.blog/2019/10/17/moderne-theory-mines-indigenous-knowledge-un-ironically-calls-it-post-human-or-something/>; Rosi Braidotti, "Affirmative ethics, new materialism and the posthuman convergence," in *Bridges to global ethics: Geoethics at the confluence of humanities and sciences*, (Cham: Springer International Publishing, 2023): 93-108.
5. For discussion of Artaud's pictorial forces, see J. Shaw, "Subjectility: On Reading Artaud," (PhD diss., Goldsmiths, University of London, 2017): 21; 225; 235-236. Hans Hofmann's use of the terms push and pull are documented in recollections from former students and in his book Hans Hofmann, *Search for the Real: and other Essays*, (Cambridge: MIT Press, 1967): 44-45; 57. In his lectures on painting, Deleuze discusses painting 'forces' and paintings as assemblages that involve puissance (power of action & potential); germinal catastrophe and chaos; and foreign will. The most recent English translation was published after this essay was outlined and I would like to expand discussion of Deleuze and ideas within this paper in the future. Deleuze, Gilles. *On Painting: Courses, March-June 1981*. Edited by David Lapoujade. Translated by Charles J. Stivale. (Minneapolis: University of Minnesota Press, 2025); Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, (Durham: Duke University Press, 2010).

7. For further discussion of empathetic material processes see Quanta Gauld, "Empathy beyond the human: Interactivity and kinetic art in the context of a global crisis." *Technoetic Arts* 12, no. 2-3 (2014): 389-398. The influence of Wilhelm Worringer's writing is also relevant here: Worringer, Wilhelm. *Abstraction and Empathy: A Contribution to the Psychology of Style*. Translated by Michael Bullock. (New York: International Universities Press, 1953).
8. Ros Murray, *Antonin Artaud: The Scum of the Soul*. (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2014).
9. Jacques Derrida and Mary Ann Caws. "Maddening the subjectile." *Yale French Studies* 84 (1994): 154-171.
10. Derrida and Caws.
11. See J. Shaw, "Subjectivity: On Reading Artaud," 21: 225; 235-236.
12. See Raewyn Martyn. "Surface Active Agents," *Antennae: The Journal of Nature in Visual Culture* 45 (2018).
13. Along with writers like Anna Tsing and Jason Moore, Donna Haraway has playfully interrogated the term Anthropocene to specify the colonial and capitalist drivers of extractive human activities that have generated social and ecological crises. Haraway proposes the Chthulucene as an aspirational alternative for more symbiotic multispecies relationships in the past, present, and future. Donna Haraway, "Anthropocene, capitalocene, plantationocene, chthulucene: Making kin." *Environmental humanities* 6, no. 1 (2015): 159-165.
14. The 2019 Greywacke Love Poems book includes an interview with Rachel O'Neill and discussion of 'sedimentary sight'. Raewyn Martyn, Rachel O'Neill, and Johanna Knox (Te Whanganui-a-Tara Wellington, Wellington City Council Public Art Panel, 2019).
15. In art history and visual art, 'biomorphic' and 'geomorphic' are terms for visual and material language that mimic or refer to forms and patterns found in 'nature'. Definitions of nature are complicated and contested, and in the twenty-first century, biotechnology and the anthropogenic impacts within 'nature' continue to challenge our understanding. Although biomorphic and geomorphic forms existed before modernism, they became common in artworks during that period, as artists met scientific knowledge, specimens, and models. Polymorphic and amorphous forms can be diversely related to referents within the natural world. Oliver Botar, "Routledge Encyclopedia of Modernism," *Biomorphism*, (2016), Retrieved 10 Jan, 2025, from <https://www.rem.routledge.com/articles/biomorphism>. doi:10.4324/9781135000356-REM770-1. In conversations about biomorphism, the boundaries of interspecies phenomenology and biosemiosis, have been critiqued due to associations with Nazi collaborator Jakob von Uexküll's theory of 'umwelt'—"self-centred world" within a specific environment (Cobley 2014, 348). Von Uexküll's commitment to identitarianism and nationalism led to the umwelt's use as justification of white supremacist and nationalist ideas of social order and belonging. The legacy of his work therefore involves deeper consideration of differences between inclusive and exclusive forms of belonging-with and becoming-with, within the phenomenological thresholds of subjectivity that we inhabit and share (Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies*, Vol. 14, No. 3 (Autumn, 1988): 575-599; Wright (2014): 1). In the work of Hilda Hilst there is a life-giving nature of death, where negentropy and plasticity are found in hydromorphic and geomorphic imagery.
16. For discussion of Nkanga's work, see Yvette Mutumba, "Otobong Nkanga: Nothing Is Like It Seems, Everything Is Evidence," *Afterall: A Journal of Art, Context and Enquiry* 37 (2014): 52-59. As a white academic, Kathryn Yusoff builds off earlier work to develop her understanding of the racial violence associated with geography and geology Kathryn Yusoff, *Geologic Life: Inhuman Intimacies and the Geophysics of Race*, (Durham: Duke University Press, 2024).
17. For further discussion of multidimensional qualities, the following texts are useful references. Linda Dalrymple Henderson provides background on the influence of different concepts of the fourth dimension, before and after Einstein's theories came to dominate theoretical definitions. She writes that late nineteenth century influences included concepts of the fourth dimension that involved higher spatial dimensions and states of consciousness. Linda Dalrymple Henderson, "The image and imagination of the fourth dimension in twentieth-century art and culture," *Configurations* 17, no. 1 (2009): 131-160.
18. My ancestors travelled from Scotland, Ireland, and England to arrive in Te Waipounamu, the southern island of New Zealand in the mid to late 19th century. Most of my family are tangata Tiriti—here because of the signing of the treaty of Waitangi.

19. Raphael Rubinstein, "Provisional Painting," *Art in America* 97, no. 5 (2009): 122-135; David Joselit, "Painting beside itself," *October* 130 (2009): 125-134. Raphael Rubinstein, "Provisional Painting Part 2: to rest lightly on earth," *Art in America* 100 (2012): 78-85; Isabelle Graw, Daniel Birnbaum, and Nikolaus Hirsch, eds., *Thinking through painting: Reflexivity and agency beyond the canvas*, (Berlin: Sternberg Press, 2012); Isabelle Graw, Ewa Lajer-Burchardth, Carol Armstrong, Benjamin HD Buchloh, Sabeth Buchmann, René Démoris, David Joselit et al., *Painting beyond itself: The medium in the post-medium condition*, (Berlin: Sternberg Press, 2016).
 20. Zoe Todd, "An indigenous feminist's take on the ontological turn: 'Ontology', 4-22.; Emilie Råkete, "In human: Parasites, posthumanism, and Papatūānuku," 633-642; Christian Kock, "Burke on psychodynamic aesthetics: Forms that help us cope," *KB Journal* 12, no. 2 (2017); Ben Buchanan, "Moderne Theory mines indigenous knowledge, un ironically calls it 'post-human' or something."
 21. See Nancy Fraser, *Behind Marx's Hidden Abode: For an Expanded Conception of Capitalism*, (New York: Columbia University Press, 2017).
 22. Mario Pansera, Stefania Barca, Bibiana Martinez Alvarez, Emanuele Leonardi, Giacomo D'alisa, Teresa Meira, and Paul Guillibert, "Toward a just circular economy: conceptualizing environmental labor and gender justice in circularity studies," *Sustainability: Science, Practice and Policy* 20, no. 1 (2024).
 23. Raewyn Martyn and Heather Galbraith. "Re-materialising: considering dominant understandings of value and systems of production within industrial plastics and the plastic arts," *Swamphen: a Journal of Cultural Ecology (ASLEC-ANZ)* 8 (2022).
 24. Donna Haraway, "Staying with the trouble: Making kin in the Chthulucene," In *Staying with the Trouble*, (Durham: Duke University Press, 2016).
 25. Robert E. Mitchell, *Bioart and the Vitality of Media*, (Seattle: University of Washington Press, 2015).
 26. Liz Trospher, "Painting After the Digital Revolution," *Athenaeum Review*, Issue 2 (Summer 2019): 160-169. Internationally, this can be seen in development through the work of Laura Owens and Julie Mehretu, among others. The way that early 2000s digital aesthetics manifested within painting exhibits both similarities and differences from what developed within Net Art and lens-based print media.
 27. Raphael Rubenstein, "Provisional Painting," 122-135; "Provisional Painting Part 2: to rest lightly on earth," 78-85; David Joselit, "Painting beside itself," 125-134; Isabelle Graw, et al., *Painting beyond itself: The medium in the post-medium condition*; Gil Docking, Michael Dunn, and Edward Hanfling, *Two Hundred and Fifty Years of New Zealand Painting / Gil Docking; with Additions Covering 1970-1990 by Michael Dunn; and 1990-2020 by Edward Hanfling*, (Auckland: David Bateman, 2021).
 28. For further detail about the role of accident in Landing (2008), please see the online exhibition essay *Wish Accident* written by Rachel O'Neill (2008) for Enjoy Public Art Gallery.
 29. Dan Karlholm and Keith Moxey, eds., *Time in the History of Art: Temporality, Chronology and Anachrony*, Routledge, 2018. Partha Mitter, "Colonial Modern: A Clash of Colonial and Indigenous Chronologies: The Case of India," In *Time in the History of Art*, 62-78, Routledge, 2018. Artist Richard Bowman wrote one of the few essays specifically about the early fluorescent paints he used to explore the five-dimensional possibilities of the light and radiation they emit: fluorescent enamel paint emitted "an actual, measurable energy from the canvas." "Radiant Abstractions Press Release," (2019), *The Landing*, <http://www.thelandinggalleries.com/radiant-abstractions-press-release>. Accessed 6 Aug. 2021.
- Vibrant matter and base materialism are also invoked in descriptions of Marie Menken's 1950's surrealist paintings and films. What is assumed as 'natural' is called into question, as Menken both observes and generates human and beyond-human forces. Her paintings were made using sand and other overtly geological materials like "stone chips, stone powders, marble chips, marble dust, ground silicate, sand, cement dust, luminous paints, glass particles, glues and lacquers, occasionally string and fiber," carrying geological time signatures. Menken also created swirling phosphorescent paintings that glowed in the dark. "Marie Menken at the Tate Modern," *More Milk Yvette, a Journal of the Broken Screen* (2008). <https://moremilkyvette.blogspot.com/2008/11/event-review-marie-menken-at-tate.html>.
- The psychic and energetic dimensions of painting within modernism are described in Brauer, Fae Brauer, Ed., *Vitalist modernism: art, science, energy and creative evolution*, (New York, NY: Routledge, 2023).

30. Tertia Barnett, Joana Valdez-Tullett, Linda Bjerketvedt, Fredrick Alexander, Stuart Jeffrey, Guillaume Robin, and Maya Hoole, "Prehistoric rock art in Scotland: Archaeology, meaning and engagement," (2021).
31. For further discussion of Fontana, see Zachary Small, "The Politics Behind the Massacred Canvases of Lucio Fontana," *Hyperallergic*, (2019, February 6). <http://hyperallergic.com/481104/the-politics-behind-the-massacred-canvas-of-lucio-fontana/> and also Anthony White, "Art Beyond the Globe: Lucio Fontana's Spatial Identity," *Electronic Melbourne Art Journal* 3, no. 1 (2008).
32. I would like to write further about decomposition, deformation, and derangement within contemporary painting practices, developing ideas from Bruno Latour (compositionism); Donna Haraway (composting), and Gilles Deleuze (deformation). Bruno Latour, "An attempt at a" compositionist manifesto", *New literary history* 41, no. 3 (2010): 471-490; Donna Haraway, "Anthropocene, capitalocene, plantationocene, chthulucene: Making kin," *Environmental humanities* 6, no. 1 (2015): 159-165; Deleuze (2025).
33. Tinkering and hacking have a durational quality that enable iterative transformation to occur. See Tyson E. Lewis and Daniel Friedrich, "Educational states of suspension," *Educational Philosophy and Theory* 48, no. 3 (2016): 237-250; McKenzie Wark, *A Hacker Manifesto*, (Cambridge; Harvard University Press, 2004).
34. Miwon Kwon, *One place after another: Site-specific art and locational identity*, (Cambridge: MIT press, 2004); David Joselit "Painting beside itself," 125-134; Isabelle Graw, et al., *Painting beyond itself: The medium in the post-medium condition*.
35. Catherine Malabou, *Changing difference*, (Cambridge: Polity), 2011; Catherine Malabou, *What should we do with our brain?*, (New York: Fordham Univ Press, 2009).
36. Andrzej Herczyński, Claude Cernuschi, and Lakshminarayanan Mahadevan, "Painting with drops, jets, and sheets," *Physics Today* 64, no. 6 (2011): 31-36; "Whitney Focus presents Lynda Benglis," 2009, YouTube. <https://youtu.be/Yq7VklUHY18>; for further discussion of intra-action, see Karen Barad, *Meeting the Universe Halfway : Quantum Physics and the Entanglement of Matter and Meaning*, (Durham: Duke University Press, 2007).
37. Adam Lauder, "Robert Smithson's Vancouver Sojourn: Glue Pour, 1970," *Canadian Art* 32 (2015): 90-94.
38. Jonathan Keith Shaw, "Subjectivity: On Reading Artaud."
39. Roland Barthes, "Mythologies: Selected and transl., from the French by Annette Lavers," (New York: Hill and Wang, a division of Farrar, Straus & Giroux, 1972): 39-48.
40. Lucy Bradnock, *No more masterpieces: modern art after Artaud*, (New Haven: Yale University Press, 2021).
41. Noys, Benjamin. "Georges Bataille's base materialism." *Journal for Cultural Research* 2, no. 4 (1998): 499-517., pg 503.
42. Morten Tønnessen, Timo Maran, and Alexei Sharov. "Phenomenology and biosemiotics," *Biosemiotics* 11 (2018): 323-330.
43. Diffraction and intra-action of this kind are discussed by both Haraway and Barad. Haraway's chapter *The promises of monsters: A regenerative politics for inappropriate/d others*. can be found in Lawrence Grossberg, Cary Nelson, and Paula A. Treichler, *Cultural Studies*, (New York: Routledge, 1992). And Barad's explores these ideas further in Karen Barad. *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*, (Durham: Duke University Press, 2007); and Karen Barad, "Diffracting diffraction: Cutting together-apart," In *Diffracted worlds-diffractive readings*, (London: Routledge, 2018), 4-23. See also, Anna Tsing, "More-than-human sociality: a call for critical description," In *Anthropology and nature* (Routledge, 2013): 27-42.
44. Raewyn Martyn, "Surface Active Agents" *Antennae: The Journal of Nature in Visual Culture* 45, (2018).
45. Jeff Doring, "Gwion artists and Wunan Law: the origin of society in Australia," *Rock Art Research* 31, no. 1 (2014): 3-13; Mihnea Mircan and Vincent WJ van Gerven Oei, eds. *Allegory of the Cave Painting*, Mousse Publishing, 2015. Paul Tacon, "Australian Pleistocene rock art," *Nature Human Behaviour* 5, no. 3 (2021): 301-302.
46. Haraway (2008).

47. Peter Lenco, *Deleuze and world politics: Alter-globalizations and nomad science*, (Routledge, 2013). Raewyn Martyn, "Adventure: Biopolymer Aesthetics and Empathetic Materialism—Another World is Possible," *Matter: Journal of New Materialist Research* 3 (2021): 120-150.
48. Antonin Artaud, Tony MacGregor, and Norrie Neumark, *To have done with the judgement of God*, (KPFA Radio, 1965); Antonin Artaud, *Antonin Artaud Anthology*. Edited by Jack Hirschman. Translated by Bernard Frechtman. (San Francisco: City Lights Books, 1965). Felix Guattari and Giles Deleuze, *A thousand plateaus: Capitalism and schizophrenia*, *Trans. By Brian Massumi*, (Minneapolis: University of Minnesota, 1987).
49. Daniel Belasco, Carroll Dunham, and Elizabeth Hirsh, "The Heroine Paint" : After Frankenthaler, Edited by Katy Siegel (New York: Gagolian Gallery, 2015). Museum of Modern Art (New York. MoMA Highlights: 325 Works from the Museum of Modern Art. ABRAMS, 1999.
50. Lucy Bradnock, "No More Masterpieces", 9. Artaud's essay on van Gogh was first published in 1947. Antonin Artaud, et al., *To have done with the judgement of God*.
51. Antonin Artaud, *Antonin Artaud Anthology*.
52. Bataille (1985): 94.
53. Morten Tønnessen, et al., "Phenomenology and biosemiotics," 323-330.
54. Emily Apter, "Planetary dysphoria," *Third Text* 27, no. 1 (2013):135.
55. Apter (2013):135.
56. In my own work, poems become material within gel-cast cellulose artworks like *Howling Bawling* (2018), Martyn, Raewyn., & Lee, Aram. "On Riso, an interview" (2018). <https://walkerfalls.wordpress.com/2018-2019/> In *Greywacke love poems: returns* (2019-2021), the paintings become bio-based and circular archives as the artwork biodegrades. In *Paint over, use again* (2021), I traced text and images drawn by my late grandmother and developed techniques to embed and transfer these family archives within the curing bio-based paint film. As part of these projects, I have developed a range of improvised 'drying racks', or 'reproductive surfaces', that became printmaking devices.
57. Wassily Kandinsky and Hilla Rebay. *Point and line to plane*. (New York: Dover Publications, 1979).
58. Kandinsky (1979): 32; 116.
59. Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, (Minneapolis: University of Minnesota Press, 2013).
60. Clare Echterling, "Proliferation, Action: Marine Plastic Pollution, Material Agency, and Affective Representation," In *FORUM: University of Edinburgh Postgraduate Journal of Culture & the Arts*, no. 19, (2014).
61. Max Liboiron and Tina Ngata, "Māori Plastic Pollution Expertise and Action in Aotearoa" (2020).
62. Catherine Malabou, *Changing difference*, 73; Catherine Malabou, *What should we do with our brain?*, 80-81. This adaptive plasticity and expression are akin to shape memory in bacterial biopolymers. The bacterial thermoplastic biopolymers, and polysaccharide blends used in *Greywacke Love Poems: Returns* (2019-2021), reconfigured through heat that can also trigger shape-memories at predetermined heat settings, revealing a plasticity that exists in recognition of a resiliency which involves flexibility but also resistance, deformation, reformation, reconfiguration and reproduction.
63. Jamie Brassett and John O'Reilly, eds., *A creative philosophy of anticipation: futures in the gaps of the present*, (Abingdon, Oxon: Routledge, 2021). As with the bio and geosubjectile, these anticipatory and atemporal objects (and surfaces), need new semiotic approaches. Stefania Caliandro has surveyed changes in the ways that semiotic understanding emerges, including the importance of physical morphology of forms versus the dominance of cognitive processes of recognition (Caliandro 2019, 1-2). Caliandro cites morphogenetic theory within sociology, which theorises the emergence of structure and agency within society through cycles of agency within nature and culture (Archer 2000, 121). In thinking through Caliandro's revision of semiotics within artworks, the objectile and subjectile can be used to understand the fields of practice from which more speculative morphologies emerge.