CO-CREATING WITH MATERIALS: A PRACTICE-LED APPROACH TO EXPERIMENTAL PRINTMAKING

by

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ABSTRACT

This practice-led study investigates the relationship between the artist and material in the context of experimental printmaking as a relational approach, reimagining creative responsibility as a shared phenomenon among all agents involved in artistic practice. Grounded in posthumanist and new materialist theories, this study explores arguments of human-material relationships as relational and participatory. This study examines the entanglement of human and material agents within creative environments, challenging anthropocentric views of the processes, materials and tools involved in artistic practice. Responding to human-centric perspectives of agency, this study refers to Karen Barad's (2007) agential realist ontology and Lambros Malafouris' (2008) material engagement theories to reimagine agency as an emergent property of engagement rather than an attribute of the human subject. Furthermore, the idea of artworks as the manifestation of growing relationships between the artist and material in practice is theoretically considered through Donna Haraway's (2016) notion of 'becoming-with'. This study posits that creative agency extends beyond the human artist, acknowledging the active roles of materials and environments in the co-creation of artworks.

This study employs an explorative experimental printmaking approach that emphasises tactile engagement and responsiveness to materials, allowing for a dynamic exploration of their inherent properties and behaviours through imprints and transfers. Informed by Bolt's (2004) participatory methodology, I view the artist, materials, tools, and environment as co-responsible elements in the creative process. By relationally engaging with materials and tools that can be found and brought into both the domestic environment and printmaking studio, I seek to highlight these material participatory agents in the form of mark-making and surface impacts, thereby revealing their roles in the processes to the viewer. The creative process and outcomes were presented in an exhibition comprised of eight series of experimental prints, bringing attention to the creative agency of an artist-tools-materials-environment collective. Following a relational approach to creative research, I explore emerging tensions of knowledge generation through practice, reflecting on the processes and outcomes through documentary images and transcriptions.

This study aims to broaden the understanding of shared creative agency in art practice, specifically in printmaking as an artistic process. Subsequently, this could lead to a more responsible approach to materials in creative practice and could decentralise the human

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artist by encouraging relational creative practices. This study critically evaluates the role of the material bodies in art practice as equally crucial to the role of the human artist.

Key Words:
Practice-led research, experimental printmaking, co-creation, process, new materialism, material engagement, artist-material relationship.

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Thank you to my family, my supervisor and my extended academic family for the guidance and support you all provided.

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CHAPTER ONE: INTRODUCTION

1.1. Background and problem statement

In this practice-led study, I investigate the artist-material relationship in experimental printmaking by considering the role of the materials, tools and environment through a new materialist lens. I reflect on the experimental printmaking processes in this study as sites of enquiry, exploring the collaborative nature of artmaking and considering both the artist and the material as co-creators collaborating within situated environments. In order to investigate the creative influence of participatory materials in studio practice, this study draws on posthumanist and new materialist theories that critique human exceptionalism and the binaries between nature and culture, as they pertain to the privilege of humans over other-than-human beings (Braidotti 2013:96; Clark 2022:20). Geographer Kay Anderson (2013:5-6) critiques Descartes' philosophy, noting that he categorised the cognitive human subject as ontologically separate from nature. This ontological separation led to the perceived positioning of humans as rational, self-aware agents that act upon their surrounding environment (Anderson 2013:5-6). The posthumanist critique of human exceptionalism, informed by Cartesian binaries, is often focused on decentring the human from a position of superiority over nonhuman entities (Clark 2022:20). The critical endeavour of theorising a more integrated and relational human ought to be accompanied by a perceptual shift in how the human-material relationship is regarded.

New materialism, a branch of posthumanism that considers the ontological position of matter as dynamic and influential, challenges anthropocentric perspectives of human agency as solely responsible for the development of culture, and, more broadly, human understandings of the physical world (Barad 2007 91:151; Benson, 2019:259; Coole & Frost 2010:2). New materialist discourse theorises human-material relations as deeply entangled, arguing that agency occurs among all things that are involved in processes of relation and interaction (Benson 2019:259). 'Agential realism', an epistemological-ontological-ethical framework coined and theorised by feminist posthumanist philosopher Karen Barad (2007), seeks to clarify the roles of both human and non-human entities. Barad's (2007) framework investigates the interplay between material and discursive practices, natural and cultural factors within scientific and other social-

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material practices. Agential realism provides a framework for understanding interactions themselves as phenomena, stating that humans are inherently inseparable from material configurations rather than mere observers (Barad 2007:91,151). Political theorist and philosopher Jane Bennett's (2010b:12-13, 25) theory of vital materialism follows a similar line of reasoning, positing that matter holds the capacity to generate, influence and alter material configurations. Bennett (2010b:25) argues that through interaction with materials, the subject's[1] mental or physical state can be influenced by material behaviours. Furthermore, Barad (2007:91,151) critiques the idea of matter configurations as independent, abstract objects in space, arguing that the materialisation of the world can be understood in terms of the inseparable phenomena which constitute the world, actively entangling and becoming.

The practical application of new materialist theories is a central concern in this study, as material engagement is an essential component of art-making and creative research in my practice. Contemporary artist-researcher Linda Knight (2021:72) draws on Barad's (2007) agential realist framework in her own practice by developing a methodology termed "inefficient mapping". By documenting phenomena inaccurately or ineffectively, Knight (2021) can acknowledge the elusive nature of interrelated instances that constitute a given space and time, communicating the limitations of representation. *Fire storm* (Figure 1) is a pencil drawing serving as a gestural cartographical recording of the eastern-Australian bushfires that occurred between 2019 and 2020. Knight's process is an attempt to document more than the fire itself; it conceptually encompasses the embedded material and cultural histories that contributed to its occurrence and investigates how these histories are lost in subjective documentation and interpretation.

According to Jelena Djuric (2018), a system can never be completely understood by analysing individual components, since new and unpredictable complexities emerge when embedded histories are joined in consideration. *Fire Storm* (Figure 1) highlights the pertinent effects of colonial environmental mismanagement of Australian Indigenous lands by omitting this narrative from its documentation. The consideration that Knight (2020) cultivates and sustains for the history and complexity of the environment she attempts to record is lost in translation. However, the conceptual findings that grew from those considerations lie in the process of creating the work

[1] In this instance, the subject refers to the human who engages with the material.

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(Figure 1). Ally Bisshop (2018:8) argues that certain process-based creative explorations open avenues for the artist to develop a sensitivity to the material forces involved in creative practice. When regarding creative practices and artworks such as *Fire Storm* (Figure 1) through a new materialist lens, one can gain a greater understanding of the material involvement and intricacy of embedded narratives involved in creating the work.

Figure 1: Linda Knight, *Fire Storm*, 2020, pencil on paper. (Knight 2023:sp).

Artist-researcher Barbara Bolt (2013:6) discusses the associations between entangled thinking and artmaking, stating that matter is a participatory component of artistic practice. Barad (2007:33) coins the term “intra-action” in her agential realist framework, which provides appropriate terminology for an understanding of interactions composed of differential agents that cannot be separated from their relations. Following Barad’s (2007:33) adapted understanding of interaction, participatory materials can remain distinguishable while emerging through their entanglements (Barad 2007:33).-The relations between different entities are productive, therefore, Barad’s (2007:33) theory provides context within the studio environment, as artist, material, tools, and environment are not separate, self-contained elements; they are co-constitutive forces shaping and being shaped by one another. The physical and conceptual thresholds between the artist and material can fluctuate as gestures, pressures, resistances, and transformations. For Bolt (2004:52-53), the human artist ought to remain responsive to material forces, and in this way, the materials, tools and objects involved can become accountable for their role in the development of an artist's practice. Both Barad’s

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(2007:33) notion of intra-action and Bolt's (2004:52-53) participatory methodology argue for the possibility of an artistic practice that recognises co-responsibility as the crux of the creative process. Following on, artists can form part of a collective negotiation amongst material, technical and environmental participants, while their situated practice can become a collaborative site from which artworks emerge.

While contemporary theorists such as Barad (2007), Bennett (2010b) and Bolt (2004) provide a framework for understanding material influence in human-material relationships, artists have long explored the active role of materials, often engaging in processes that mobilise the behaviours of materials. In the work of selected Abstract Expressionists and artists Max Ernst and Jackson Pollock, material influence is prevalent and embraced through experimentation and exploration. Tobias Zur Loye (2010:6) explains that Ernst's frottage technique harnesses the interaction between object, artist, paper, and rubbed graphite, creating an expressive link between internal imagery and material texture transfer. According to Lorenzo Pereira (2015:sp), Pollock's action painting embodies the intersection of automatism and process art, focusing on unconscious gestures and the unpredictability of the material. While their relationships with materials are distinct, Ernst and Pollock engaged in a dialogue with materials, responding in ways that influenced the process and artistic outcomes. These artists provide a foundation for contemporary theoretical discussions on material agency, particularly within practice-led research processes[2].

Building on these historical considerations of material influence in creative practices, the critical question of authoritative action in material engagement must be considered and has become central to new materialist discourse. The critical endeavour of investigating who or what holds responsibility for action has become a matter of contention, especially when theorists such as Barad (2007), Bennett (2010b) and Melinda Benson (2019), argue that human agency is an anthropocentric concept. Diana Coole and Samantha Frost (2010:4) claim that the idea of lively and dynamic materials existing in relation to humans poses a fundamental challenge to conventional understandings of human agency. According to Jerry Rosiek, Scott Snyder and Jimmy

[2] Ernst and Pollock are discussed here as broad examples of artists that exist in a larger field of art practice. These artists fall into a Western-centric perspective of art practice. This study does not overlook the contributions made to the field of new materialist perspectives by more indigenous art practices, rather, these practices could not be investigated in depth due to the scope of this study.

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Pratt (2019:8), most Indigenous cultures agree on the agency of non-human bodies and the importance of cultivating relationships between humans and non-human entities.

Relational practices, according to Rosiek *et al* (2019:8), are a given assumption in Australian Indigenous culture. Josh Boughton (2020:57) argues that Indigenous approaches to the material world are mostly ignored by Western[3] theorists. Animistic beliefs propose a particular perspective of non-human beings and objects as enlivened by spirit (Boughton 2020: 57-58). Animism bridges the gap between the human and the other by anthropomorphising objects and animals and cultivating empathy and respect for these entities (Boughton 2020: 57-58). In contrast, Cartesianism contributes to the idea of agency as the capacity to act, something possessed by humans alone (Benson 2019: 253). Bennett (2010b:41) presents a more complex and distributed view of agency, arguing that it arises from both human and non-human actants in a relational collective of material bodies. According to Bennett (2010b:41), agency is shared among all engaging bodies. A slightly more integrated perspective is provided by Barad (2007:178), who argues that agency is not a property that one has; rather, it is the 'doing' that emerges through intra-action. When the concept of 'doing' as generative of agency is applied to the act of making, the artist's engagement with materials and environmental factors can cultivate a sense of shared agency that grows out of this engagement.

Despite the rigorous advocacy for agency as relational rather than subject-specific (Barad 2007; Bennett 2010b; Coole & Frost 2010), new materialism faces the critique that materials should not be regarded in this flat ontological perspective. Joseph Barker (2015:56,58) questions the vitalist arguments proposed by Bennett (2010b), cautioning against projecting human agency onto non-human entities, which risks reinforcing contested anthropocentric tendencies. Instead, Barker (2015:56) suggests distinguishing between interactions among materials as "events" and the notion of matter making "a free, agential selection or choice." New materialist theorists challenge

[3] Claudio Tagliapietra (2023) explains 'Western culture' as referring to a broad range of cultural, scientific, technical, and spiritual advancements that stem from the principles of ancient Greek and Roman civilisations, with significant influence from Christian religious beliefs. Geographically, Western culture is tied to Europe and countries that have a close connection to Europe through colonial impacts. In an African context, Clifford Sibani (2018:57) explains that Indigenous African cultures were eradicated by colonial practices, and much of native African culture has given way to European cultural practices.

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this perspective, contending that the issue of agency arises, in part, from privileging a specific form of awareness or sentience (Anderson 2013:5). According to new materialists, the idea of agency requires a more integrated understanding of subjectivity that transcends human-centred distinctions.

Barad (2007:140;177) attempts to move away from an over-reliance on subjecthood, stating that agency arises *from* engagement rather than *preceding* action. This calls into question the authority of the artist as sole creator in artistic practice. This perspective can encourage artists to consider the shared agency through material engagement as integral to their practice, moving away from an exclusive focus on human subjectivity. Material capabilities pre-exist and extend beyond human intervention, highlighting a participatory network involving all material and entities, as well as the mutually relational, non-central human (Benson 2019:253), suggesting a shift from agency as a human-centric attribute to a broader perspective that acknowledges matter as agentic. This study follows Barad's (2007) and Bennett's (2010b) directives, reframing material agency in art practice not as a projection of human agency but as the implication of relational and participatory artist-material engagements.

In contemporary studio practice, an increasing number of artists have gravitated towards creative processes that encourage the role of materials in shaping both the method and outcome. Printmaker Steve Cussons (2023) embraces material interrelations by treating materials as co-authors and engaging in tactile interventions that equate her bodily presence with those of the materials, as seen in her monotype *Dark Star* (Figure 2). Bolt (2004:8,48-49) explains that the body forms part of material engagement, while art practice becomes an experience through handling and touching the materials, tools and objects involved in the process of creation. Artist Amanda Watson (2021:121) extends this notion of embodied participation and engages in on-site relational interventions, treating her surrounding environment as an active participant in the creative process. She uses a technique she calls 'wrapping' (Watson 2021:121) (Figure 3), which involves draping canvas over branches, plants, and forest floors. By painting onto the draped fabric, Watson (2021:121) allows environmental conditions to shape the outcome. Both these artists embrace receptivity and response, positioning themselves as participatory and observational in a dialogue with material and/or place.

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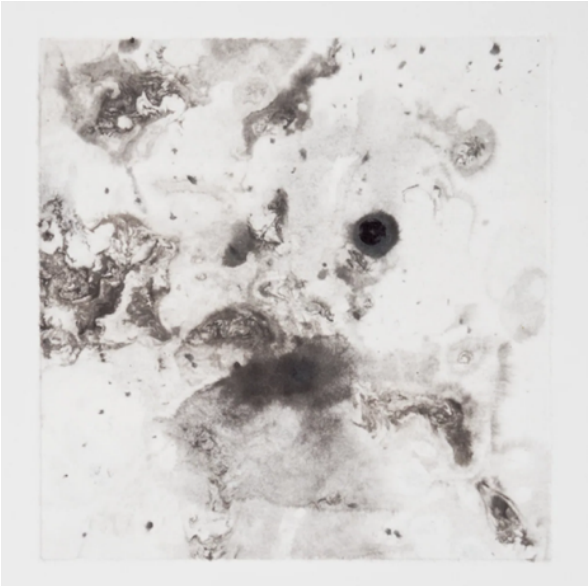

Figure 2: Steve Cussons, *Dark Star*, 2023, Ink monotype on paper, 20 x 20cm. (Cussons, 2023:sp).

Figure 3: Amanda Watson, Documentation of a painting in progress on a mountain in Taranaki, 2019, New Zealand. (Watson 2021:122).

Multidisciplinary South African artist Banele Khoza takes a process-based approach to painting, allowing the development of the composition to be evident in the final work (Sincuba 2023). Khoza's hand is loose and gestural, and his relationship to the medium is non-restrictive and indulgent. His relationship with paint bleeds into his approach to lithography, a printmaking process that translates painterly motifs to etched marks

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(Dawson 1981:102). The lithography process relies on the repellent relationship between oil and water to generate an ink transfer. The artist harnesses the behaviour of fatty-acid ink, attracting an oil-based ink that is rolled onto a dampened stone or plate (Dawson 1981:102). In conventional stone lithography, the stone, or in Khoza's case, the inked plate, is run through the press along with a sheet of paper to create the print. The two individual colours in *overthought* (Figure 4) are drawn on and printed from two separate plates (Dawson 1981:110). As seen in Khoza's lithograph (Figure 4), the large red body of ink has an experimental quality and is representative of the artist's ability to allow the material to act. The material's behaviour is contrasted by the text and drawings made by the artist, which signify Khoza's influence on various materials and engagement with the subject matter. Khoza's practice resonates with Barbara Balfour's (2016:122) claim that printmaking is a dialogic process of intervention and a relational medium of agency.

Figure 4: Banele Khoza, *overthought*, 2018, Two colour lithograph, Edition 17/20, 56 x 36cm. (Khoza 2020:sp).

As evident in their approaches to surface impacts and transfer, Cussons (Figure 2) and Khoza (Figure 4) reveal the experimental aspect of printmaking processes. Furthermore, Holger Koefoed (2017:245-246) highlights the necessity of material influence in printmaking, stating that the medium relies on the agency of materials in

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creating compositions and transfers. As with lithography, the chemical properties of the materials contribute to the resolution of the final print. Printmaking, in its most fundamental form, is the act of transferring marks through direct contact between two surfaces. This physical connection between materials as surfaces is emphasised by José Roca (2011:101) as essential for the relocation of marks from the material that holds information (matrix) to the material that receives information (substrate). Crucially, the transfer of motifs from the matrix can rely on the presence of a medium[4] that may be present on the flat surface (planographic), selected raised parts of the surface (relief) or within scorings removed from the surface (intaglio). The distinct roles of the matrix, medium and substrate in the printmaking process can be expanded upon according to the artist's interpretations and the material's capabilities. In recent years, printmakers have used the term 'expanded printmaking' as a classification of the fluid and amalgamate potential of print media (Peltzer-Montada 2018:4). As is the case with Khoza's approach to lithography, printmaking can be defined and adapted by the artist, and because of the reliance on material contact, interactions between substances can influence the process and outcome. It is, however, the artist's choice to embrace or resist such material advances during the creative process.

Bisshop (2018:4) explains that artists are inclined to perceive the world through a human lens, neglecting the importance of material agency in their practice. According to Bennett (2015:73), artists need not attempt to subjugate their materials and tools as if these were static objects awaiting instruction. When the artist-material relationship is dominated by the artist's intent for their materials, it can lead to an oversight of the latent potential held by materials. Archaeologist Lambros Malafouris (2008:33) provides a theoretical perspective for understanding artistic intent in collaborative artist-material relationships. Malafouris (2008:31;33) considers artistic intent as emerging from and alongside relational engagement within artist-material collaborative practices and argues against the idea of intent being a preliminary internal state of ideation. By expanding and deepening the understanding of more-than-human agency in art practice, the intent of the artist as the determining factor of material potential and creative outcomes can be reimagined (Hodder 2012:2). By applying new materialist

[4] This is of course not the case when the artist wishes to create a blind embossing, which is essentially a transfer of the texture of the matrix—a ghost image without the presence of a medium to demarcate the motifs.

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theoretical and practical approaches to experimental printmaking processes, this study seeks to move beyond a human-centric account of artistic practice.

1.2. Research questions

This study proposes that a practice-led approach to the investigation of the artist-material relationship can provide insight into the complex entanglement of human and material actants. While guided by new materialist and posthumanist notions of human-material entanglement, this study aims to challenge anthropocentric views that disregard the non-human creators involved in printmaking processes. Bolt (2004:53) draws from Martin Heidegger's (1977:5) view on instrumentalism in his discussion on the human-tool relationship, stating that an artist's fixation on the purpose of a tool may hamper a better understanding of the nature of the implement. In the context of contemporary painting practice, Sarah Munro (2022:1) claims that materials and tools becoming involved in gestures of "representational, reflective and interpretive methods of painting" are often seen as inert and inactive. Perspectives that reduce materials and tools to mere passive agents of human intention stand in contrast to more experimental and explorative engagements with materials.

Printmaker Peter Green (1967:21) reflects on pattern printing, stating that simple to complex compositional occurrences are often spontaneous and process-driven. He asserts that artists need not impose their skill onto materials but rather "explore the natural potential of a process and perceive the quality of materials" (Green 1967:21). An artist who pays attention to material influence can be met with tactile and conceptual tensions that drive the process. Experimental printmaking practices could aid in the recognition of print as a process of development rather than a mere means to generate a product or result (Roca 2011: 98-100). The means of relational engagement with materials could inform the emergence[5] of artworks. In this way, the artist-material participatory instances rely on reflections of the process itself to understand material contributions. Additionally, the fundamental qualities of printmaking allow for a critical perspective of haptic engagement and visual phenomena, both during the stage of

[5] This study uses the word emergence in the context of new materialism, Emergence therefore refers to that which comes forth within and from entangled relationships between bodies (Djuric 2018).

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creation and after the completion of works (Balfour 2016:125). As the act of transferring information from one surface to another relies heavily on the responsiveness of materials, printmaking processes can kindle respect and awareness of material capacities. Experimental processes of printmaking could serve as a space for collaborative intervention between the artist, materials and environment[6], which may lead to unexpected material relations.

The participatory ethos of my practice is being critically examined through self-reflective accounts of the creative process. The primary materials used are polyvinyl acetate glue (PVA glue), plaster of Paris, gelatin, soot, water, and paper, which were introduced and incorporated into the body of work of my art practice during the fourth academic year. During this time, the possibilities and limitations of working in a home studio were investigated, as the relationships with involved materials arose from a need to print without a printing press. To accommodate the home environment, additional materials and processes are being introduced to incorporate non-toxic[7] printmaking techniques. These materials include bioplastic made from gelatin and cornstarch, white spirit vinegar, iodised table salt, Himalayan salt (halite), copper, iron, aluminium, and foraged stone pigments.

The characteristics of these materials, such as their weight, density, texture, instability, solidity, viscosity, miscibility, and porosity, among others, determine the nature of interactions between materials and determine my response to them. According to Wael Sabour (2017:54), non-toxic approaches additionally create opportunities for innovation and experimentation in an artist's practice, given that the methodology of the specific printmaking approach is adjusted to transfer marks and motifs from and onto these

[6] For the purposes of this study, environment refers to a whole of multiple parts constituted by organic or artificial objects and the forces involved in that environment, be it the natural elements, gravity, humidity, weather conditions, among others. Such an environment includes non-human agents that may become involved in the process, whether being aware of them or not, as the artist's awareness of them do not increase or decrease the significance of their involvement.

[7] The reasoning behind this is twofold: first, during the COVID-19 pandemic, awareness arose that there may not necessarily be access to professional printmaking studio facilities after graduation, and a way would have to be found to continue to practice from home. As a result, ways of introducing domestic materials that would not cause harm to the artist or others in the artistic environment were investigated. Secondly, the sheer volume of outcomes generated, including remnants of the printmaking process, which may end up being discarded because of space constraints, became apparent. These objects enter landfills and interact with the soil and surrounding environment and could potentially be harmful. In addition, most cleaning solvents and biting acids commonly used in professional printmaking studios cannot be safely stored and disposed of in a home studio setting.

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non-toxic alternatives. The materials in their respective combined states as completed artworks are not necessarily archival, nor are they formally or structurally consistent over time. Accordingly, they may change in colour or form as they respond to the environment, and artworks may even slowly deteriorate. In this way, the materials could remain reactive to their environment long after their roles in the creative process have concluded. This aspect implies that the materials may continue to change and respond, and their reactivity to the surrounding environment could give the viewer insight into how these materials may influence creative outcomes over time.

Following the framework provided by the theoretical and practical integrations, the subsequent research questions are as follows:

i. How may a new materialist approach invite and elevate material participation in an experimental printmaking practice?

ii. How may an exhibition comprised of materially experimental co-created prints encourage a reconsideration of the vitality and expansive influence of materials in printmaking processes?

1.3. Aims and objectives

This study aims to develop an artistic practice guided by both human and material agencies to encourage an understanding of co-creation, where creative potential and influence are perceived as shared attributes among all agencies involved in artistic production. Following Bolt's (2004; 2006) participatory methodology, artist, materials, tools and the environment are understood as intermeshed components of creative activity, and in my experimental printmaking practice, I aim to surface non-human participation as forms of mark-making and surface impacts to reveal such processes to the viewer. Taking into account the widespread concerns of human exceptionalism in relation to the treatment of the non-human world (Giraud 2019:6), a participatory approach to materials in the creative process may encourage an increased sense of responsibility in relational practices.

By researching ontological perspectives and philosophical positions regarding the agency of material bodies in art production, and the discourse of new materialism, this

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study aims to integrate a theoretical framework into creative practice, cultivating an approach that will inform the manner of engagement with materials during artwork production, which may serve as a manifesto for responsive and responsible experimental printmaking practices.

1.4. Research methodology

In following a practice-led research approach, this study will integrate theory and practice, and as argued by Nicholas Davey (2008:20), will aim to ensure that both components emerge relationally and remain integrated with each other during the progression of the study. Linda Candy and Ernest Edmonds (2018:63) and Roger Dean and Hazel Smith (2009:5) argue that in the case of practice-led research, the outcomes of creative production function as knowledge generation since the artist-researcher has a specialised approach in their practice and could generate understandings that are subsequently transcribed and presented as research. Moreover, practice-led research necessitates the integration of theoretical analysis as a form of understanding alongside practical, embodied, situated, and intuitive knowledge. In this context, creative practice serves as a means of generating connotations through relational processes (Beck & Conrad 2015:10-11,17; Leavy 2017:14).

Therefore, in this study, a theoretical analysis is conducted in conjunction with creative practice as a necessary means to establish the context of contemporary theoretical perspectives and artistic approaches with regard to material agency, entangled and relational perspectives, and artist-material collaboration. Selected artistic processes that inform this study's approach to material participation are analysed and discussed as pertaining to methodologies that align with new materialist perspectives. By extracting information from the visual texts that reveal these contemporary creative processes, discussions are textually developed against/supported by theoretical texts that allow the contextualisation of this study's practice and ensure its alignment with relational approaches. Textual analyses serve as points of departure for "imaginative interrogation" (Sullivan 2009:50) during the process of artmaking. At times, reflections on the intersections between new materialism, practice-led research, printmaking and subjective interpretations of their connections through process are included, specifically regarding the relationship between the human and the material world.

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Patricia Leavy (2017:191) defines practice-led research as a research design that considers artistic practice to be an emergent process of enquiry. Furthermore, Usva Seregina (2020:522) states that practice-led research focuses on process rather than output. Therefore, the creative process will serve as the unit of analysis throughout this study. This study will conduct practical, exploratory research led by the creative practice and theoretical framework to develop a material co-driven experimental approach to printmaking. Various intaglio, relief and planographic printmaking methods will be investigated and adapted to prioritise the agency of materials with the aim of exploring the potential of these materials to co-generate processes and modes of transferring relationally produced marks.

In an adapted, experimental etching approach, white spirit vinegar-driven oxidisation is introduced in copper biting (Figure 5) as an attempt to cultivate an *in situ* copper etching process. The materials involved allow the exposed copper engraving to generate its own pigment for transferring an ‘inked’ matrix. The marks are then transferred onto PVA glue and plaster of Paris compound (Figure 6). The viscous nature of the compound prior to curing allows for a transfer without pressure or significant destruction to the oxidised surface. The reaction of the involved materials is only visible in the final print (Figure 6), although evidence of the material intra-actions, intricately involved in the generation of marks, remains visible on the matrix (Figure 5).

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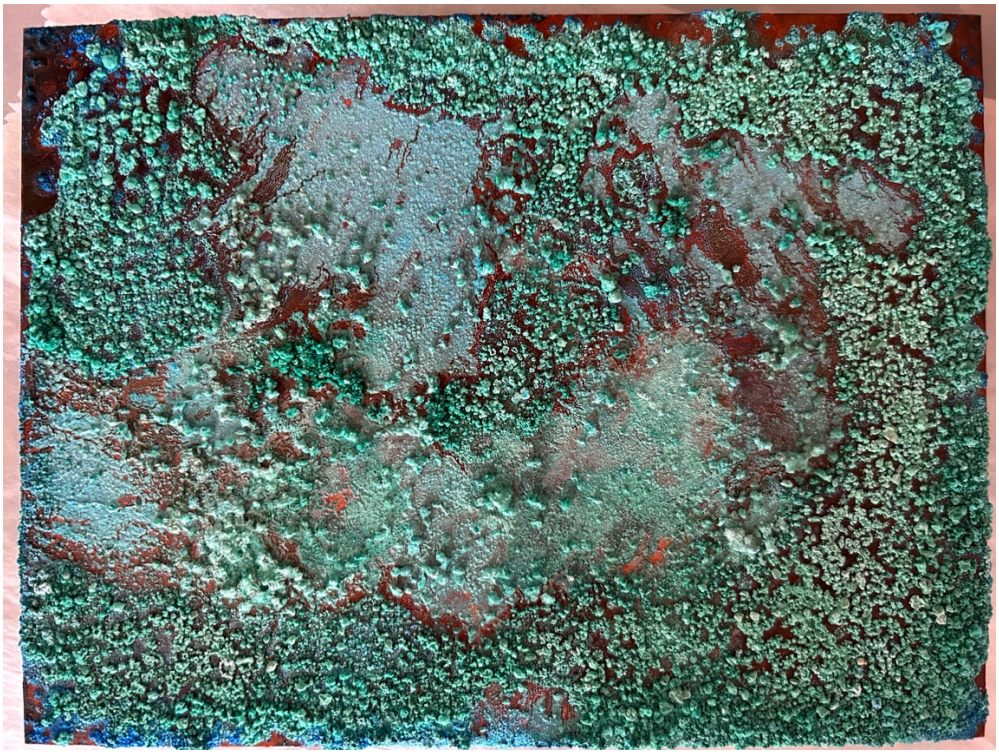

Figure 5: Engraved copper plate after oxidation, 19 August 2023.

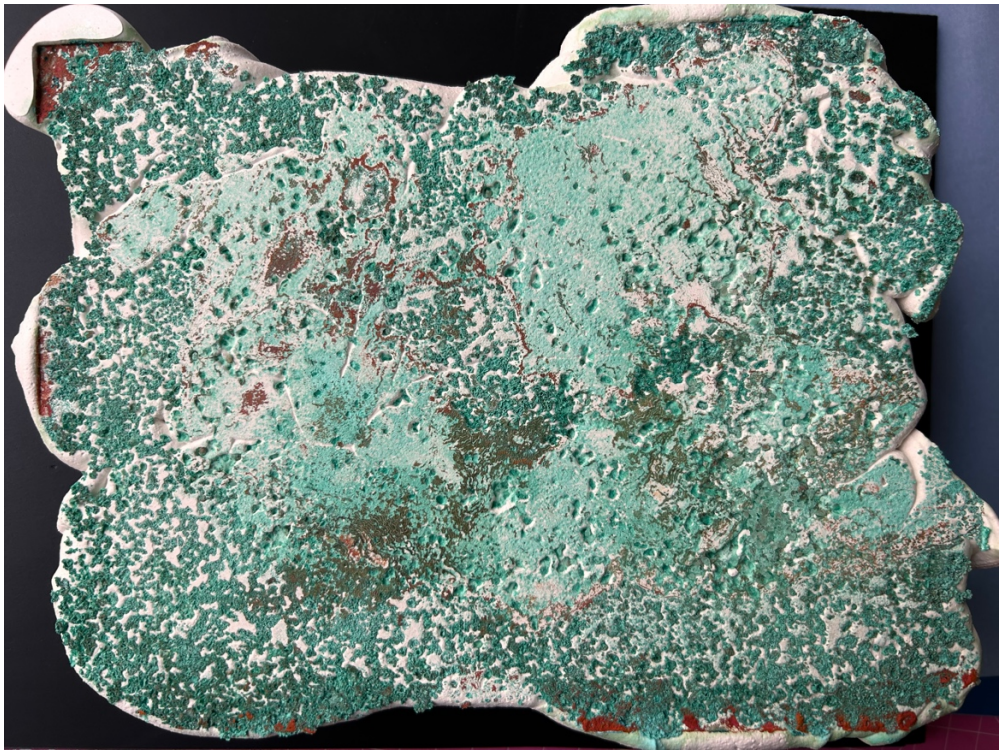

Figure 6: *Before we found our way*, 2023, Hard ground and gelatin on plaster of Paris and polyvinyl acetate glue compound, Monoprint etching, 17 x 22 x 5cm.

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Conducting practice-led research includes a sensory, bodily, interactive and relational generation of knowledge (Seregina 2020:529). Malafouris (2008:19-20) claims that an artist and their material have a relationship of exchange that cannot easily be verbalised, and a certain understanding of material knowledge can be cultivated through tacit interaction, wherein materials and the artist play executive roles. Yet, to prevent the process from expanding too far beyond the scope of a study, artists can set parameters for how they choose to conduct this material research while simultaneously remaining receptive to the outcome. As a result, in order to maintain the focus of this study, specific processes and material participations are largely restricted based on their ability to generate specific surface motifs and transfers. This study will aim to maintain a position of curiosity, humility, relational observation and responsiveness towards creative experimentation in printmaking to find processes that emphasise the prevalence of material agency in creating prints.

At times during my practice, an attempt to execute a specific intention by imposing my acquired skills on certain materials and tools may result in an "unsuccessful" print due to the materials acting outside my expectations. However, these moments of deviation are not failures but opportunities for discovery, requiring that I respond adaptively and reflect on what may have occurred or how I could have remained more open and receptive. Therefore, as proposed by Green (1967:8), I aim to explore printmaking processes and materials with “humility and a genuine sense of [e]nquiry”. It requires consistent attention and reflection to remain responsive to materials, their potential functions and their behaviours during the process. The approach to experimental printmaking in this study follows a trajectory of discovery over control, curiosity over imposition, and process over outcome.

1.5. Literature review

My understanding of a practice-led research design is shaped by theorists who emphasise a process-based approach, where creative practice is integrated with an established theoretical framework. Linda Candy and Ernest Edmonds (2018:63) stress the importance of distinguishing between textual analysis and creative practice, yet acknowledge their interdependence. Roger Dean and Hazel Smith’s (2009:7) view on the reciprocal relationship between artworks and creative processes suggests that these are co-responsible for generating potential knowledge, shifting the research

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dynamic from one of interpretation to co-creation. This is in consensus with the views of Barbara Bolt (2006:7) and Patricia Leavy (2017:191), who highlight how insights emerge through the artist's direct engagement with materials. Here, reflection is not an external, retrospective act, but something entangled within the making process itself. Graeme Sullivan (2009:50) and Katy Macleod and Lin Holdridge (2006:2) frame existing theory as a point of departure for practice as an alternative to a fixed structure to be applied, allowing for a more fluid exchange between conceptual and material thinking.

New materialist perspectives inform this study's conceptual and methodological approach to creative practice, positioning materials as active participants in creative processes. Bruno Latour (1996), Karen Barad (2007), and Jane Bennett (2010b) all propose ontologies in which agency is distributed across networks of entangled actors. While Latour (1996:4;7) conceptualises this as an actor-network, where agency emerges relationally, Bennett (2010b:124-125) extends this by arguing that vitality is inherent in all matter, destabilising anthropocentric views of agency. The research objective in the present study strongly aligns with Bennett's (2010b) perspective, challenging the notion that only human actors drive creative and material transformations. Diana Coole and Samantha Frost (2010:1) similarly emphasise interconnectivity as fundamental to existence, a view echoed in Donna Haraway's (2016:13) concept of 'becoming-with', the idea that living entities are co-constituted through their mutual entanglements. Lambros Malafouris (2008; 2013; 2014; 2020) extends the idea of co-constitutive relationships to artist-material interactions. Malafouris (2008:31) posits that creative practice is an enactive process where cognition extends beyond the brain, emerging through material engagement. He argues that making is a form of thinking, wherein materials actively shape creative cognition and decision-making (Malafouris 2013:144). This perspective aligns with new materialist approaches, challenging the idea that material "obeys" the artist's ideation preceding creative action (Malafouris 2020:5). Barad (2007:361) pushes this further with her agential realist ontology, proposing that knowledge does not pre-exist independently but emerges through intra-actions between bodies. This challenges traditional epistemologies in which meaning is extracted from static objects. Alternatively, it suggests that understanding is co-produced through material engagement. Latour (1996:11;13) similarly argues that no actor holds inherent privilege

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in a network, reinforcing an egalitarian approach to agency, one that is especially relevant in a practice where material, process, and artist are in constant negotiation.

Printmaking, as both a theoretical and methodological framework for this study, provides a compelling site for exploring these entanglements. Päivikki Kallio (2017:87) explicitly connects printmaking to Latour's (1996) actor-network theory, positioning the final print not as an isolated product but as the cumulative result of dynamic relationships between tools, surfaces, and materials. Roca (2011:100) reinforces this idea by highlighting printmaking as an act of material transfer, where material response is encouraged through physical contact between surfaces. This notion is central to Balfour's (2016:125) argument that printmaking is a process of negotiation, where materials resist, react, and impose their own conditions on the work. Such tensions between control and unpredictability, or intention and material response, are generative obstacles, shaping the creative outcome in ways that exceed human intention.

Subverting the idea of printmaking as a technical means to an end, Roca (2011:98) frames it as a process-driven practice, one that communicates meaning through its methods. Furthermore, Kallio (2017:94) points out that the matrix-print relationship functions as a projection of information, which, if critically considered, allows for an expanded conceptualisation of what constitutes a print. This thinking aligns with an in situ experimental printmaking process conducted and transcribed by Marta Belkot, Antònio da Silva, Rafaela Lima and Garciela Machado (2023). Their practice-led research approach to ink-making investigates local histories through raw materials adapted for printmaking. Their approach exemplifies how materiality itself can serve as a research method, revealing new understandings through process and material investigation. This study builds on these ideas, positioning experimental printmaking as a means of engaging with material participation where the process is not simply a tool for representation, but a site of enquiry in itself.

1.6. Review of visual sources

This study examines selected artworks and processes that embody entangled thinking in contemporary art, focusing on the artist-material relationship. Through relational artmaking, these practices highlight material and environmental co-responsibility in creative production. Linda Knight's *Fire Storm* (Figure 1) provides insight into the

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obscurities of events and the environments they occupy. Steve Cussons' *Dark Star* (Figure 2) explores the oscillating agency between energy and matter, drawing from new materialist theory to connect material intelligence with broader cosmological enquiries. Amanda Watson's wrapping process (Figure 3) invites her surroundings into the creative process, emphasising immediate contact between the artist, material, and environment. *Overthought* (Figure 4) by Banele Khoza reveals the plurality of printmaking. The intersection between Khoza's practice and printmaking processes creates an opportunity for discussions and applications of expanded printmaking practices.

Chrisél Attewell's *Ghosts of Stone I* (Figure 7) investigates material connections by moulding molten glass over river stones, revealing environmental imprints that speak to embedded material histories and relational narratives with the landscape. Penny Siopis' *Transfigurations* (Figures 8-10) embodies entangled artmaking, and the pivotal role of the process is discussed in artist-material relationships. Duncan Bullen's *Breath Drawing no.*22 (2018) (Figure 11-12) integrates bodily engagement and place, prioritising tactile engagement with tools and structural surfaces. *Made by Rain* (Figure 13-15) by Aliki van der Kruijs discusses how experimental printmaking processes develop through environmental participation by incorporating the surface impact of rainfall. By examining the experimental approaches of Jesse Krimes in the making of his work *Purgatory* (Figures 16-18), the environment presents a challenge, inviting the artist to adapt and search for material behaviours beyond human perspectives. Such material productivity underscores the significance of relational engagement in artistic practice (Bolt 2006:5). By acknowledging the histories and agencies of materials in relation to each other, the artist, and the environment, artists integrate themselves into pre-existing networks of relations, expanding conceptual and material narratives.

1.7. Ethical considerations

This study does not include the involvement or participation of human informants or subjects other than myself, nor does it include the involvement of living organisms or animal participants as part of the creative process. The artworks in this study consist of various found, domestic and affordable materials such as copper, white spirit vinegar, salt, soot, found stones or plant matter, linseed oil, glycerin, gelatin, plaster of Paris, PVA glue, starch (corn, tapioca, potato) and cotton-rich paper. Materials are chosen

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being cognisant of any potential harm they may cause to viewers, myself as the artist or the environment, and the material composition of each artwork is disclosed in full on artwork labels as required for a formal Fine Arts exhibition. Though the materials that I work with do not pose a particular risk to people, I follow the requirements for health and safety in a printmaking studio by working in a clean, well-ventilated area with a mask, nitrile gloves, closed shoes and clothing that covers my skin. The final exhibition will be presented in Gallery 2-1 for public viewing and examination purposes.

1.8. Outline of proposed chapters

Chapter Two, *Contextualising co-creation*, provides a comprehensive exploration of the integration between materials and creative practice, advocating for a practice-led approach where knowledge and artistic outcomes emerge through collaborative and transformative material engagements.

Chapter Three, *Fostering co-creative relationships*, provides a personal reflection of the relational process and printmaking methods cultivated in this study. By providing documentation and transcription of the creative processes, this chapter provides information on the adapted copper oxidation process and the exploration of biomaterial substrates and offers insight into how the process of printing with rust shifted the tensions of control in the artist's relationship with the materials. This chapter contains reflections from the artist's journal that provide insight into how the artist's relationships with materials are approached, including the efforts to remain critically aware of the relationships with materials, as well as the process and insights that emerge during its development.

Chapter Four, *Co-creating process*, provides a discussion on the often hostile and volatile relationship with gelatin cultivated in this study and how this relationship implicates the responsibility of the artist. The chapter provides reflections on processes of embodied engagement with substances as surfaces and how these embodied, interactive practices contributed to alternative printmaking methods. The process of curation and display of the works for exhibition purposes is discussed in this chapter. This includes an overview of decisions made to present the process to the viewer, specifically referring to different approaches taken to provide insight to the viewer as to how the works came to be. This is followed by a discussion of how specific works

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responded to the space, revealing how these responses prompted reactions to the space during the exhibition process.

Chapter Five will serve as the conclusion to the study, providing a critical reflection of the study's outcomes and arguments in terms of its aims and research questions.

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CHAPTER TWO: CONTEXTUALISING CO-CREATION

This chapter delves into the role of materials in creative practice, exploring the extent of material influence and participation in the creative process of artists who remain attentive to and reliant on these material forces. It examines the transformative behaviours of materials to challenge notions of human-centric engagement in art-making. By integrating perspectives from new materialism and practice-led research, this chapter highlights the importance of material engagement in cultivating collaborative, adaptive and situated printmaking processes. This chapter considers case studies of artworks and practices by Chrisél Attewell, Penny Siopis, Duncan Bullen, Aliki van der Kruijs and Jesse Krimes. Material agency, the materiality of the human body and process-based creative practices are discussed through the processes of Chrisél Attwell and Penny Siopis to emphasise the material influence present in creative practice and to acknowledge the plurality[8] of artistic mediums. Through a discussion of *Breath Drawing no.22* (2018) by Duncan Bullen, the *Made by Rain* (2012-present) series by Aliki van der Kruijs and *Purgatory* (2009) by Jesse Krimes, the last section of this chapter investigates the manner in which materials and environments can shape printmaking practices. This chapter provides a framework of contemporary creative practice that recognises and incorporates the influence of materials in artmaking as a means to comparatively situate my own practice within a broader field of art practice.

2.1. Materials as transformative

The world around the human, including the human body itself, is composed entirely of materials that are receptive and responsive to interaction, manipulation, observation, and exploration. New materialists argue that materials are in a state of relational flux, possessing the capacity to destabilise boundaries through their behaviours in interactive contexts (Barad 2007:151). Additionally, materials exist as ongoing "heterogeneous bundles" (Hodder 2012:8) that may appear fixed for a time, yet are continually subject to transformation through their interactions with the environment. Materials do not exist in isolation; they entangle with other bodies, undergoing constant reorganisation in ways that are both formally and materially meaningful (Barad

[8] Referring to the capacity of artistic mediums to cross boundaries into the space of other creative mediums.

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2007:353; Coole & Frost 2010:10). In line with Barad's (2007:137) argument, this study views matter as progressive, emergent, and both constituted and constitutive.

Coole and Frost (2010:1-2) highlight a gap between the human and the material, noting that Cartesian thought seems to promote a separation from materiality. According to Coole and Frost (2010:1-2), the body is material, and though they acknowledge the myriad of immaterial components[9] of the body, they argue that human existence depends on the material body. Anthropologist Tim Ingold (2012:432) asserts that material culture consists of matter and form, with the former provided by nature and the latter shaped by human culture[10]. This framework reinforces a nature/culture binary, creating a divide between the human and the material. Rooted in Western belief systems[11], this separation paves the way for rationalistic categorisation and neglect, where the human becomes the agent that imposes purpose and classification on material bodies in an effort to understand the world (Barad 2007:133). As Estelle Barrett (2013:63) observes, research in the social sciences and humanities has often favoured scientific methods, assuming that detached, objective observation is the only reliable way to gain knowledge about the human's relationship to the world. This approach, however, undermines the material capabilities inherent in creative practice as both a process and a method of research.

Contrary to distant observational methods, practice-led research is grounded in experience and enactment, where "aesthetic awareness" (Barrett 2013:64) replaces the traditional objective subject, and knowledge emerges through a process-based engagement with materials. Macarena Rioseco and Emma Rose (2024:2) posit that certain modes of creative practice prioritise integrated exploration, intertwining cognition and bodily involvement. Investigations that take a more embodied approach seek to offer an "expanded interpretation of materials and objects," considering their relationship to the human condition (Rioseco & Rose 2024:2). Rather than simply

[9] Coole and Frost (2010:2) refer to intangible aspects of human experience, such as consciousness, thoughts, emotional experiences, etc.
[10] Ingold (2012:432) refers to Aristotle's hylomorphic model of creation, where artifacts are viewed as consisting of matter (hyle) and form (morph).
[11] Claudio Taglipietra (2023) explains 'Western culture' as referring to a broad range of cultural, scientific, technical, and spiritual advancements that stem from the principles of ancient Greek and Roman civilisations, with significant influence from Christian religious belief systems. Geographically, Western culture is tied to Europe and countries that have a close connection to Europe through colonial impacts. In an African context, Clifford Sibani (2018:57) explains that indigenous African culture was eradicated by colonial practices, and much of indigenous African culture has given way to European cultural practices.

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shaping and manipulating materials (Ingold 2012:432), the artist participates in the transformations of matter. At the same time, the material itself also contributes to the transformation of the artist and the studio practice (Bennett 2015:73). As a form of material engagement, experimental, non-representational art practices can invite the fluidity and unpredictability of materiality, often relying on processes such as deterioration, crumbling, oxidation, grinding, and other methods of manipulation to experiment and communicate visually through the inherent characteristics of the medium. Practice-led work seeks to generate a sensitivity to material progressions and gain conceptual connections[12] between the elements within the creative process.

South African artist Chrisél Attewell delves into the connections between material histories and their environments through play, curiosity, and tactile engagement. Attewell's sculpture *Ghosts of Stone I* (Figure 7) explores the histories of the South African Western Cape landscapes by engaging with found stones and environmental remnants (Attewell 2023:23). In her role as a participant in the environment, Attewell interacts with these ubiquitous cobblestones, which echo the narratives of a former floodplain in Stellenbosch, one that was slowly and dramatically ravaged by commercial farming and residential development (Attewell 2023:23). The particular stone formation presented in *Ghosts of Stone I* (Figure 7) is one of many in Attewell's collection. These stones are remnants that were once ground down over time by the relentless flow of river waters, now remaining as a trace of a once-thriving landscape.

[12] Here, I refer to the conceptual component in art practice, where the theoretical underpinning of the artwork provides context to the work's relationship with the artist's expression of ideas.

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Figure 7: Chrisel Attewell, *Ghosts of Stone I*, 2023, Glass and river cobblestone, 30 x 27 x 25cm, (artsy.net 2024:sp).

Attewell (2023:23) establishes a connection between sand and stone, suggesting that glass is a reflection of sand, which is born from the laborious grinding of stone. This relationship becomes evident in how Attewell brings these materials into dialogue, embedding the surface of one into the other and leaving them in a shared point of contact. Attewell (2023:23) explores the materiality of glass, drawing parallels between its fluidity under extreme heat and the fluidity of water. This connection re-establishes the displaced stone's historical link to the Stellenbosch landscape, solidifying its material origins. The process prior to the artist's intervention is acknowledged, with the surface interferences of primordial forces, such as water and heat, reflected in the work's materiality. Through a practice-led material investigation, connections between material histories emerge, highlighting their relational roles and their potential to reveal the entanglements woven within their environments.

Attewell's approach to material practice reveals how both the artist and material can be valued as participants within a shared environment (Bennett 2015:73). As such, artistic practice unfolds as an extension of the artist's everyday life, driven by an impulse to haptically engage with objects and materials (Barrett 2013:64). In this way, Attewell comes to know the glass and cobblestone through her ability to follow their becoming,

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thinking through and with the materials during engagement (Ingold 2012:434; Malafouris 2013:77-78). Attewell facilitates the participatory behaviours of the materials by closely engaging with them and accumulating knowledge of the conditions that shape their reactions (Ingold 2012:434). Through this cultivated material and environmental sensitivity, Attewell is able to project the surface and materiality of one object onto the other, both physically and conceptually. The projection of the stone onto the cooled glass can thus be seen as a transfer of material information.

When considered through an expanded printmaking lens, Attewell's *Ghosts of Stone I* (Figure 7) can be investigated as a relationship between a matrix and a substrate. Although this may not have been the artist's intention, the work (Figure 7) can be read as an embossing of the stone formation onto a receptive yet volatile glass bubble. The materials resist and receive each other simultaneously, embracing in contact but refusing to absorb or be absorbed by the other, thereby translating the surface from stone into the form-receiving glass. Furthermore, in conventional printmaking practice, the viewer is usually left without the presence of the matrix. To Katherine Reeves (1999:74), this absence creates a sense of displacement of the matrix, generating curiosity about the creative process undergone to produce the print. Attewell could have removed the glass from the stone, revealing only the 'ghost' that she speaks of. The stone, or in this case, the matrix, is not lost to the viewer. The process narrative of how the print was made is fully present. However, the erosive processes that brought the cobblestone into being are now only echoed in the textures of its surface. The cobblestone becomes an object of transformation, and the embossing it creates in the glass, a volatile material itself, temporarily cements these relational histories and tensions.

2.2. The agency of material bodies in process

Anthropocentric thought has fostered the notion that humans hold an exceptional, central, and entirely objective position in a world that exists independently of the mind, merely awaiting human action as if the world were created for human purposes. According to Benson (2019:252), the Enlightenment brought this dated perception of human beings acting on an inert external world. Advocating for the vitality of matter, Bennett (2010b:9-10) believes that an image of mechanistic matter causes human arrogance, leading to material and environmental subjugation. Coole and Frost

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(2010:7) argue that notions of materiality in modern thought can be broadly attributed to Descartes' definition of matter as a "corporeal substance constituted of length, breadth, and thickness", existing as an extensive, albeit unchanging component of the physical world. This Cartesian model paints the picture of matter as othered and dormant, moving or progressing only upon the intervention of a foreign agent (Coole & Frost 2010:7). Furthermore, due to Descartes' distinction of mind from matter, humans are viewed as "rational, self-aware, free and self-moving agents" (Coole & Frost 2010:8), crediting a sense of sovereignty onto the human species. According to Bennett (2010b:97-98), in her discussion on 'soul vitalism' resulting from Abrahamic theological understandings of creational hierarchy, the human is ranked at the apex of God's creation, created in God's image (Genesis 1:26-28). As a result, organic non-human life is ranked below the human species and is deemed different from soul-carrying human life, and at the very bottom of the system lies inorganic life (Bennett 2010b:97-98). These Western philosophical and theological perspectives reinforce notions of an exceptional human being's capacity to act on and manipulate a world of non-human beings from a position of autonomy and dominance.

Contrary to these anthropocentric views of human agency, posthumanist and new materialist theories attempt to integrate humans into the material world by critiquing the persistent dichotomies in the relationship between subject/object and human/material. Bennett (2010b:119) explains that the human body is material in itself, consisting of a myriad of complex organic entities and non-living materials that support its sustainability. She (2010b:119,126) notes that the human body is a relational dwelling space for micro-organisms, metals and chemicals that constitute the human being, to whom agency is ascribed as if solely responsible for their own survival. Therefore, as Bennett (2010b: 48,126) argues, the human who acts follows the primordial network within which they already exist. As such, the body is in a continual and progressive formation; it exists as a dynamic entanglement of diverse 'foreign' substances, temporalities and 'non-human' beings intricately woven into its corporeal existence (Haraway 2008:163). The body of the creative is, therefore, seen as material in itself, often responding intuitively to particular instances in the creative process.

For Bolt (2004:65), the being of the material becomes knowable through tacit interaction. When materials participate, they become more than tools to utilise; they reveal themselves to the human participant, who in turn can consider and respond.

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Drawing on Heidegger's (1997) theory of 'handleability', Bolt (2004:65) argues that artists can place their mediums and materials before them. Still, they can never understand the being or behaviours of these bodies until they work *with* them to create an artwork (Bolt 2004:65). Bolt (2004:78) describes how artmaking can be considered as a moment of embodied response to uncontrollable material sensitivities and interactions. Malafouris (2008:34) mentions the dynamic tensions that exist between the artist and material during creative processes, noting that these can become more complex as the investigation of materials deepens.

Camilla Groth and Maarit Mäkelä (2014:3) refer to the artist's body as a site for "intuitive and immediate" knowledge accumulated through material interaction. The artist's experience in the studio is extremely subjective, as bodily interaction with the surroundings relies on movement, positions and sensory input (Groth & Mäkelä 2014:3). In this way, the creative process is an intimate and relational experience dependent on "aesthetic awareness"[13] (Barrett 2013:64) and the tactility and contact involved in creative practice. South African artist Penny Siopis engages in an immediate process of painting with glue and ink on a horizontal canvas supported by her studio floor. *Transfigurations* by Penny Siopis (Figure 8) conceptualises the tentative relationship between artist and material. Siopis engages bodily in the making of the work, leaning on the canvas, where the surface gives way to her weight as the pigment and glue move toward those spaces where gravity pulls them closer to the earth (Figure 9) (O'Toole & Siopis 2020:179). Amy Bogaard, Chris Gosden and Lambros Malafouris (2021:6) describe moments of material engagement, positioning the artist as the extension of the material as they are met with affordances and subsequent responses. At other times, the material becomes the extension of the artist as the material reacts to those responses (Bogaard, Gosden & Malafouris 2015:7; Malafouris 2008:34). Siopis's process involves a myriad of conditions and actions, not solely determined by the artist, but mutually by materials moving and acting alongside her and each other.

[13] Barrett's (2013:64) concept of 'aesthetic awareness' acknowledges the felt sense of the inherent convergences of emotion, meaning and bodily engagement in creative practice Through an attentiveness to the 'aesthetic image', the viewer can gain a sense of the experience of making, when viewing the work.

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Figure 8: Penny Siopis, *Transfigurations*, 2023, Glue, ink and oil on canvas, 200 x 200cm, (Stevenson, 2023:sp).

Figure 9: Penny Siopis working in studio, 2020, Photograph by Mario Todechini, (O'Toole & Siopis 2020:17).

Materials are encouraging in the sense that they allow, resist and respond to particular actions and events, marrying the material bodies involved in becoming interactive movements. As such, the process of making can hold the information necessary to understand the oscillating moments of material influence. Penny Siopis writes about

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her process of collaborating with glue and ink as something that is lost in the final work (O'Toole & Siopis 2020:9). Both the influence of the material participants and the bodily responses of the artist during the process are "swallowed up" (Ingold 2013:7) in the artwork. Although *Transfigurations* (Figure 8) and others in the series can be viewed as visual recordings of an emergent artist-material collaboration, the final work does not communicate the full extent of visual and material knowledge[14] that Siopis accumulates while co-creating each glue and ink painting (O'Toole & Siopis 2020:9). According to Barad (2007:361), these kinds of material intra-actions are generative of knowledge in the sense that the engagement itself gives rise to certain findings.

During the process, Siopis reveals that she is often uncertain about the flow of the pigment that becomes consumed by an opaque ocean of wood glue, and in this way, the artist is "painting blind" (O'Toole & Siopis 2020:13), being removed from the settling of the composition. This is referred to as "material affordance"[15] (Gibson 1979 cited in Bogaard, Gosden & Malafouris 2021:7), where the attentive artist is confronted with the material behaviours, and the artist, in this case, actively observes. Siopis is then limited in her control over the composition, and the glue carries the pigment in its ambiguous "white cloud" (O'Toole & Siopis 2020:12), awaiting the air to dry the surface while the placed and carried pigments emerge. Malafouris (2008:28) argues that materials introduced and incorporated into an artist's practice often may not behave as expected or anticipated. This points to the often volatile and unruly nature of material engagement and collaboration in studio practice, and although Siopis is involved in the process, it becomes elusive at a certain point. As seen in Figure 10, the glue becomes transparent as it dries, only later revealing the result of the process. Siopis can attempt to plan her actions according to material knowledge accumulated during previous processes (Groth & Mäkelä 2014:5), but the artist may never be certain or in control of any outcome.

[14] Siopis accumulates material knowledge of wood glue, specifically how it behaves under certain conditions. The artist speaks of how she treats the wood glue and how it responds. If she treats it like she would oil paint, the skin that forms as it dries does not receive newer applications, whereas if she treats it like a watercolour process, she comes to understand the effect of layering and suffocation that happens with the glue as she works with it (O'Toole & Siopis 2020:23).

[15] James Gibson (1979) developed ecological psychology, which posits that perception is directly shaped by the affordances of the environment. Environmental affordances, in the context of ecological psychology, are opportunities for action provided by surrounding objects and surfaces to the organism (Gibson 2015:129). Bogaard *et al* (2021:7) adopt this notion of environmental affordance to material engagement specifically in art practice to contextualise the relationship between artist and material in the creative process.

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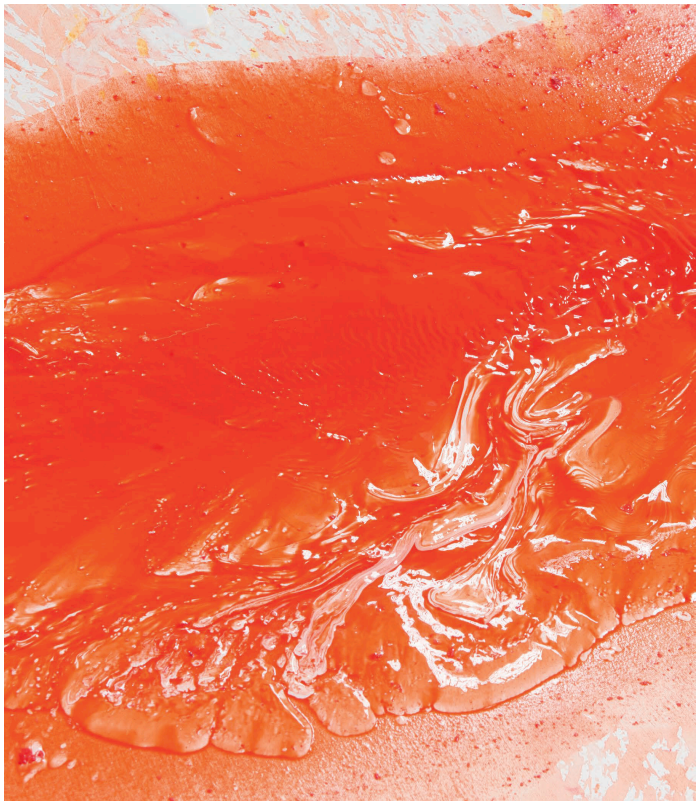

Figure 10: Penny Siopis, Detail of a work in progress, 2020, Photograph by Mario Todechini, (O'Toole & Siopis 2020:15).

The becoming of an artwork, according to Bogaard *et al* (2021:7), is constituted by the combination of "intention, movement and material affordance and reactivity". Siopis sets the intention in correspondence with material behaviours, but her process is hardly that of predictive movements or material manipulation (O'Toole & Siopis 2020:12). In fact, many of the material challenges that arise during creative practice are addressed bodily or instinctively below the parameters of conscious thought (Malafouris 2008:28). According to Bolt (2004:53), the creative process results in a "revealing" rather than an act of bringing an internal idea into existence. According to this perspective, creative acts or instances entail unique engagement characterised by vast complexity, and can unfold as unanticipated and unpredictable outcomes (Bolt 2004:53). The process is understood as an entangled "meshwork" (Ingold 2012:435) of both what the artist's body and mind do, what the material is responding to and how, and what gestures the materials are allowing to either sustain or change their form. The artist remains attentive to these material behaviours, and in her practice, Siopis is able to reflect on

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and respond to these material behaviours in a way that aids the progression of her practice.

2.3. The expanded influence of materials in printmaking practices

Printmaking is an inherently tactile and exploratory process, one that fosters a deep engagement with surfaces and materials. As Barbara Balfour (2016:122) and Tara Chittenden (2024:1) suggest, the act of printmaking is an exercise in observing, layering, and imprinting, with each impression revealing a dialogue between the surface and the materials. This chapter examines the material sensitivities at play in printmaking, considering how artists interact with matrices, transfer techniques, and surface textures to develop and communicate ideas. By exploring theoretical perspectives on tactility and material participation, this discussion situates printmaking within a broader new materialist framework, emphasising its experimental and process-based nature. Duncan Bullen, for instance, engages with architectural surfaces to trace embodied interactions (Figure 11), while Aliki van der Kruijs collaborates with natural elements, using rainfall to generate prints (Figure 14). Jesse Krimes, working under severe environmental and material constraints, subverts expectations of print processes and materials by adapting to and searching for material thresholds (Figure 16-18). These artists demonstrate how expanded printmaking practice invites an intimate dialogue between the artist, materials, and environment, revealing alternative modes of surface engagement and material responsiveness.

Printmaking develops an understanding of surfaces (Chittenden 2024:1) and allows the artist to appreciate complexities within objects and materials. Green (1967:8-9) argues that any method of transfer is valuable if it encourages a sensitivity to the tactility and potential of the surface one is investigating. Here, Green (1967:9) refers specifically to the potential of frottage or rubbing, a manual transfer of surface that requires paper and a pigmented drawing material. Specifically in relief printing processes like woodcut or lino cut, frottage is helpful to the printmaker while the matrix is being carved to gain a sense of how the print will transfer. Although such experimental and immediate material explorations are evident throughout various printmaking processes, Chittenden (2024:1) explains that traditional perspectives on printmaking have largely focused on the material properties of the carved surface, the ink, and the dynamics of their interaction during the transfer onto paper. However, since the 1960s, artistic media

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have started to bleed into each other as artists have combined processes and challenged the boundaries of existing methods (Chittenden 2024:1; Dawson 1981:146). According to Dawson (1981:146), much of the 'traditional' printmaking processes exist due to the experimental and adaptive tendencies of artists like Rembrandt, Paul Gauguin and Edvard Munch. Printmaking requires a complex understanding of surface layering by building the surface up through consecutive transfers. The printmaker develops a sensitivity to the interaction between the surface and the paper, and in an expanded printmaking practice, these surfaces can be explored more directly and immediately.

During a residency at Gordon House, Margate in the UK, artist Duncan Bullen created a body of work titled *Breath Drawings* (2018), prompted by the artist's intrigue with the interior surface textures of a Georgian building (Bullen 2019:9). As an intervention through creative practice, Bullen (2019:3,9) attempts mindful presence while gesturally tracing and transferring the interaction and experience between his body and interior textures (Figure 11). Bullen (2019:9) used breathing as a meditative facilitator in order to remain in the "background" while maintaining proximity to the materiality of the surface. Similar to frottage transfer, Bullen records a surface, but by not covering the entire paper with graphite, he manages to record specific moments or timelines of interaction with the surface (Figure 12). The delicate and precise nature of each line eliminates chance, while still allowing the artist to closely observe the relational process between his body, the environment and his drawing tools. As seen in the work *Breath Drawing no. 22* (Figure 12) , the process of recording the surface on the paper is evident in what remains separated from the building, while the surface itself is echoed in the repetitive nature of each line.

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Figure 11: Duncan Bullen, Breath Drawing no.22 in process, 2018, Photograph by Lucy Lyons, (Bullen 2019:10).

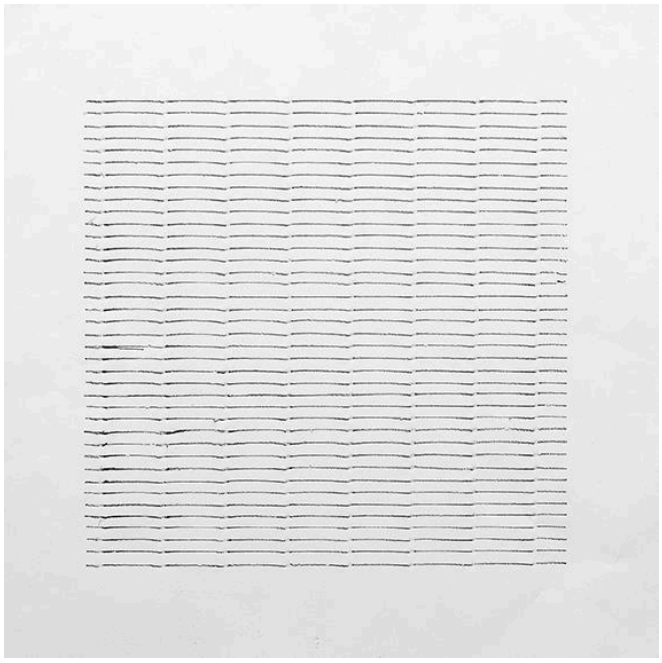

Figure 12: Duncan Bullen, *Breath drawing no. 22*, 2018, Pencil on paper, 30 x 30cm, Photograph by Lorry Eason, (Bullen 2019:10)

When encouraged and invited to do so, the artist's environment can generate modes of enquiry in creative practice that deepen experimentation. Dutch researcher and designer Aliki van der Kruijs investigates the ability of natural processes to create surface impacts and motifs. Printmaking allows the artist to develop a solution to an

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initial enquiry through process and experimentation (Chittenden 2024:2). Van der Kruijs found her grandfather's weather calendars and became interested in researching alternative methods for recording the rain specifically through creative means (Figure 13) (Chittenden 2024:2). Inspired by findings generated in her research on documenting the change in weather patterns, van der Kruijs cultivated a water-activated printing method she coined as 'pluviagraphy' (Chittenden 2024:2). Her project *Made by Rain* (2016-present) unfolds as a process-based collaboration with the elements, where precipitation is not merely recorded but actively participates in the making of the work. Although collaborative and experimental, the artist's practice-led approach required the investigation of various material interactions to solve the problem of visually recording rain. Van der Kruijs experimented with the response of different digital printing inks to water (Chittenden 2024:6) (Figure 13), revealing the development of the research process that precedes the initiation and making of the print (Figure 14).

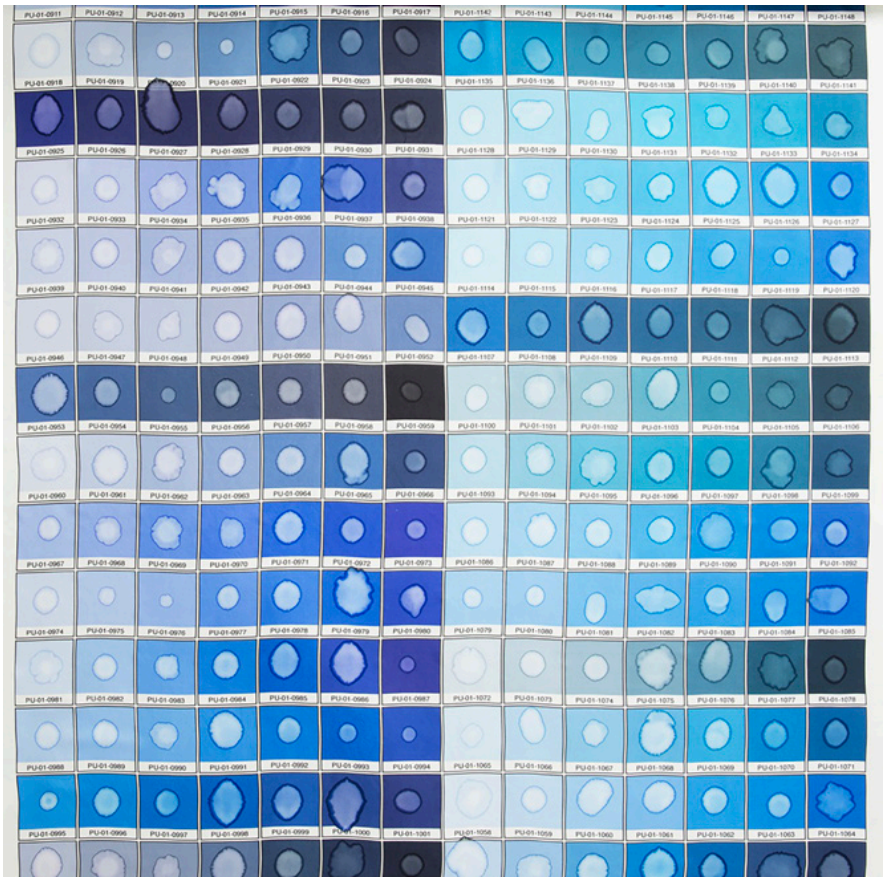

Figure 13: Aliki van der Kruijs, Test samples, 2016, Water prints on fabric, (Chittenden 2024:6).

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During the stage of exploring and realising the development of ideas, art practice can become a mode of enquiry and knowledge generation through the process and cultivation of various material relationships[16]. As evident in Figure 15, the start of the rainfall is distinguishable from the later droplets. The viewer is able to identify impact and density due to the interactive qualities between the coating on the fabric and the size of the raindrops. Van der Kruijs prepares the surface of the textiles for the rain's temporal presence to be visible to the viewer and enables visual documentation of rain as opposed to numerical documentation of precipitation. The connection between place, material and time is immediate, and each moment of material interaction is documented instantaneously and preserved in place. Van der Kruijs successfully investigated and generated a method for allowing and encouraging the environment to participate in the generation of artworks alongside herself and the materials.

Figure 14: Aliki van der Kruijs, Treated fabric capturing rainfall, undated, Photograph by Aliki van der Kruijs. (Chittenden 2024:12).

[16] Art practice as a mode of enquiry is specific to the methodology adopted in this study as the investigation relies on the process of making as the unit of analysis in creative knowledge generation.

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Figure 15: Aliki van der Kruijs, *Made by Rain* (Detail with location), 2012-present, Rain print on fabric, Photograph by Lonneke van der Palen, (Chittenden 2024:7)

At times, the artist's environment may set limitations that require them to adapt their material approaches in order to uncover alternative material contributions in the creative process. Multimedia artist Jesse Krimes created a substantial body of work while serving a six-year prison sentence[17]. During the first year, Krimes was held in solitary confinement for 23 hours a day (Krimes & Thomas 2018:91). He created works with the limited materials available to him as an act of "self-preservation and resistance" (Krimes & Thomas 2018:91). *Purgatory* (Figures 16 & 17) was created by meticulously hand-printing *New York Times* newspaper portraits onto thin slices of prison-issued soap. Krimes takes a unique approach; by transferring onto ephemeral surfaces, the works challenge printmaking's typically reproductive nature and enduring materiality (Krimes 2024; Seifter 2024). However, this process also highlights printmaking's ability to incorporate materials in alternative ways, commenting on the ability of materials to react unexpectedly. A fragile soap surface now becomes an archival material, and the Bicycle playing cards become a commentary on and resistance to prison hierarchies (Figure 18).

[17] Krimes was arrested and convicted on drug-related charges (Krimes & Thomas 2018:88).

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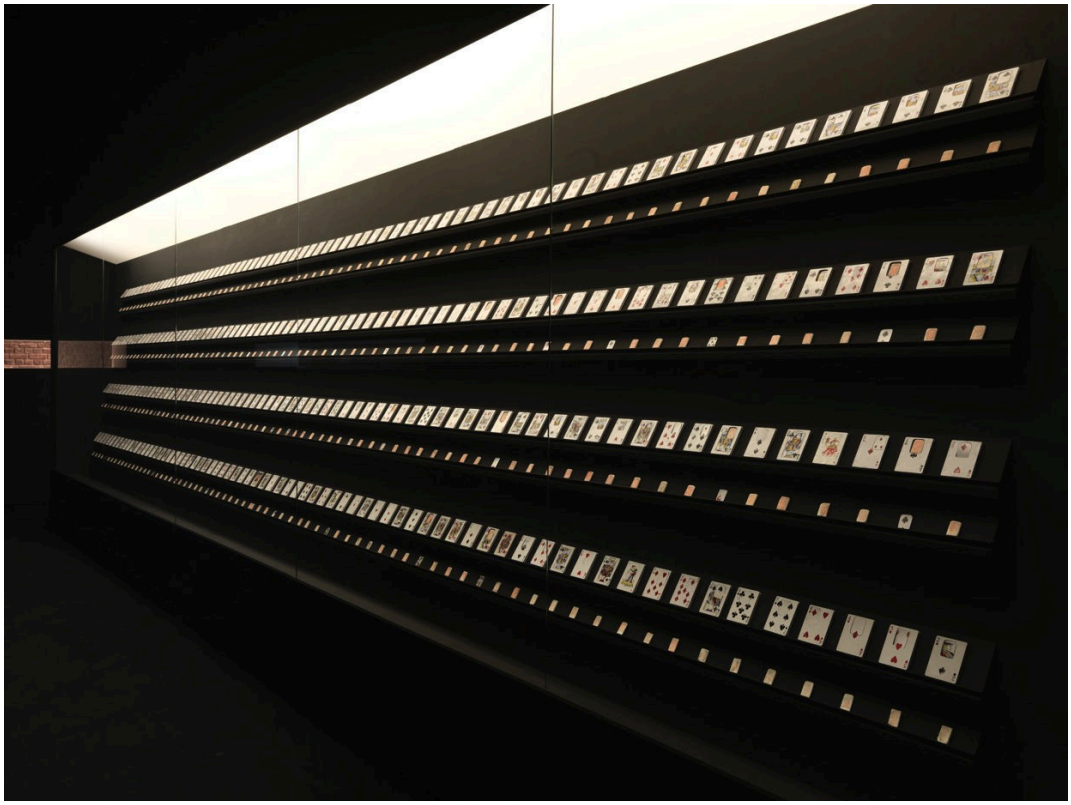

Figure 16: Jesse Krimes, *Purgatory*, 2009, Soap, ink, and playing cards [offset lithography], Dimensions variable, (Krimes 2024:sp).

Figure 17: Jesse Krimes, *Purgatory* (detail), 2009, Soap, ink, and playing cards [offset lithography], Dimensions variable, (Krimes 2024:sp).

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Figure 18: Jesse Krimes, *Purgatory* (detail), 2009, Soap, ink, and playing cards [offset lithography], Dimensions variable, (Krimes 2024:sp).

Although Krimes was limited by his environment, he was able to adapt to the materials he had available to him (Arazzi & Sayahdikumullah 2021:324). These material potentials were explored as a necessity and allowed the artist to engage beyond the imposed limitations of mundane objects. It is for this reason that the prints themselves communicate the process; they become a documentation of a collection of activities under specific circumstances and move past the quality of being finished (Roca 2011:98). Krimes' process highlights perceptions of soap as a cleaning agent while encouraging its materiality of impermanence and receptiveness to surface outside and beyond human expectations. Through the experimental approaches of Bullen, van der Kruijs, and Krimes, printmaking is framed as a means of enquiry, adaptation, and material dialogue. Their practices extend beyond technical execution, allowing materials and environmental forces to shape the development of the process and outcome. Printmaking is not solely a method of transferring ink onto a surface, but provides the creative framework through its mechanics to explore material potentials in close engagement and experimentation.

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By analysing the artworks and processes of Chrisél Attewell (Figure 7) and Penny Siopis (Figures 8-10) through a new materialist lens, this chapter offers an integrated framework of new materialist approaches to creative material engagements. The bodily responses of these artists to the materials' behaviours were examined to explore the potential collaborative artist-material relationship. Additionally, the works and processes of Duncan Bullen (Figures 11 & 12), Aliki van der Kruijs (Figures 13-15), and Jesse Krimes (Figures 16-18) were analysed as expanded and experimental printmaking processes that directly involved the participation of both the material and the environment surrounding the artists. The environment was framed as participatory, encouraging the artist to adapt to its influence. These artists approach materials by investigating beyond surface-level perceptions, seeking the qualities within materials that enable the transfer of surfaces and the preservation of those transfers. This chapter thus reviewed a broader field of materially relational contemporary practice, enabling me to position my own practice within an experimental printmaking framework and critically evaluate my approach to specific environmental and material conditions.

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CHAPTER THREE: FOSTERING CO-CREATIVE RELATIONSHIPS

The chapter critically analyses my practice-led approach to printmaking, arguing that knowledge and conceptual development arise through tactile and experiential engagement with materials. It emphasises the role of process in generating insights, further expanding the boundaries of an already broadened field of printmaking practice. My undergraduate training established foundational skills in relief and intaglio processes, emphasising precise outcomes in composition, colour, and tone. However, this perspective prioritised process as a means to achieve a result. Ruth Weisberg (1986) describes printmaking as navigating “controlled accidents.” This study instead embraces material participation as a contribution to the process rather than something to be regulated, aligning with Malafouris’ (2014:151) idea of intent emerging through engagement with materials.

Rather than imposing rigid intent, my practice remains open to material behaviour, allowing processes to unfold dynamically. Green (1967) warns that preconceived ideas can hinder exploration and the need for adaptability. I investigated diverse matrices, media, and substrates throughout this study to examine how materials shape outcomes. The printmaking methods used, namely experimental intaglio, relief, and planographic, served as methodologies to test material receptivity and transferability. Due to the studio being in my domestic space and the process being conducted without a printing press, my practice became more tactile, emphasising direct reliance on materials and situated environmental interactions.

This chapter overviews the key methods explored, focusing on the copper matrix’s evolution, biomaterials as alternative substrates and rust transfer as a sculptural approach to printmaking. The adapted etching process examined copper’s responsiveness to environmental factors, investigating the oxidation of copper as generative of textures and pigments beyond my gestures. This challenges the notion of materials as passive and instead considers them active contributors to the development of the copper matrix. The study then explores cornstarch-based bioplastics and fluid substrates, assessing their durability and interaction with the oxidised copper matrices. Experiments with gelatin and glycerin expanded this enquiry, revealing the possibilities of approaches in mixing and exposing the biomaterials to various surfaces and how these influence the print. The chapter concludes with the

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investigation of the interaction of iron rust, vinegar, and water. The material combinations manifested as pigment staining the surface of paper, resulting in sculptural prints that captured the volatility of materials as they relate to their environment. By reducing my intervention, this chapter reveals how the materials were allowed to respond and resolve themselves, leading to unexpected and intricate outcomes.

3.1. Transformative matrices

Etching has always fascinated me, drawing me in despite the lack of accessible printmaking resources[18]. Determined to execute copper etching in a domestic setting, I experimented with alternative methods that required accessible materials and non-mechanical transfer techniques. While researching acid-free approaches to copper biting, I discovered a forced oxidation method demonstrated by Country Road Custom Design (2021), where copper is placed in a sealed container with a solvent. as a slight adaption to this method, I modified a similar process presented by Brian Benham (2021), and allowed vinegar vapours to create a subtle oxidation layer on the copper. Other methods I encountered suspended the plate above the vinegar to allow oxidation on both sides. Adapting these techniques with available materials, I developed a hybrid approach, letting the preparation process guide optimal placements and decisions.

The first copper sheet I oxidised measured 60 x 30 cm—slightly longer than my container's base. Following Benham's (2021) insights, I ensured a retentive surface by dry-sanding with 600-grit sandpaper and degreasing with diluted ammonia. Vinegar was poured into the base of the container, and the plate was suspended above it. Generous amounts of Himalayan salt were sprinkled over the surface, with vinegar sprayed to initiate oxidation. To maintain an airtight seal, a plastic bag was placed between the lid and the container. Over 12 days, the plate's surface developed rich textures, though the resulting colours differed from my preliminary research, where ammonia was the primary oxidiser and vinegar played a secondary role. As seen in

[18] Here I refer to the materials and tools involved in the technical etching process that are not easily accessible in the domestic space. These involve ferric chloride solution for biting the plate and a printmaking press.

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Figures 19 and 20, oxidation built up as a paste inside the chamber, later drying into powder (reds), flakes (orange), and clusters (blue) once removed (Figure 20).

Figure 19: Detail of copper plate during oxidation (day 11), 17 April 2023.

Figure 20: Detail of dried oxidation on a copper plate, 18 April 2023.

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The matrix generated during the initial oxidation experiment served as a 'control' as I sought to further investigate possibilities and variations in surface interference, plate preparation, and oxidation environments offered by the process. This investigation into copper's potential to produce its own transferable pigment quickly evolved into a demanding, time-intensive exploration. In a subsequent experiment, I began engraving a larger plate of the same dimensions, coating the surface with hard ground and scoring intuitively with a sharp etching needle. This plate, depicted in Figure 21, features a range of experimental marks, from intricate engravings on the left to more loose, gestural marks on the right. I aimed to examine how oxidation would manifest on a complex engraved surface versus a section with a bit more copper exposure, how vinegar and salt would react with the hard ground, and how the oxidation could be transferred.

Figure 21: Engraved copper plate, 24 May 2023, 60 x 30cm.

In a subsequent experiment, I followed an oxidation preparation process similar to the previous one, with the variation of grinding the Himalayan salt into a fine powder before sprinkling it over the plate. Given that the surface was coated with hard ground, the spraying of the vinegar resulted in droplets that carried the powdered salt into small clusters (Figure 22). As seen in Figure 23, the lines had already filled up with colour on the eighth day of oxidation, maintaining their intricacies and placements. With the engraving, I was interested in my role of creating pathways for the oxidation to build on

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and how these gestures would affect the material interactions. I noticed that the materials responded by building colours on the hard ground, meaning that the hard ground did not completely ‘protect’ the copper it was masking, but rather became part of the surface complexities during oxidation. The vinegar droplets maintained their shape, creating solidified blue oxidation clusters (Figure 23). I then printed this plate, and the transfer was more detailed than I anticipated. The matrix was complex enough in texture and colour that the marks were able to carry themselves over to the substrate that received them. This outcome was quite intriguing and led me to consider the possibility of creating a layer of oxidation more in line with what I saw on the back side of the plate, which was a thin layer of blue oxidation only. Much darker and finer than the light blue crystal-like clusters that had formed on the engraved side of the plate, the blue layer that formed on the bottom of the plate was mostly uniform in texture, colour and depth.

Figure 22: Detail of copper plate during oxidation preparation, 24 May 2023.

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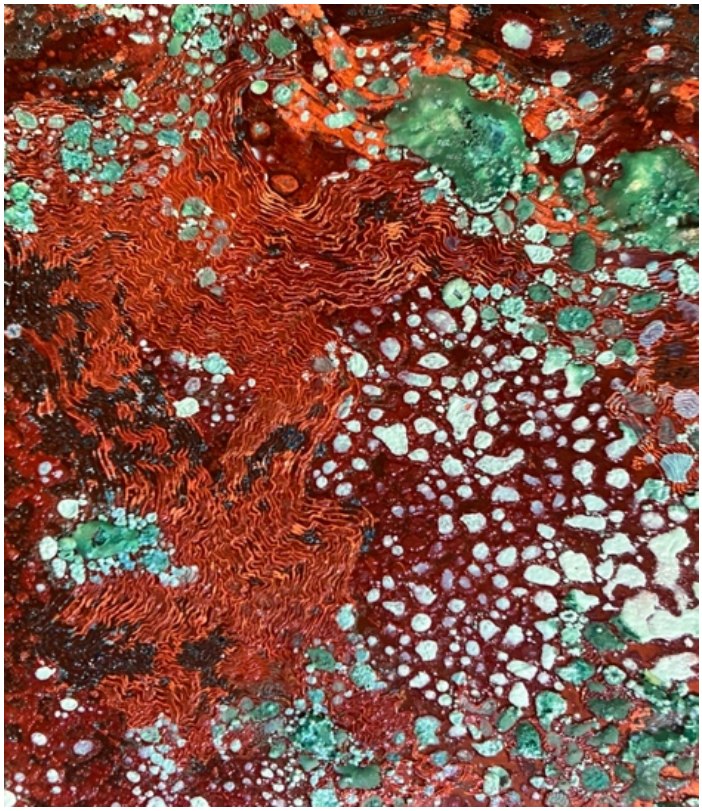

Figure 23: Detail of copper plate during oxidation (day 8), 31 May 2023.

I continued to explore the possibility of printing from an engraved surface that had been oxidised with vinegar vapours only. The only surface interference on the copper was the hard ground that allowed the engraved lines to be exposed to the vinegar vapours in the chamber. I initially placed a reused sanded plate in the oxidation chamber suspended above a pool of vinegar (Figure 24). This was done to test the nature of the oxidation that would result from vinegar-only exposure. As evident in Figure 25, the change in surface density was subtle during the vinegar-only oxidation process. The copper surface was not as reactive to the vinegar vapour as with the addition of salt and vinegar to the surface. Notably, changes in environmental temperature and humidity additionally played a role in the reaction between the copper and vinegar in the container. What intrigued me whilst investigating this particular reaction of the copper was the potential of preserving intense amounts of detail on the matrix. Although the matrix was only exposed to the vinegar vapours, the oxidation process was precise enough to maintain the detail-producing ability of the copper-tool-hardground combination.

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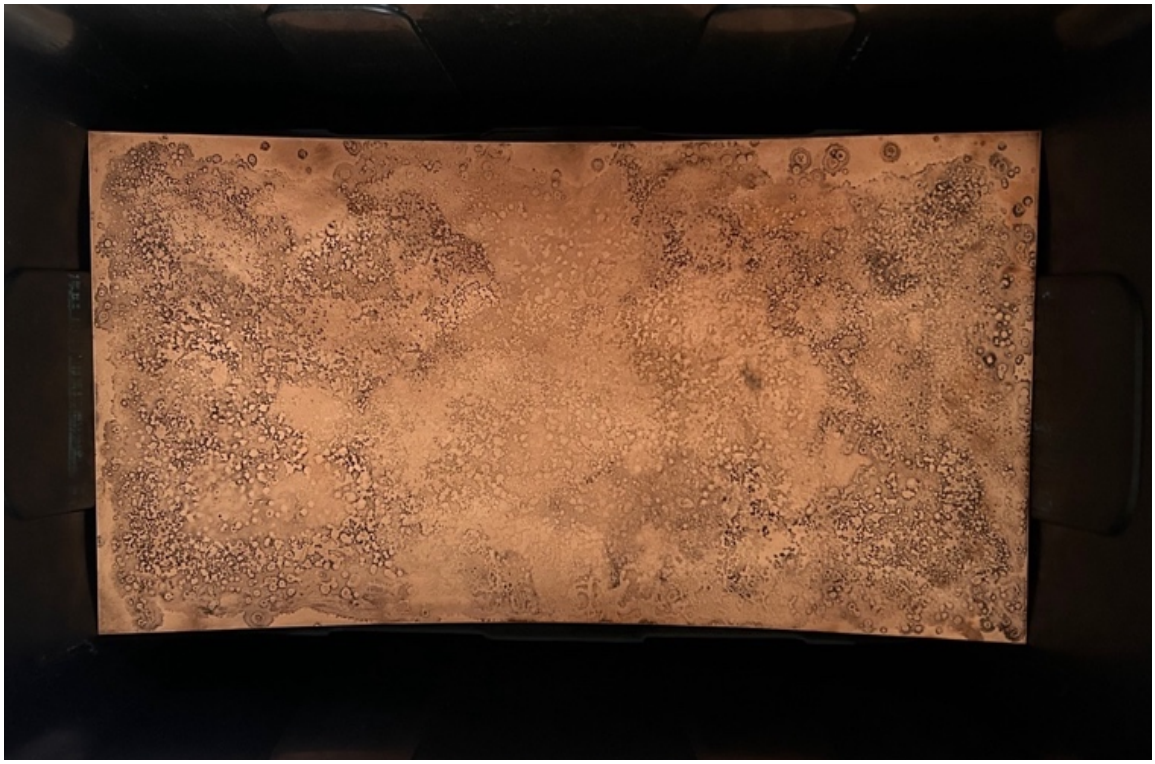

Figure 24: Copper plate during oxidation preparation, 31 July 2023.

Figure 25: Detail of copper plate during oxidation (day 3), 2 August 2023.

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In the experiment that followed, an engraved surface was then exposed to the vinegar vapours in the oxidation chamber. This matrix, shown in Figure 26, was engraved with the intention of testing the oxidation reaction on a meticulously detailed surface. While engraving, I started pondering the materialisation of a matrix and all the components that contribute to the matrix and its eventual condition prior to printing. The following is a reflection from my field journal on the last day of engraving the matrix:

> One can see it as, yes I have my own intentions and I execute them and conclude them when I am happy, but, one can also see it as a matrix that has many components that make up its composition and materialisation, the engraving part is just one of the many components that require a specific relational interaction. It is not required, actually, but it just happens that way. Human, tool, surface, and surface masker create an engraved surface.

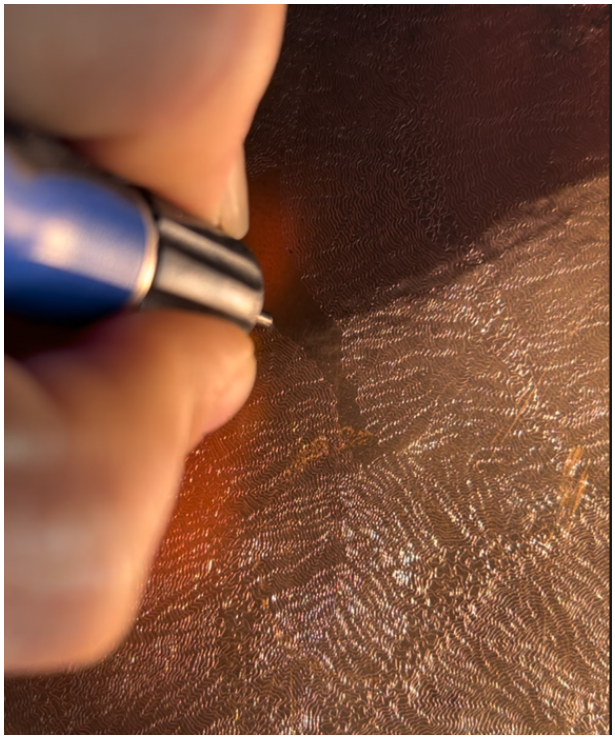

Figure 26: Documentation of engraving a copper plate, 10 August 2023.

Through engagement with the etching tool and the surface, my hand and the tool become co-constitutive through the action of drawing (Malafouris 2021:48). The tool is not a single or separate material body but rather a thing in a situated relation with the hand (Malafouris 2021:48). So too, the hand, and by extension, my entire body, becomes a thing in specific relation to the tool and the copper surface (Malafouris 2021:48). I realised that the matrix is not a fixed component, its outcome is not

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determined by an artist's internal anticipation. So many components play a part in the composition of the matrix. In this case, I had an idea of what this matrix was going to achieve in terms of visual communication, and although the oxidation process produced a somewhat detailed and expected surface (Figure 27), the oxidation did not transfer onto the substrate as expected (Figure 28).

As seen in the print taken from the plate, shown in Figure 28, the blue oxidation dissolved into the mixture of plaster and water, revealing that certain chemical components of the oxide are water-soluble while others are not. I realised that whatever detail I had hoped to retain in the final print was now mostly lost to the interaction between the materials. For Bolt (2007:3), the concern for subjective intentionality in art practice has resulted in the disregard of the contributions made by materials during creative practice. This work resisted my intent for the material, and I was required to respond accordingly, keeping in mind that I committed to engage as a participant rather than attempting to completely direct the outcome. Barad (2007:218-219) provides key insight here, stating that the "power asymmetries" that exist between humans and material should be accounted for in material practices. I am required to remain critical of my position in the process while ensuring that I do not deflect all responsibility onto the material (Barad 2007:219). As a reaction to this outcome, I attempted to oxidise the plate a second time. For the second oxidation (Figure 5, p.15), I added iodised table salt and vinegar to the copper's surface and placed the container outside in the sun.

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Figure 27: Detail of copper plate during oxidation (day 3), 12 August 2023.

Figure 28: Copper oxide on plaster of Paris (process), 16 August 2023

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In subsequent experiments, I continued to investigate the potential of this process, attempting to search for moments in the process where the materials revealed their influence as intricate marks on the matrix. Figure 29 demonstrates a copper plate undergoing oxidation with a surface influence of both salt and vinegar, which produced extremely delicate and precise textures. Based on this experiment, I decided to explore the ability of various surface influences, other than my own engravings, which would be able to produce similar or enhanced details that could be directly transferred from the matrix to a substrate

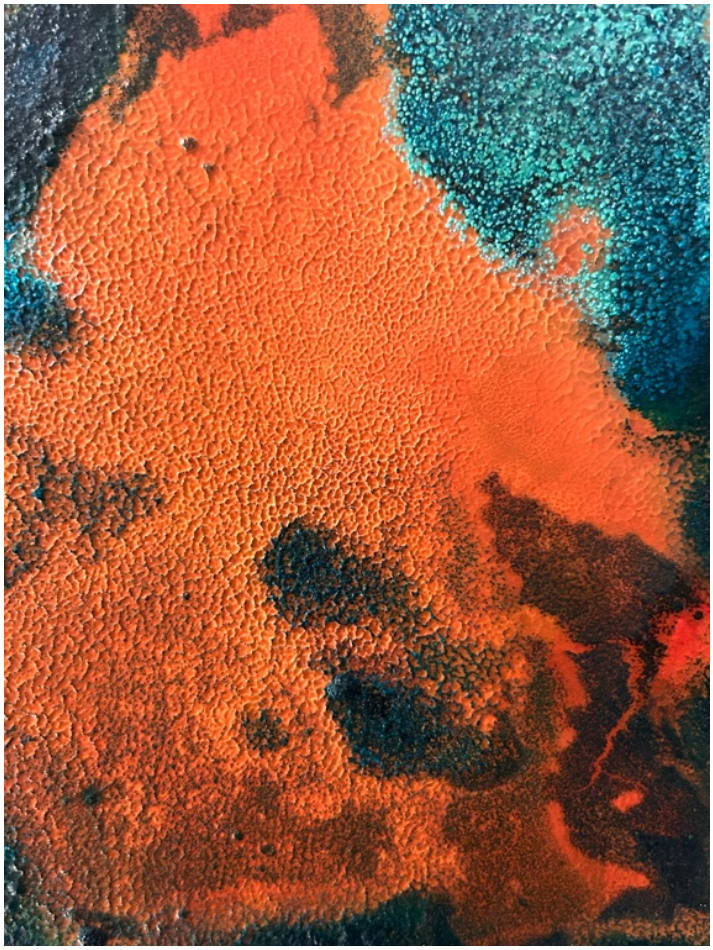

Figure 29: Detail of copper plate during oxidation, 31 August 2023.

The next step in the process drew inspiration from a specific experimental technique conducted by Lyrene Kühn-Botma (2023) on a lithography stone, where found objects and rocks were placed in pools of diluted tusche. The water evaporated, and the marks left on the stone resembled intricate drawings. Following this process, decided to introduce objects from the studio on the surface of the copper during oxidation, further

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investigating the ability of materials to interact with each other. The following is a description of the plate preparation as noted in my field journal on 19 December 2023:

> The plate on the left of me has paper bark on the surface, salt as well obviously, but the paper bark is from our garden, while I was busy with the papermaking part of my experimentation, my grandmother took me outside and showed me that the tree is shedding its bark … the bark is soft and spongy, and I thought that it might be able to retain moisture. Anyway, my grandmother suggested I use the fallen bark in my practice somehow, I was thinking of making paper out of it, but now I'm involving the found objects here. The other plate has a rock, a single rock that comes with a fountain that my aunt bought for Christmas a few years ago. The fountain broke, but I always kept the rock in my studio. I placed the objects on the plate first, then poured the salt, and generously sprayed the plate and objects with vinegar in preparation for oxidation. The difference in this process, compared to the other oxidation processes, was the intentionally concentrated application of vinegar on specific locations on the plate. I briefly investigated the objects for a contact surface but then decided to not be too technical about the placement.

As shown in Figure 30, the oxidation marks on the copper plates took on a more complex composition in terms of surface impacts and fluid location. The spray bottle, in combination with the salt sprinkling, created pathways of salt clusters, while the vinegar, salt and surface objects created their own pools of fluid around them. After about a month of oxidation, the plates were highly pigmented and textured, and each object that acted as a site for menisci[19] to form created intricate impacts on the surface. Since these were the first two plates that were simultaneously oxidised in such close proximity to each other, I reflected on the difference that the space available around the plates inside the oxidation chamber made to the eventual formation of the matrix. By comparing the outcome shown in Figure 31 and that of another plate that was oxidised in a larger container, I was able to deduce that the available space in the container affected both the outcome of the matrix and the print transferred from that matrix. This experiment revealed that the less space the vinegar vapours have to move around the plate in the container, the denser the oxidation on the surface will be, and the easier it will be to remove the print from the copper. The process revealed that there was a direct correlation between transferability and oxidation density.

[19]The meniscus is the curve formed at the edge of the liquid where it touches an object; this happens due to the surface tension of the fluid.

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Figure 30: Two copper plates during oxidation (day 2), 19 December 2023.

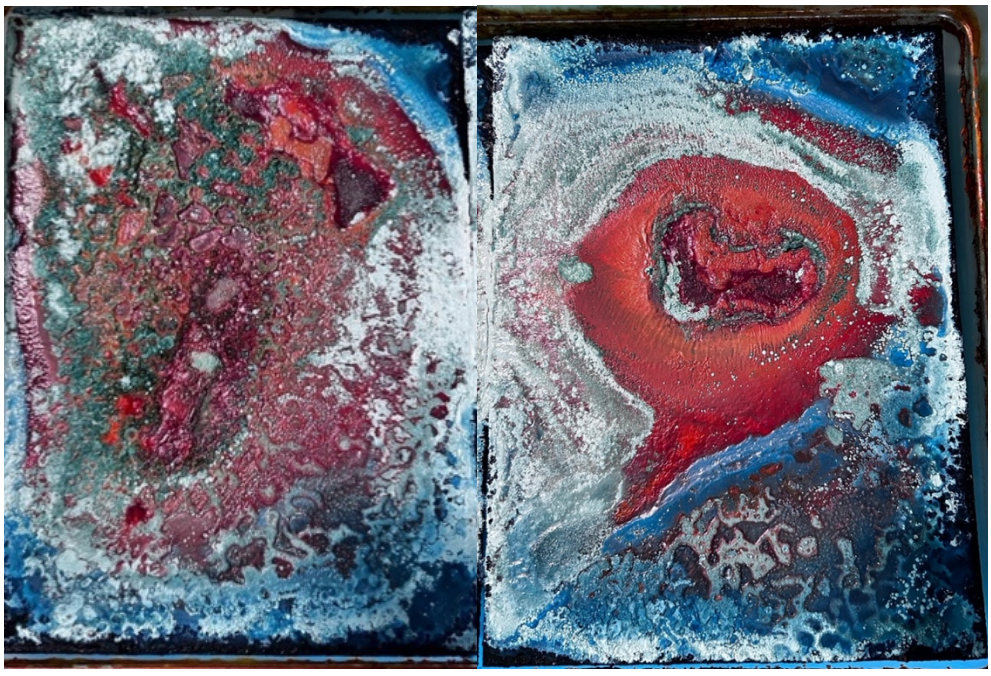

Figure 31: Dried oxidation on copper plates, 17 January 2023.

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I was intrigued by the idea of generating intricate marks on the matrix without the need for intense and time-consuming mechanical drawing. At this point, a part of the process revealed to me that copper, in combination with other materials and environmental factors, remained seductive and potentially compositionally complex without the need for engagement with the human hand and drawing tool. In keeping with the momentum of this insight, I came across a process called 'crackle etching', in which a copper surface, treated with hard ground and coated with gum Arabic and egg white, is uniformly heated to create cracks in the masking ground. This process was briefly demonstrated by Moonlight Press (2024) in a promotional Instagram reel, and the process was loosely derived from what was visible in the instructional video. What happens on the surface during these material interactions is quite delicate. The process was noted in my field journal:

> First, degrease the copper plate and apply hard ground. I applied [the hard ground] using the chamois dabber for the first time since Diane [Victor's] project, and a heat gun was used to heat the surface ... Secondly, allow the plate to cool, then mix together egg white and liquid gum Arabic. Third, apply a thin layer of this mixture to the surface with a brush. Lastly, evenly heat the plate on low heat and allow the crackle solution to shrink. The heat gun shrinks the gum Arabic and egg white solution and warms up the ground so that the materials, although behaving and reacting for different reasons, form cracks [on the copper surface] together.

The behaviour of materials in collaboration with each other is key in creating this crackle effect, and the intricacy of the patterns that form from this interaction far exceeded anything that I was able to draw by hand (Figure 32). This plate was left to oxidise with salt and vinegar on the surface. The plate shown in Figure 33 began as an engraving plate and later became a collaboration between the crackle solution and my drawing as a response to the textures and lines created through the material relations. Both plates were then oxidised, and the first crackle plate (Figure 32) was removed and printed onto gelatin before the collaborative plate (Figure 33) was fully oxidised. I was unable to remove the gelatin from the surface and struggled to do so for quite some time. It occurred to me that these plates were not accumulating oxidation in the same manner as the previous plates. The bulk of the oxidation was copper acetate, a chemical that was water soluble, which made space for the gelatin to adhere to the copper surface with little chance of complete removal. I then soaked both plates in a solution of vinegar and salt to remove the oxidation and realised that the detail of the crackle and engraving was etched into both plates.

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Figure 32: Hard ground crackle on copper plate, 14 February 2024, 22 x 29cm.

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Figure 33: Hard ground crackle and engraving on copper plate, 27 February 2024, 22 x 29cm.

As a process, the inability to transfer the oxidation revealed unexplored avenues to me as the artist, requiring my involvement in a different capacity to once again transform these plates into matrices. Due to the plates carrying lines that resembled the results of acid-biting, I was determined to treat them as intaglio plates. However, because of their rough and raw surfaces after cleaning, it would have been impossible to print these

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plates with enough contrast to be read as etchings. The plates were therefore sanded and polished, focusing specifically on the relief areas, ensuring that these raised areas had a mirror shine after polishing with Brasso. The polished surface allowed me to ink with soot alone, brushing off any excess pigment (Figure 34). The nature of these matrices ensured that the unpolished intaglio areas held onto the soot particles. The plate was covered in a thin layer of PVA glue, which did not disturb the hydrophobic soot. The plates were left to dry, and the dried glue was peeled off to reveal a bound soot and glue print of each matrix (Figures 35 and 36).

Figure 34: Process of inking a copper plate, 25 March 2024.

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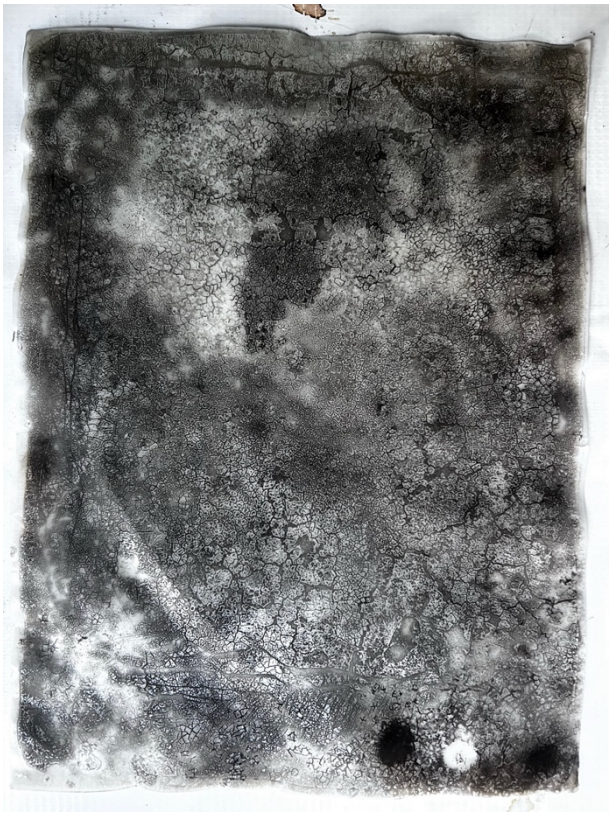

Figure 35: *Mark matters*, 2024, Soot on PVA glue, Monoprint etching, 22 x 29cm.

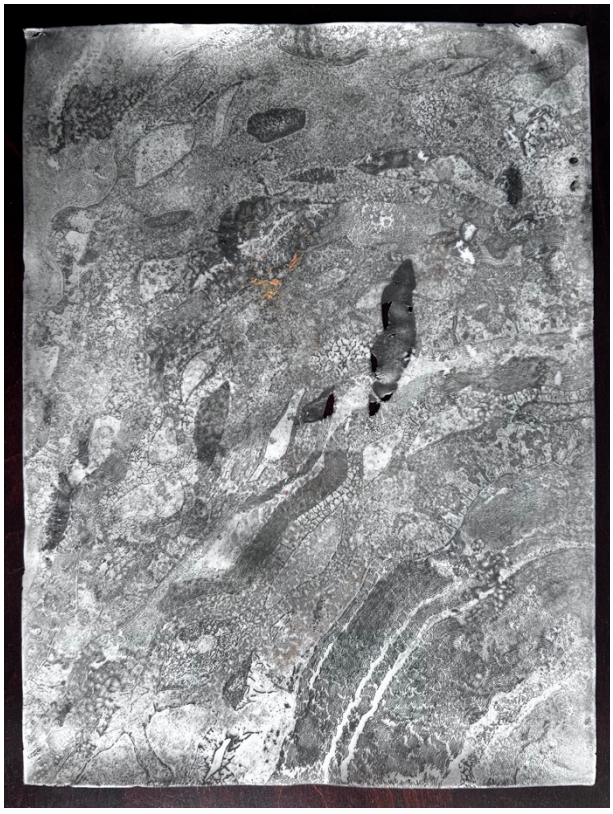

Figure 36: *Yours or mine*, 2024, Soot on PVA glue, Monoprint etching, 22 x 29cm.

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In parallel with the previous process, more investigations using found pebbles as surface interferences on copper plates were carried out, along with the exploration of the interaction on the copper plate between vinegar from a spray bottle and salt grains. While working to understand the gelatin biomaterial as a substrate in relation to the oxidised copper surfaces and their various states, a few gelatin circles remained on the studio table that were poured from leftover gelatin mixtures during the investigative processes. These small circles were not necessarily planned components of a future artwork but did contribute to future processes and conceptual considerations. At one point during the process, the gelatin circles were removed and placed on the corner of the table for later consideration.

What caught my eye about these small surfaces was their interaction with the sunlight that entered the studio every afternoon. The shadows they projected onto the surface of the table transformed my perception of this material from something that can receive and preserve a transfer to something that could, in collaboration with light, project its own print (Figure 37). Kallio (2017:91) speaks of the projected surface as a print, an almost impermanent and conditionally dependent transfer that is equally valid to the process of transferring matter from one surface to another. The incidental gelatin-and-sun projections shown in Figure 37 confirmed this idea of print as a projection of information and how the process contributed to this insight in the research. The shadow reminded me of the fluidity this material once embodied and the water that imprinted its mark on the surface, even though it had evaporated completely at this point. This gelatin-sun-surface interaction became a pivotal event that led me to explore more processes.

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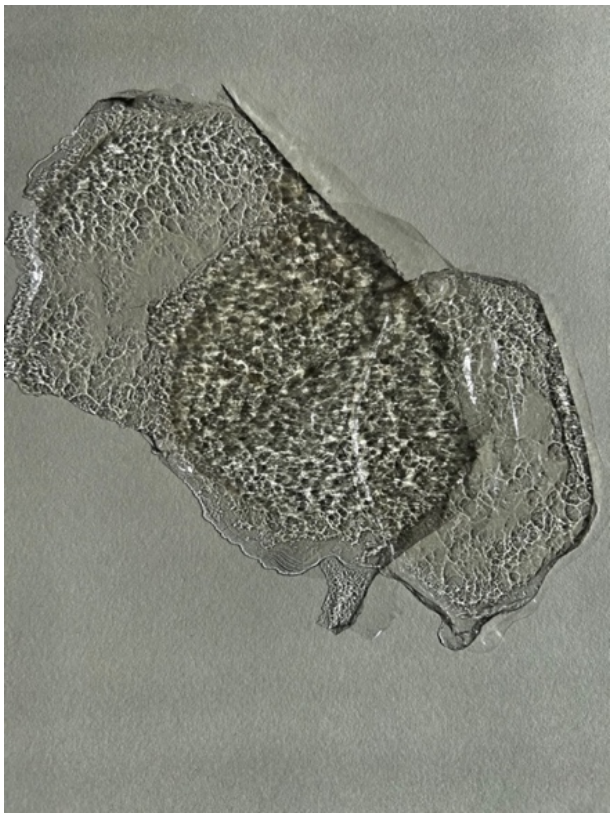

Figure 37: Gelatin and shadows on paper, 29 April 2024.

I began to reposition the materials involved in the practice, introducing them to other materials and processes. As a means to investigate copper oxide as a distant component of the copper surface, I gathered leftover oxidation from the copper surfaces after the prints were pulled by scraping off the oxidation and grinding in into powder. The main components that were removed were red copper oxide and blue copper acetate powder. During the printing process, these distinct compounds revealed that their responses to moisture were very different. As a result of this difference in behaviour, I was interested in creating a watercolour monotype to investigate the behaviour of copper oxide as a medium without the security of the copper surface. This was done by suspending the pigment in water and allowing the water to evaporate, whereafter, the stable pigment was transferred onto a gelatin surface.

The requirement for a binder to suspend the oxidation as paint, which now resembled a pigment, was to be water-activated to enable the transfer of the pigment onto the gelatin. Additionally, the surface upon which the matrix was resolved had to be non-porous. The copper oxide and acetate powders were mulled into a gum Arabic and glycerin binder and mixed into a bowl of water. As represented by the settled

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watercolour in Figure 38, this pigmented water was slowly added to a foam surface with the aid of various tools from various distances, allowing gravity to intervene. The addition of stones was considered a means to establish a more direct connection between oxidation and monotype processes. The water eventually evaporated, and what was left was a matrix containing copper oxide and copper acetate suspended in gum Arabic (Figure 39). As seen in the detail on *Homogenise* (Figure 40), the lightweight copper acetate responds differently to water than the heavier copper oxide.

Figure 38: Copper oxide, copper acetate and stones on foam board, 3 September 2024.

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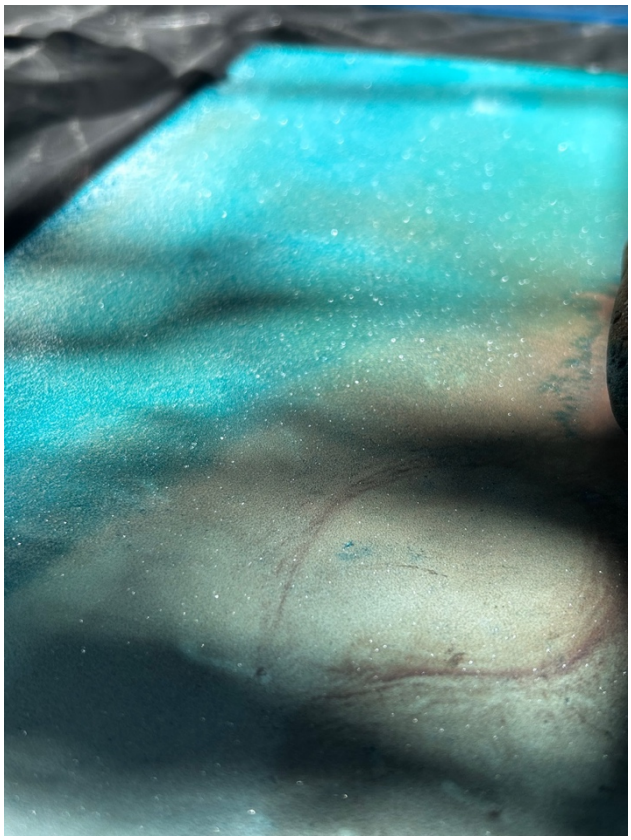

Figure 39: Detail of dried copper oxide and copper acetate on foam board, 5 September 2024.

Figure 40: *Homogenise*, 2024, Copper oxide and copper acetate on gelatin biomaterial, Monotype, 95 x 40cm.

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A similar monotype approach was pursued with soot, where the pigment was extracted from an oil-fuelled candle and mixed with gum Arabic and glycerin to make a water-activated ink. This ink was then combined with water and poured onto a prepared Plexiglass surface. Building on the process shown above in Figures 38 and 39, stones were placed as surface interferences, and the evaporation of water formed the matrix. The surface of the plexiglass, the stones, the water and the pigment co-created this matrix (Figure 41). The surface tension of the water and its interaction with the stones created concentrated gathering areas for the pigment. As the water evaporated, those concentrations would create contours, documenting the slight decrease of water on the surface as it happened (Figure 41). This event ties into the way that water configures matter and sediment, the contours on the matrix resemble satellite imagery of the edge of water bodies and land masses (Figure 41).

Figure 41: Soot and stones on plexiglass, 3 October 2024.

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Gelatin's transformative potential in relation to its environment demonstrates its malleability within printmaking. As seen with the gelatin circles shown in Figure 37, its transparent materiality interacts uniquely with light, projecting subtle yet intricate textures. This dual capacity as both receiver and provider of transfers expanded its role in the process. The soot monotype surface in Figure 41 was printed onto gelatin biomaterial and produced a high-contrast image that challenged the linearity of printmaking. With the introduction of light, the monotype titled *A print on paper* (Figure 42) could be projected onto a sculptural surface; here, a semi-transparent Fabriano Pergamon sheet. This experiment revealed gelatin's ability to blur the boundary between process and final artwork. Light, in collaboration with the gelatin's surface, became the transfer medium, transforming the monotype into a matrix and redefining the notion of a completed print. This engagement underscores the iterative nature of material practice, reinforcing how materials, in dialogue with their environment, shape the evolving process of practice-led research (Ingold 2012:434).

Figure 42: *A print on paper*, 2024, Soot on gelatin biomaterial and Fabriano Pergamon, Monotype, 63 x 53cm.

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3.2. Alternative substrates

The absence of a printing press in my domestic environment introduced an ongoing challenge. When a printing press is used, or other forms of pressure are exerted, the materials that are brought into contact to transfer the image must be strong enough to withstand the pressure while maintaining their structure. Without a press, the materials are permitted to be less rigid and more fluid. This attribute encourages a deeper exploration as specific characteristics of materials can be selected and practically studied. This is done by introducing materials to each other and building relationships with them, as the characteristics of a material may change or transform when exposed to other materials or conditions. Materials may even sacrifice their autonomy during the printmaking process. Because the process requires marks and traces to be projected onto another surface, the materials are evident in those traces, but the materials could merge with each other to form the print. Contact between fluid and malleable materials becomes a relation that may result in the transformation of matrix and substrate to print as a compound of materials.

I commenced this study in 2023 by scoring into an off-cut panel of aluminium composite material[20]. I knew that if I started interacting with some aspect of my practice again, the momentum would generate questions through interaction with the materials. At this initial stage of the practice-led study, I was concerned with introducing more non-toxic and recycled materials as substrates into my practice. Materials that remain responsive to the environment are favourable, as they are able to break down and be integrated into the surrounding ecosystems. While engraving, I started to consider the ways of generating an adhesive yet solvent-and-polymer-free substrate that could receive intricate information from an intaglio matrix. I aimed to explore an alternative approach to transferring the drypoint print onto paper.

The materials selected in this experiment included cornstarch, glycerin, white spirit vinegar, salt, and water. I attempted to print from the un-inked drypoint matrix, firstly to test the material's durability as a substrate and secondly to determine whether the material would receive the engraved lines. The materials were mixed together and

[20] Aluminium composite material panels consist of two sheets of aluminium mounted on both sides of a thermoplastic core. These panels are easily bendable and are resistant to corrosion and surface damage due to an optional protective paint layer on either side.

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added to the stove to cook at a slow, consistent temperature. I discovered that it is essential to cook the cornstarch until it achieves a colour and consistency similar to petroleum jelly, a finding generated through trial and error. Removing the bioplastic from heat before reaching this stage results in cracking during the drying phase. The bioplastic was applied to the matrix while hot, using a cake scraper as an applicator and left to dry in a dark corner of the studio. As a substrate, the bioplastic demonstrated strength and potential malleability and flexibility, which aided my hand in the removal of the print (Figure 43). The biomaterial received and retained the engraved lines provided by the matrix. At this stage, it became evident that the biomaterial functioned as a substrate, while the matrix served as a mould, allowing the biomaterial to adopt the shape of the matrix upon drying.

Figure 43: Detail of cornstarch bioplastic, 14 March 2023.

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An attempt to repeat this process with an inked matrix (Figure 44) was made to determine whether this biomaterial would act in the same manner with the addition of a handmade transfer medium. I mixed candle soot with a linseed oil binder to create a printing ink, returning to skills that were cultivated in my undergraduate years of study. However, the ink did not adhere to the biomaterial, and, in addition, the biomaterial did not maintain its structure while drying. I realised that I had much to learn from and about this material; moreover, I suspect that the cooking time was insufficient for this printing attempt. Thereafter, I attempted to print once more after cooking the cornstarch bioplastic for at least 30 minutes, this time leaving it out in the sun to dry faster, as I was eager. I soon realised that this was also a factor that led to the cracking (Figure 44) since the biomaterial requires a consistent room temperature to dry. I decided to turn away from this material for a while since I realised I was too eager for a certain outcome, and had to divert my own attention to a different process, perhaps a different material that shared the characteristic of biodegradability.

Figure 44: Cornstarch bioplastic on inked aluminium composite, 28 March 2023.

The process of attempting to transfer oxidised copper surfaces led me to various options for substrates. I revisited bovine gelatin as a possible substrate for the oxidised

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copper surfaces discussed in the previous section. Reacquainting myself with the material required more time and attentiveness than I had originally imagined. Although the process itself drove me to explore more in-depth how the oxidised surfaces interacted with the gelatin substrate, printing from the plate generated by the first experiment (Figure 45) was a frustrating experience that offered some resistance and forced me into reflection.

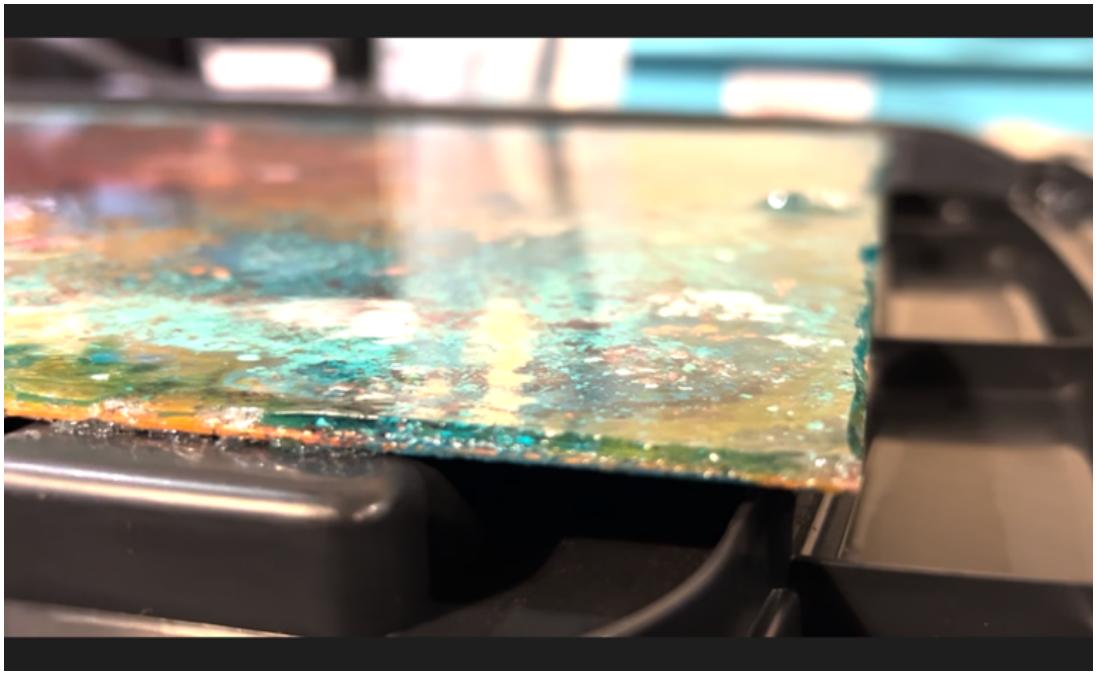

Figure 45: Gelatin on oxidised copper plate, 18 April 2023.

By the time the gelatin had dried, it was almost inseparable from the copper plate; however, the delicate textures created by the oxidation process were safely preserved. I could have left the gelatin on the plate and possibly explored these surfaces as artworks, but I was interested in being able to remove this textured layer from the copper that created it. Prior to the complete and final removal of the gelatin, I attempted to pour PVA glue over the gelatin as an adhesive, hoping that the entire surface would peel off with the glue and that the gelatin would be reactivated by the moisture in the glue. However, only a small part of the exposed oxidation transferred to the dried glue. I then attempted to soften the gelatin by leaving the plate in a container with a small amount of water, inducing condensation. However, this did not aid in the removal of the substrate. While moistened, the rest of the gelatin was forcefully removed with a scraper, leaving behind shards of oxidation-containing gelatin that could only be the width of the tool and the length of the duration of pressure that was applied to remove

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them (Figure 46). The dried gelatin was too rigid and not strong enough to resist the pull of a surface peel, but the softened gelatin was flexible enough to be removed with a scraper.

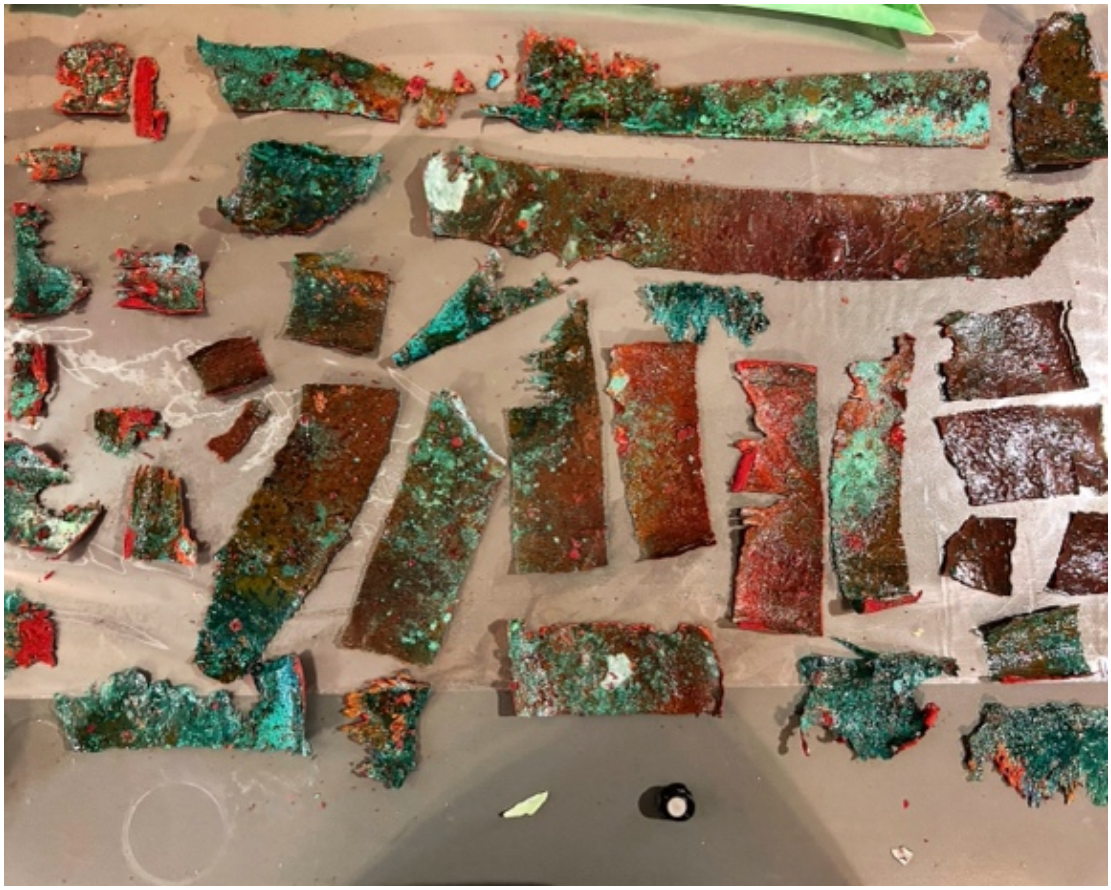

Figure 46: Copper oxide on gelatin, 30 April 2023.

This first copper oxidation experiment led to the next, which explored the possibility of transferring an engraved and oxidised copper surface into PVA glue (Figure 47). I knew that I had been experiencing some challenges with the biomaterial substrates, but my focus shifted from finding a biomaterial substrate to finding another substrate that could receive the corrosive process. I became increasingly captivated with the matrix at this stage, and the substrate became a means to celebrate the ability of the materials to generate these kinds of intricate surface impacts. I carried on exploring this process, both with engraved copper surfaces and completely exposed copper surfaces. Different substrates were then used to obtain first and second transfers from the same plate, where plaster of Paris and PVA glue compounds would lift the first layer of oxidation (Figure 48), and the PVA glue on its own would lift the layers that were closest to the

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copper surface (Figure 49). Notably, these prints revealed the inner sediment of the oxidised copper surface, allowing for deeper penetration into the layers that built up over the oxidation period. However, the top layer was concealed in contact with the opaque substrate. I became increasingly interested in finding a way, or a material, to preserve the oxidised surface's outer layer[21] while simultaneously removing it from the plate.

Figure 47: *First encounters* (detail), 2023, Copper oxide and hard ground on PVA glue, Monoprint etching, 30 x 54cm.

[21] The copper plates create a complete layer of oxidation that rests on the surface of the copper, however, when printing with these opaque materials like wood glue and plaster, the layer visible to me during oxidation becomes concealed in the print.

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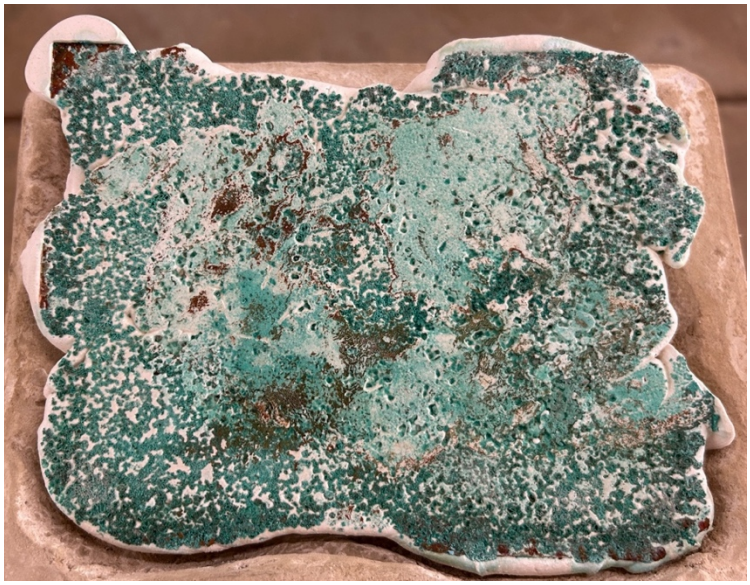

Figure 48: *Before we found our way*, 2023, Copper oxide, hard ground and gelatin on plaster of Paris and PVA glue compound, 17 x 22 x 5cm.

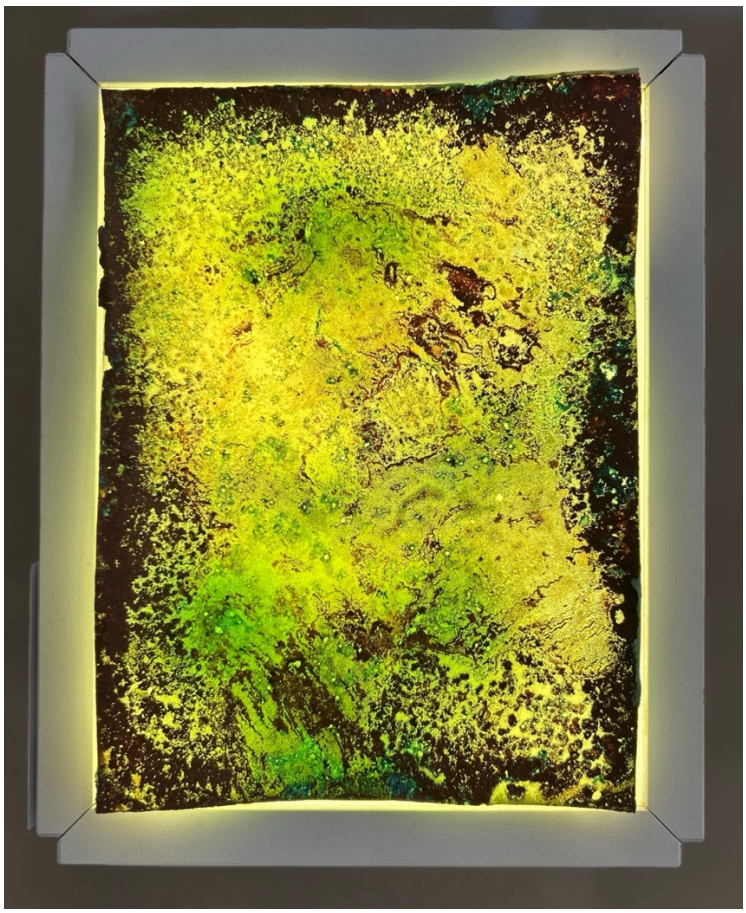

Figure 49: *Finding our way*, 2023, Copper oxide and hard ground on PVA glue, 19 x 14cm.

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At this point in the process, I had established a relationship with the copper surface as a matrix and the oxidation process as an adapted etching process. I attempted to explore the influence of two different surface interferences on copper plates undergoing oxidation (Figures 30 and 31), and I came across an online recipe for bovine gelatin bioplastic that included the use of liquid glycerin (Willem de Kooning Academy 2023). Based on previous experience with Sheridan's gelatin routinely used in my practice, I deviated from the recipe and mixed 10.8 g gelatin with 20 ml of glycerin and 125 ml of boiling water, followed by 375 ml of cold water to create a bioplastic solution. This bioplastic solution, enough to cover two copper plates of 20 x 15 cm, was allowed to cool in the refrigerator before pouring on the dried oxidised copper surface (Figure 50).

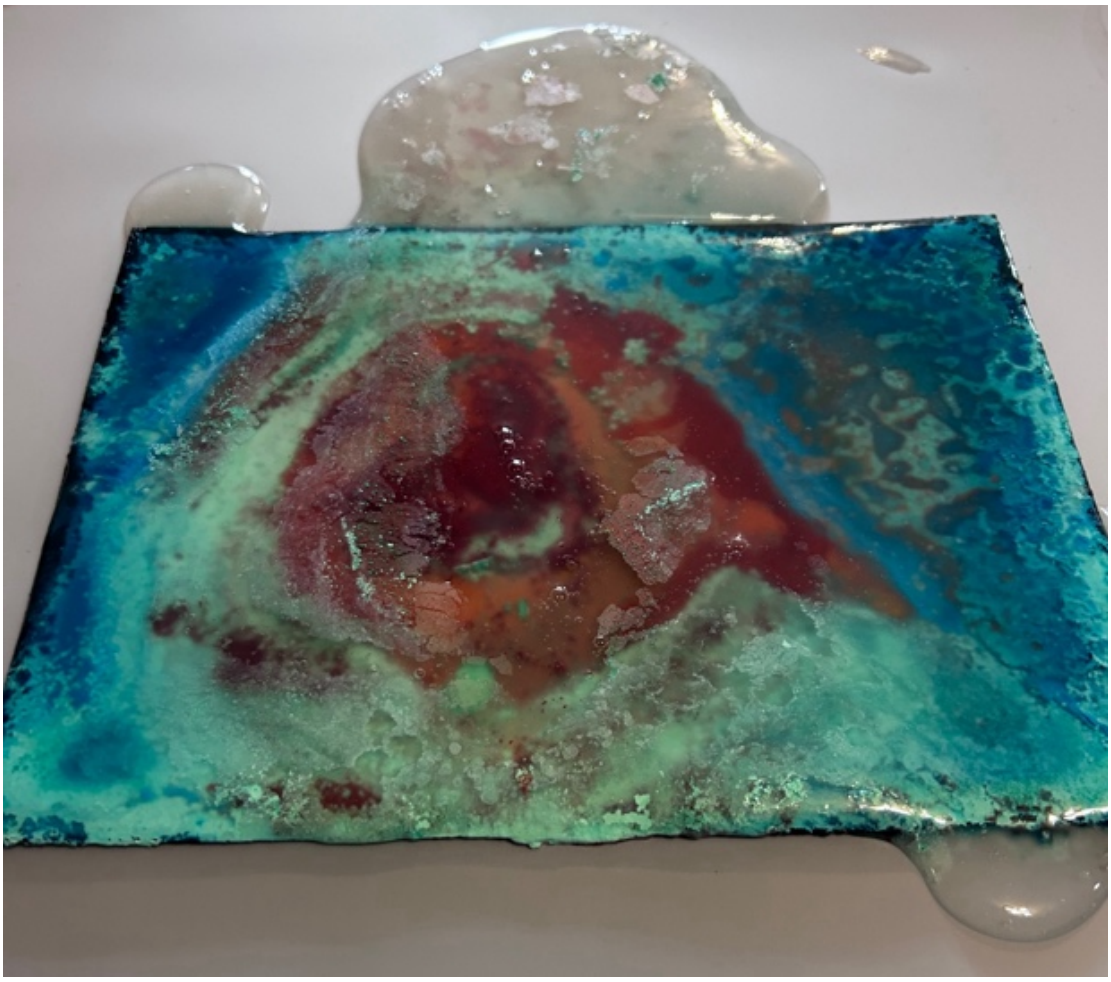

Figure 50: Gelatin biomaterial on oxidised copper plate, 17 January 2024.

The print came off the plate in one piece but required a method of substrate removal that I did not anticipate, but adapted to quite early on in the removal of the first print. Because the glycerin aided in the flexibility of the gelatin biomaterial, the substrate was

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quite flexible, and the copper oxide acted as a filler, much like building sand would become an aggregate in a concrete mixture. Gelatin, derived from animal hides and connective tissues, takes on a skin-like quality when dried, drawing a connection between its material origin and its current state as a participant in the process. As a result, the removal of the dried gelatin resembled the act of skinning an animal and required quite an invasive and aggressive approach. This led me to consider the relationship between myself and the material, reminding me of the volatility that exists in material engagement. I created space between the object and the skin with a sharp precision knife (Figure 51). The areas on the plate that have the red copper oxide—towards the middle of the plate —are much more willing to release the gelatin substrate, whereas the areas that were built on the darker blue copper acetate—towards the edges and corners of the plate where the material reactions were less concentrated—were not as willing to release the gelatin.

Figure 51: Documentation of prints being removed from the oxidised copper plate, 18 March 2024.

I was quite intrigued by the way the materials were able to settle together in this state of temporary stability in *Skin and stone* (Figure 52). Similar to the glue, the fluid gelatin

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was able to penetrate the surface of the oxidation and dry as a sheet that could be removed without too much force or structural loss to the print. However, the transparency of the gelatin created a print that preserved the previously fragile outer layer of the oxidised copper surface. These gelatin-based prints, as well as those printed on PVA glue and plaster of Paris, required a fixative for the exposed copper oxide that was pulled from the plate. Seeing as the dried gelatin was able to keep the oxidation stable, all copper oxide prints were eventually sealed with a gelatin and glycerin layer, allowing the process to feed back into previous moments.

Figure 52: *Skin and stone*, 2024, Copper oxide on gelatin biomaterial, Monoprint etching, 19 x 15cm.

I continued with the process, experimenting with various surface interferences and sizes of copper plates, attempting to determine the size at which the substrate could no

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longer support its own weight when lifted, handled or suspended. Although the biomaterial is quite strong, it is not resistant to tension or other damaging forces. I noticed that excessive amounts of glycerin would weaken the substrate, creating too much flexibility and a layer of glycerin excretion that would rest on the surface of the dry substrate. I found that the best ratio for gelatin to glycerin was three teaspoons to two teaspoons. Furthermore, the gelatin that was mixed for sealing surfaces required less glycerin.

The transparency of the prints depended on the process of making the gelatin. If the gelatin was left to cool for too long, I was required to mix a tiny bit of warm water into the cold gelatin, which created air pockets between the now-solidified pieces of cold gelatin. This affected how the gelatin dried on the surface, and in turn, how the work could be viewed. In this case, as seen in Figure 51, the detail generated by the oxidation on the layer of the prints was obscured by the air captured in the gelatin mixture. This required a more gentle engagement with the substrates, as the transfer of the matrix would have been disrupted if I had been more forceful or impatient during the print removal. As shown in Figure 54, *Twins and their older sibling* reveal the intricacies of the material interactions during oxidation, the thick layers of oxidation allowed for an almost effortless removal of all 3 prints (Figure 53).

Figure 53: Documentation of gelatin removal from an oxidised copper plate, 18 March 2024.

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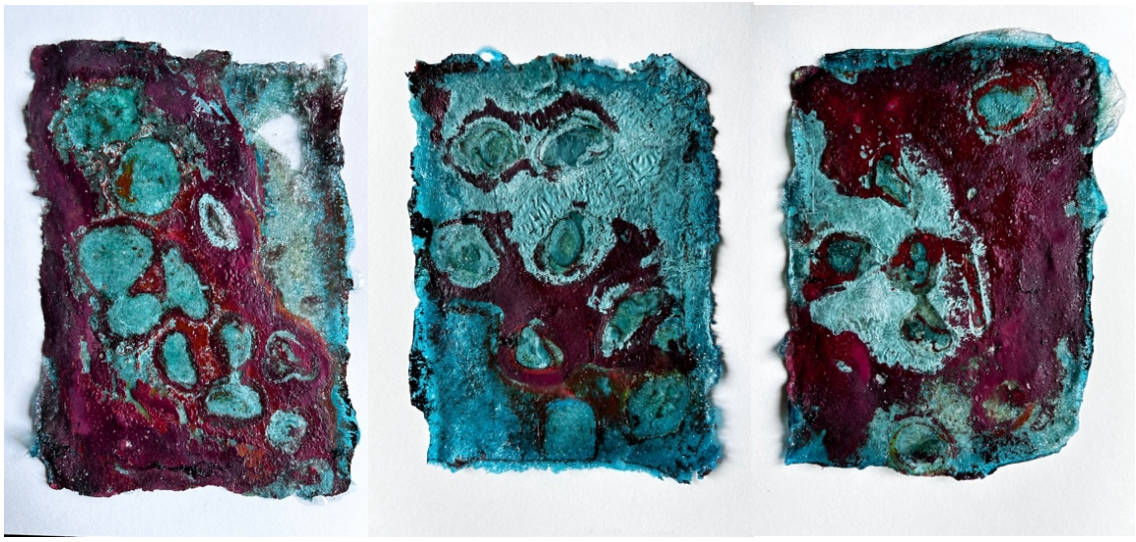

Figure 54: *Twins and their older sibling* (Triptych), 2024, Copper oxide on gelatin biomaterial, Monoprint etching, Each 20.5 x 15.5cm.

I returned to cornstarch as a possible co-polymer for the base of the biomaterial. The idea was that I had to take what I had learned about gelatin and glycerin and apply it to what I had learned about cornstarch at the beginning of this study. At this point in the process, it made sense to combine the recipes of the gelatin and the cornstarch biomaterials. As polymers, they were connected by the material compositions that made them plastic, containing glycerin, salt, vinegar and water. Albeit present at different points in time during their respective processes, these connective materials created a favourable opportunity for collaboration between the gelatin and the cornstarch. The recipes were then adapted and combined. First, the water and glycerin were added to a saucepan and heated slowly until the water started creating steam. The gelatin was then added and stirred until fully incorporated into the solution. I then slowly added the cornstarch while stirring and continued stirring for about 15 minutes. The vinegar and the salt were mixed together and added last to the mixture. The mixture was cooked for about 30 minutes and was removed from the stove as soon as it resembled the colour of petroleum jelly (Figure 55). When applied to the dried oxidised copper plate that I had left to dry for up to three weeks, the biomaterial, as seen in Figure 56, was not as opaque as I had anticipated.

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Figure 55: Documentation of cooking the cornstarch and gelatin biomaterial, 5 June 2024.

Figure 56: Cornstarch and gelatin biomaterial on oxidised copper plate, 5 June 2024.

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As the substrate dried, I started to lift the corners out of curiosity to find out if the oxidised surface had transferred. As seen in *Cohort* (Figure 57), the corners of the print curled up as it dried toward the middle and became a sculptural surface with dimension induced by the material itself. Because the print is rigid yet pliable, it was able to hold its shape after drying. It resembles the texture and structural quality of dried wood glue but does not react to environmental temperature in the same way. I attempted this process once more, printing from two oxidised copper plates that were twice the size of the small one printed in Figures 56 and 57, and therefore doubled the recipe and cooking times for both plates. However, upon application, I noticed that the biomaterial was extremely opaque and did not resemble the semi-translucent quality of the previous experiment. Both prints started cracking very early on in the drying process, and the biomaterial hardened in its disjointed state, as demonstrated in *Failure or fragment* (Figure 58).

Figure 57: *Cohort*, 2024, Copper oxide on cornstarch and gelatin biomaterial, Monoprint etching, 18 x 13 x 4cm.

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Figure 58: *Failure or fragment* (detail), 2024, Copper oxide on cornstarch and gelatin biomaterial, dimensions variable.

In exploring alternative substrates for printmaking, the absence of a printing press in my domestic environment became both a challenge and a catalyst for innovation. This limitation forced me to rethink the rigidity and structure of traditional materials, pushing me to engage more deeply with the fluid and malleable properties of various substrates. Through my experimentation, I observed how materials, particularly bioplastics and gelatin-based compounds, could transform and interact in unexpected ways, often sacrificing their autonomy to become integral parts of the printmaking process. The cornstarch bioplastic experiment, while initially promising, revealed the complexities of working with biodegradable materials and their sensitivity to temperature and time as variables. The gelatin-based substrates, on the other hand, proved more adaptable, offering intriguing possibilities for capturing the delicate textures of oxidised copper. However, the challenges remained, as each experiment demanded a thoughtful consideration of ingredients, temperature, and timing to achieve the desired outcomes. The final exploration, combining cornstarch and gelatin, further refined my understanding of the material interactions and highlighted the

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importance of adapting processes as new challenges arose. The materials, while not always behaving as anticipated, provided valuable insight into the potential of bioplastics and gelatin as substrates in the printmaking process. As I continue to refine these experiments, it is clear that alternative substrates offer not only a way to push the boundaries of printmaking but also an opportunity to situate the domestic space within the expanded printmaking practices.

3.3. Towards an autonomy of process

Later during the study, I started to consider myself less essential in the active making component of the creative process. This, in part, was due to the fact that my presence during the making of works became progressively less essential for the work to reach material complexity. Active artist-material making became varying degrees of human initiation and material response; whereafter I would return to transfer the response, wait again as the materials responded to their initiated contact, and eventually, I would return as the transfer processes resolved. I again revisited the interactive process of transferring from water, this time allowing the container to generate its own pigment for transfer, inspired by the ability of copper to generate its own matrix. Rather than applying the ink to the surface of the water, I would wait as an iron bowl rusted with water in it, and return to it when the water contained floating rust (Figure 59). Various attempts were made to transfer the rust onto paper, and papers were prepared with both gum Arabic (Figure 60) and PVA glue (Figure 61) to ensure that the rust would adhere to the surface.

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Figure 59: Iron bowl with water creating rust, 18 March 2024.

Figure 60: Iron oxide and gum Arabic on Fabriano, 26 March 2024.

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Figure 61: Iron oxide and PVA glue on Fabriano Rosaspina, 26 March 2024.

During a consultation and feedback session with my peers and lecturers, I received comments that the rust prints seemed flat, whereas the bowl itself was sculptural. It was suggested to me that perhaps an approach could be taken where the materials are allowed or encouraged to take on the shape of the bowl in some way to respond to the suggestion of representing more of the process in the final print experiments. This introduced me to a different kind of approach to printing on paper. For the paper to take on the form of the bowl in some way, I was required to set up the materials for interaction, but I had to abstain from interfering with them until the materials resolved themselves. I was required to consider an approach where the paper could receive the pigment produced by the rust while also receiving the shape of the bowl. As a first attempt, I filled the rust bowl with water and vinegar and placed it outside on the balcony. I then added 3 strips of Hahnemuhle paper to the water and waited as rust and evaporation happened (Figure 62). The result of this experiment was that I no longer had to be present to transfer a matrix onto a substrate. Furthermore, the generation of print led to a more sculptural outcome as evident in *Reveal II* (Figure 63).

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Figure 62: Documentation of rust transfer onto Hahnemuhle paper, 26 May 2024

Figure 63: *Reveal II*, 2024, Iron oxide on Hahnemuhle paper, 18 x 27 x 10cm.

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After the outcome of this experiment, I was curious about introducing a larger paper to the process, hoping that the paper would mimic and preserve the shape of the bowl after it dried. As seen in Figure 64, a larger sheet of Hahnemuhle paper was placed in the iron bowl before the water and vinegar were poured inside. As the fluid rose while I was pouring, so did the paper, and I decided to use stones from the garden to weigh the paper down in the bowl. At some point during this process, the bowl rusted through and started leaking onto the balcony, where it was left to resolve. As the fluid continued to leak and evaporate, I started adding more vinegar to the bowl to fill it. I left the bowl alone after returning twice to refill it, but continued to monitor it once a week for a while. I eventually abandoned the process altogether, as I was tempted to add more vinegar but wanted to refrain from doing so. I did not want this print to be too influenced by my choices; I was more interested in a result where I was lying in wait, observing rather than acting. The print, or rather the sculpture, seemed to carry its material weight. *Holding time* (Figure 65) reveals the material complexity of the bowl and the paper, and what occurred when both react in relation to water and vinegar. The paper took on the form of the bowl, but the pressure maintained by the weight of the stones allowed the paper to curl while it was receiving the iron oxide on its surface. The shape of the paper changed as the water level changed, and those relational changes were recorded on the paper's surface.

Figure 64: Documentation of rust transfer onto Hahnemuhle paper, 26 May 2024.

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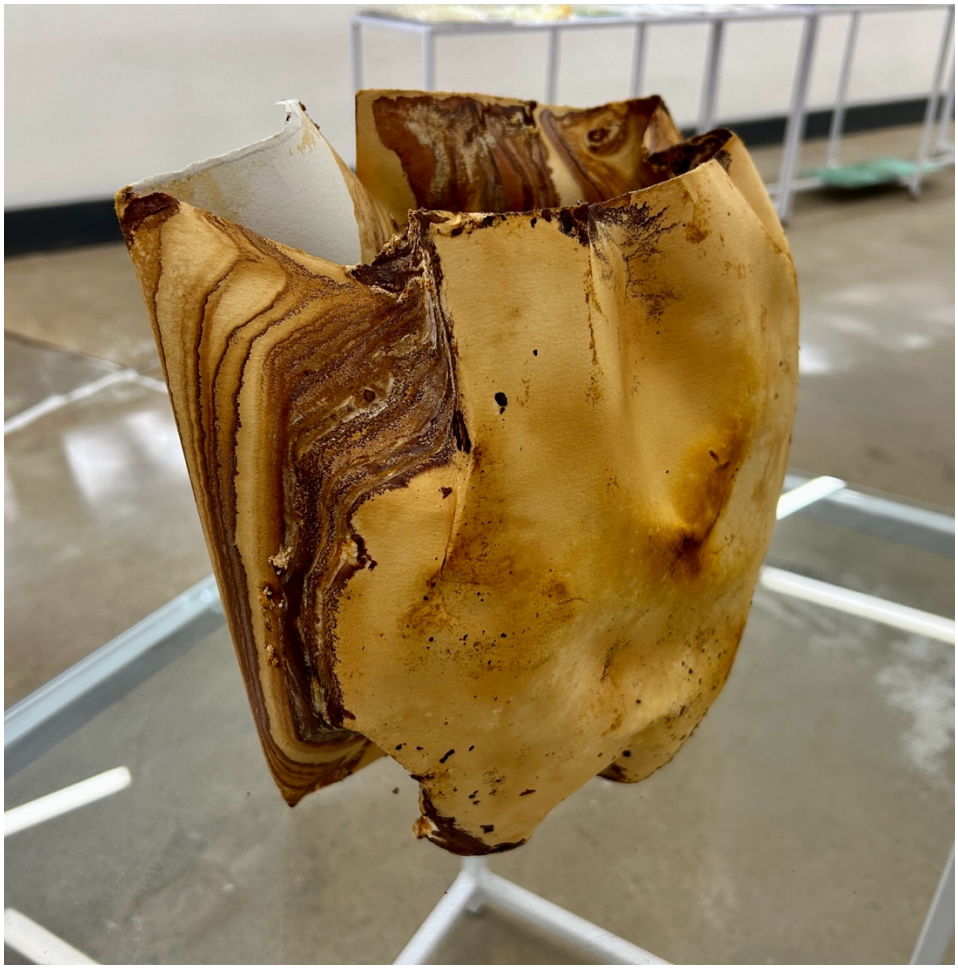

Figure 65: *Holding time*, 2024, Iron oxide on Hahnemuhle paper, 34 x 20 x 27cm.

This chapter discussed the possibility of developing printmaking methods in the domestic setting and the potential of remaining curious about material participation as a vital contributor to the creative process. The home environment posed a challenge to the process of printmaking, and the exploration and adaptation of the copper oxidation process allowed the intent for the printmaking process to develop as material opportunities presented themselves. This chapter focused on matrix development as a collaborative effort between the artist and material and highlighted the challenges and tensions that occurred while investigating the behaviour of copper in relation to salt and vinegar. Copper was encouraged and exposed to circumstances that allowed the plate to generate its own pigment for transfer, initiating explorations that required less action from me and more participation from the materials.

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The complex oxidised surface required an experimental approach to printing the surface. The investigation of fluid substrates proved to be challenging, and resistance from the material exposed me to various avenues of material exploration. The tensions and times when the materials resisted my intent were not failures. Rather, these events created opportunities for further exploration or changes in directions that later benefited the process, allowing me to revisit previous processes with a more mature view of the material behaviours. The cornstarch biomaterial and gelatin substrates that were explored at different times in the process were later combined to form stronger and more durable surfaces, and gelatin became a material that stabilised previously unprotected prints.

The practice developed into a process that required less intervention from me as the artist, and materials were ‘abandoned’ in situations that created more sculptural prints. The dynamic nature of the materiality of surfaces started to reveal itself as control became less. Conceptual reflections throughout the chapter underscored the matrix as a dynamic surface influenced by multiple components. My role as the artist was challenged and examined, starting as more involved, compared to later processes where the materials stepped into an entangled sense of creative autonomy. These processes elevated the potential contributions made by materials and the balance between human intent and material response. The processes developed in such a way that the artist-material relationship shifted from me making the materials dependent on my actions to me becoming dependent on the materials’ participation.

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CHAPTER FOUR: CO-CREATIVE PROCESSES

In Chapter Three, I discussed processes that involved the development of a relationally generated matrix, as well as formulated composite substrates that could receive and carry these matrices. I also referred to my role as artist as less essential at certain times than others, depending on the process and materials with which I engaged. Building on the previous chapter's focus on process and the tensions of control and submission, this chapter firstly delves into my relationship with gelatin as a reactive material, leading me to insights that questioned my responsibility and inherently invasive interaction with the material. By integrating theories provided by Barad (2007), Malafouris (2008) and Bolt (2004), responsibility is considered as an implication of all materials in participatory practices. This chapter discusses moments within the process that required embodied participation from me as the artist and highlights the emergence of situated knowledge in practice-led research. Lastly, this chapter provides discussions on the challenges faced regarding curatorial and display components involved in presenting the practice-led study as an exhibition. The process of preparing for *Co-creating with materials* revealed instances of chance that encouraged me to respond to the gallery space.

4.1. Responsibility in entanglements

Following the insights that surfaced from the rust transfer process discussed in Chapter Three, the role of the human in material engagement comes into question. The extent to which one responds or engages with materials determines the outcome, as well as the extent to which materials respond during the process. In the ethical framework proposed by new materialist theorists, the responsibility of world-making lies with all material bodies (Barad 2007:218-219). This argument creates space for considering how the perspective of agency and intent emerging through engagement influences the responsibility of the human. According to Barad (2007:219), the acknowledgement of non-human agency does not relieve humans of their accountability in the world's becoming. In the relational interactions between material bodies, both living and not, there are often elements of benefit, gain, loss and sacrifice that impact the agents involved. However, finding the line where use becomes exploitation is a challenging consideration.

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I recall Barad's (2007:177;393) discussion of constraints and allowances in intra-action while considering the boundary between use and exploitation. Agential cuts[22] are enacted through material intra-actions, and those cuts determine what becomes excluded and what continues in the entangled field of configurations (Barad 2007: 178; 394). Crucially, humans participate in what becomes known and realised, just as they contribute to what becomes overlooked and omitted. This is the accountability that Barad (2007:382) advocates, humans ought to be aware that the intra-actions they participate in are of concern in the greater becoming of the world. This inherent responsibility in material entanglement extends to intimate artist-material relationships. Artists always carry responsibility for the things with which they are entangled, not only because of intentional consideration, but because responsibility is implicated in all instances of material engagement (Barad 2007:178; Haraway 2008:36). A relationship of utilisation is inherent in entanglement, however, when the artist claims greater value in a particular engagement, materials could become dominated, manipulated or taken for granted[23].

Such tensions exist in my relationship with gelatin, a material that is composed of animal bodies. In the practice of working with the material, gelatin presented itself as skin, an encasing boundary between the inner and outer layers of the print. The gelatin and oxidation relationship was one of protection and exposure, a dual relationship of fragility and stability of the temporal surface. The gelatin biomaterial is fluid at first and is able to gently enter the surface of the oxidised copper, embracing the formations while drying. However, in order to remove the print from the surface with ease, all areas of the plate had to be coated with a thick layer of copper oxidation, which was rarely the case. Most times, the gelatin had penetrated to the face of the raw copper and required forceful removal. The delicate balance between surface release and the structure of the gelatin sheet often caused it to break and tear (Figure 66). As seen in Figure 67, raw exposed copper and gelatin held on to each other, and this created resistance and frustration during the process of removal. The bottom left corner of the

[22] Barad's (2007:148) concept of agential cuts are the moments when a specific configuration of tools, bodies, materials, practices and/or phenomena, carves out a temporary distinction in an otherwise entangled field of becoming. These cuts differentiate what something is and what it means, simultaneously.
[23] I am aware of the relation of use that exists between myself and the materials in this study, as they are being invited to participate in a practice-led study, intended to be used for the purpose of research insights. I seek to participate with the materials in a manner that does not discount their behaviours, however, the line between my intensions and the material's participation becomes blurry in the context of a practice that serves a Master's degree.

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matrix reveals how challenging it was for me to remove the gelatin biomaterial from the surface of the plate, showing the scratch marks produced by my hand and the blade.

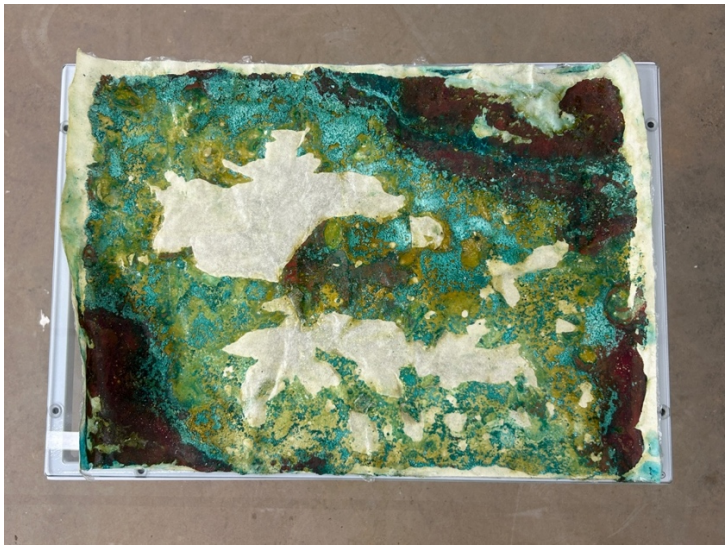

Figure 66: Detail of *Untitled* (Diptych), 2024, Copper oxide and gelatin biomaterial on Mingeishi, Monoprint etching, Each 45 x 60cm

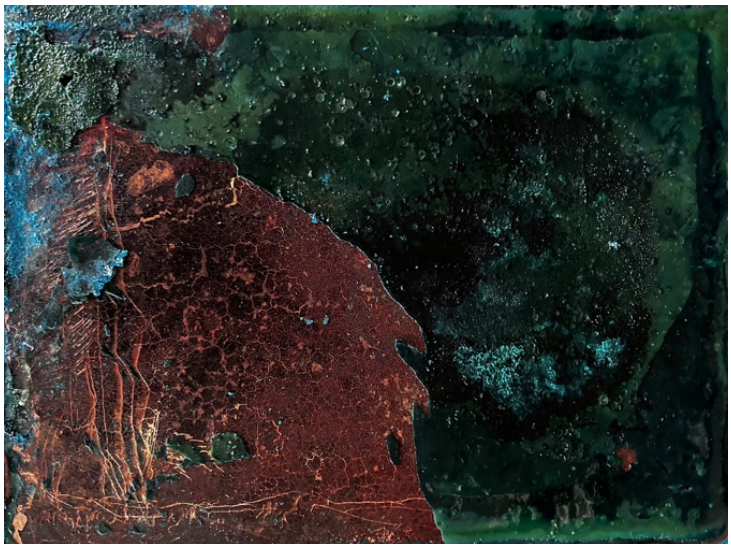

Figure 67: Gelatin biomaterial on oxidised copper, revealing the marks of removal, 11 March 2024.

My relationship with gelatin was often volatile, while at times presenting moments of gentle, slow engagement. However, the polarities of volatility and ease in my manner of response cultivated a particular layer of complexity in my relationship with gelatin that led to critical reflections regarding the material's composition. Its unpredictability and immediate responsiveness to its environment alluded to the responsiveness of the body of which it was composed. I became acutely aware that I was working with the

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skin and bones of animals that are harmed and dominated by human industries (de la Bellacasa 2017:86). I came to the realisation that I was participating in the consumer practices that contribute to this harmful exploitation of animals rather than merely engaging with an inanimate remnant of a body. Furthermore, although I had aimed to form a participatory relationship with the material, the manner of engagement itself proved to be quite invasive. My response was rigorous and aggressive at times, compromising the material's structural durability with the insertion of the knife between the matrix and the biomaterial substrate during print removal. The material's relational participation, although challenging at times, produced rich moments in the process that generated critical insights into the material and the artist's tendencies to direct the process and implicated material histories that contribute to the reflections and/or progression of the creative process.

In attempting to better understand the insights generated by my fragile, volatile and captivating relationship with the gelatin[24], I recall Malafouris' (2008:33) argument that intentionality and outcome in art practice are formed by both the human and the art material through interaction, where the material is seen as a participant that "brings forth" the artist's intent. Critically considering the artist and material's active roles respectively becomes a challenging endeavour. Malafouris (2008:28) acknowledges the fact that the responsibility could, in fact, be appointed to the artist alone. The artist may be perceived as the agent that sets the intention into motion, preparing the surface and gathering the chosen materials.

However, Malafouris (2008:28) argues that materials introduced and incorporated into artistic practice often misbehave and refute the artist's expectations. As with the gelatin substrate, materials could easily withstand and reject intervention. To further attempt to subjugate the material would require that the artist adopts an instrumentalist approach, which would indicate an authoritative relationship between artist and material (Bolt 2004:53). When materials are viewed through an instrumentalist lens, they are mainly deemed valuable to the degree that they can serve human intent, and their transformative capacities are overlooked in favour of their situational usability and sustainability. For Bolt (2007:3), the concern for subjective intentionality in art practice

[24] Here I refer to the polarities that exist in my engagement with the gelatin biomaterial as a substrate. I refer to instances of material resistance as discussed here (Figure 67), as well as moments where the interaction between the gelatin and sunlight generated pivotal insights and integration with theory regarding print as a projection (Figure 37).

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has resulted in a disregard for the contributions made by materials during creative practice. During this research, there were a few instances where I attempted to subjugate the materials to act according to my predetermined intentions. These power plays were often met with resistance from the material, guiding me into processes requiring less intervention. This oscillating grasp for control characterises material engagement (Malafouris 2008:34), and in turn either party could surrender and relinquish responsibility at times.

4.2. Responsive making and situated participation

Humans, in relation, have been changing our own development through time by the manner in which we create and engage with materials. Due to our close proximity to material artefacts and objects, Ingold (2012:429) argues that humans have become habituated to material interactions in such a way that they overlook their pivotal role in shaping human lives. However, Bennett (2010a:49) points to the capacity of materials to produce and contribute to the development of instances that humans could not anticipate. By involving these instances of chance in creative practice, materials alter perceptions, informing further engagement that moves beyond prescribed ideas about their behaviours. This section discusses instances during the study where situational material knowledge was either generated through interaction or recalled and applied to specific moments of material engagements. Ingold (2015:122-123) describes this development as “making-in-growing”, where the artist-material relationship becomes more complex and mature. By reflecting on relevant moments in the process that unearthed these situational recollections, this section aims to argue that situated, process-based knowledge as a component of immediate or previous material engagements contributed to the ongoing generation of creative outcomes in this study (Sullivan 2009:51).

John Dewey (1980:16) describes creative enquiry as a process in which the artist’s “problems” are resolved through direct embodied engagement. The act of making is not separate from thought; it is through embodied interaction with materials that knowledge emerges (Leavy 2017:196). Malafouris (2021:40) challenges the notion of cognition as an isolated internal process, instead framing thinking as something that unfolds through engagement with the world. Knowledge does not pre-exist in the mind, waiting to be applied to material engagement (Barad 2007:342). Rather, situated forms of knowledge

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emerge through specific interactions with tools, surfaces, and substances (Bot 2004:141). In this sense, creative research is not an act of ideation but a lived process of becoming with materials. This study adopts this approach, positioning knowledge as something that arises through the dynamic process of making, an emergent property of embodied, situated encounters with matter (Malafouris 2021:42).

The interplay between anticipation of the event and embodied material engagement was evident in the process of preparing an engraved plate for printing. The ink was greasy, and the inking table was low, which made the laborious process of polishing the plate all the more physically challenging. My body started to ache at this point, and my attention settled on the physical discomfort and its effects on my movements and responses. As a necessity, I began to enact knowledge and memory that resurfaced to assist me with the movements required specifically to polish an intaglio plate. Archived embodied knowledge generated by inking various etching plates in 2022 returned and presented itself in my movements and gestures.

Once most of the ink had been removed from the surface after filling the engraving, the plate needed to be polished with tarlatan cloth, newspaper, and tissue paper to ensure that only the engraved lines would transfer onto the substrate. Before I placed the newspaper on the plate for polishing, I instinctively knew that my hand had to be more adhesive than the ink; otherwise, my hand would slip from the newspaper while polishing. I recalled this from a previous experience with polishing a copper etching plate, where I had applied a small amount of saliva to my hand to increase friction between my skin and the newspaper. Repeating this action made the process smoother, the newspaper moved effortlessly over the surface, and the pressure of my hand remained consistent. The memory of the newspaper's texture and its interaction with both ink and my hand allowed my body to prepare for the specific interaction with the surface. The ink's oiliness exceeded that of my hand, and as a result, the newspaper adhered to the material, offering the greatest friction. Through embodied experience, I understood that saliva provided more resistance than linseed oil.

Furthermore, I noticed that my hand was moving as if detached from my arm, and my wrist was relaxed. I wondered how my wrist knew to be relaxed when I did not consciously loosen it. This back-and-forth, low-pressure, gentle polishing movement was cultivated during my first encounter with an intaglio matrix and carried into the

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polishing of this aluminium composite drypoint plate (Figure 68). As I prepared for the task of inking and polishing the plate, I failed to anticipate the amount of practical knowledge that would return while I was actively engaging with the materials and tools. The newspaper, in this instance, served as a polishing tool in collaboration with my hand, wrist and arm. As Malafouris (2021:48) explains, the action and necessity of polishing make the tool, which is co-constituted by hand, newspaper and gesture. The action, which is composed of situational, embodied knowledge, material allowances and requirements, produces the tool. The tool is not a single entity but rather a thing in a specific relation with the hand (Malafouris 2021:48). Crucially, the process is iterative in that it co-produces outcomes and components alike that contribute to its ongoing development. Material engagement and its specific requirements produce the tools as an emergence and outcome of intent produced by action.

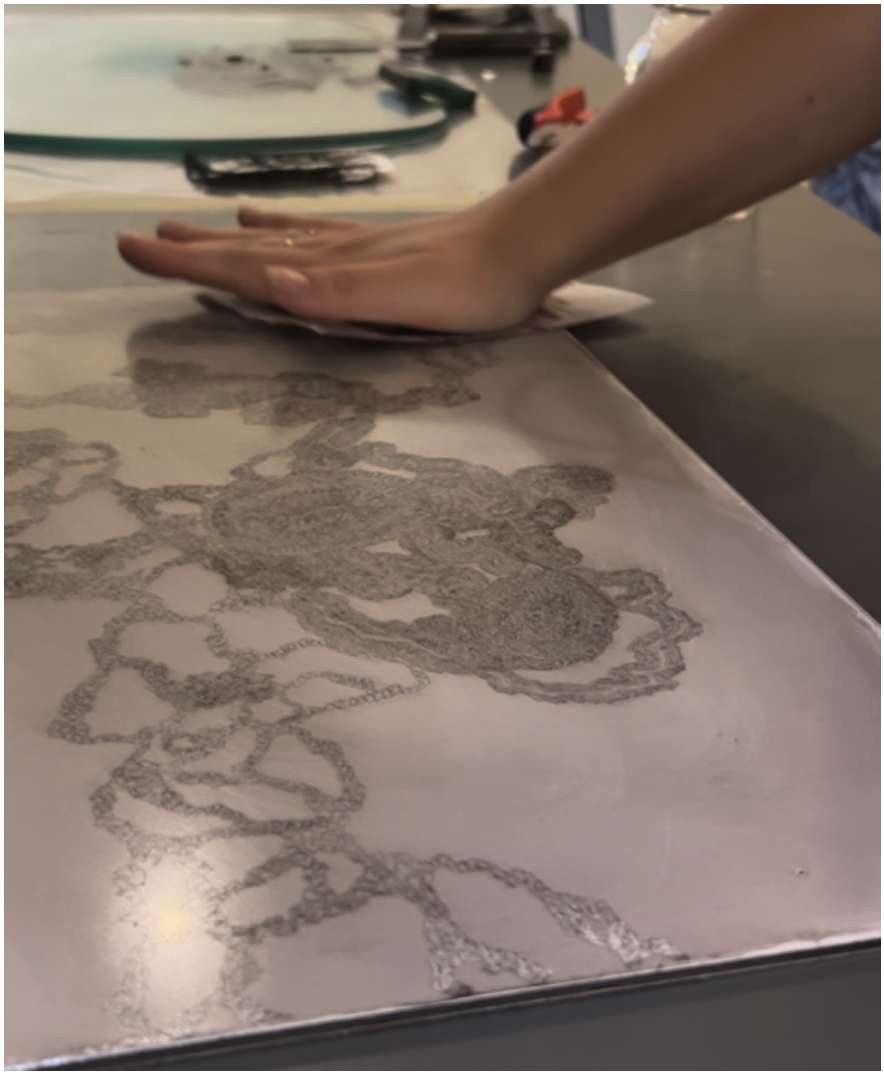

Figure 68: Documentation of the process of polishing a drypoint matrix, 17 March 2023

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Materials can be adapted and included in processes to explore their influences and effects as tools or agents. Transfer mediums composed of variations of powdered pigments and binders were incorporated into handmade inks using mechanical pressure and continuous movement. The tools that are recommended to mix binder and pigment together are a paint muller and a glass surface. Without access to a paint muller, a flat-bottom drinking glass was used as a substitute to mull the pigment, and this resulted in loud auditory stimulation (Figure 69). The pigment grains being circularly pressed between the two glass surfaces generated a scraping sound and an intense vibration. I began to understand the fineness of the pigment and whether or not the ink would scratch the surface of the matrix when applied and polished (Figure 69).

Figure 69: Documentation of the ink mulling process, 8 March 2023

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This type of improvisation in situ can introduce new challenges and bodily engagements. During the process of creating the crackle effect on the copper plate (Figure 32), the absence of a heat tray in my home studio prompted me to search for what was around me. A nearby heat gun or a candle provided a suitable solution, as the plate required consistent and evenly distributed heat for the gum Arabic and egg white solution to crackle. Luckily, copper is an ample heat conductor, but the flame posed a risk of instant, localised and concentrated heat. The heat provided by the heat gun could be monitored, similar to the heat tray, and because the heat was applied from the top, I could place my hand between the heat gun and the copper plate to determine whether or not the plate was receiving too much heat in any specific area.

It was decided that if my hand could tolerate the heat, so could the egg white and gum Arabic. The solutions started to crackle, which meant that the intervention of my hand and the temperature it could tolerate were more or less the same as the materials that collaborated to form the surface crackle. This sensitivity to heat and the connection created between my skin and the surface of the copper echoed the idea of the human body as material (Bennett 2010b:119), relating to the idea of interconnected agents in material engagement and the embodied participation required by the artist (Beck & Conrad 2015:10-11,17; Bolt 2004:78). However, when the same process was conducted with the second crackle plate, the mixture reacted differently and started to boil on the surface (Figure 70). The material interaction between the crackle solution and the plate's grounded surface might have subverted my expectations, but they provided me with the opportunity to look beyond certain trajectories[25] and encouraged me to explore alternative possibilities within specific processes.

[25] In Figures 67 and 70, the materials acted outside of my expectations. However, both outcomes resulted in me needing to clean the copper plates after oxidation, revealing where the vinegar and salt had bitten the exposed copper. This led to the process of polishing the oxidised plates and printing them and led to the creation of *Mark Matters* (Figure 35) and *Yours or Mine* (Figure 36).

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Figure 70: Documentation of crackle solution cooking on a copper plate, 26 February 2024.

4.3. Presenting the process

This study prioritises process as the unit of analysis, and places importance on the material engagements that occur and arise under the ongoing methodological development. The process is analysed to explore the relationship between the artist and the material during creative practice. Sullivan (2009:50) explains that insights generated through practice are often embedded in the process of working with and "thinking in a medium". The process becomes an essential part of creative research and knowledge generation, specifically in terms of employing material practice as a form of research. Furthermore, Jack Richardson and Sydney Walker (2011:11) argue that process and experience are interdependent as events-in-becoming, where the artist becomes shaped by the experiences involved in the process. In close engagement with materials, the artist is met with the nature of those materials. It is hardly the final form that is desired here. The focus is placed on the journey taken in exploring the possibilities and potentials of materials as participatory agents in creative, relational investigation.

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Process and material sensitivity seem to be complementary components in establishing relationships with materials through practice. Likewise, the process of material engagement becomes an integral part of generating material and/or conceptual knowledge. The process of making is complex and emergent, and the relation between the human and the material in a specific moment generates form as an instance (Ingold 2013:31). Printmaking allows for a recording of these instances, cementing the transformation of the matrix into a receptive surface. However, these essential tensions of response and control that exist between me and the materials that contributed to the making of the work can become lost in the final print, as the surface can be read as a static, capturing an instance of contact rather than a series of events (O'Toole and Siopis 2020:9; Ingold 2013:7).

I was required to regularly present the creative component of this study to my supervisor, peers and other lecturers in crit and feedback sessions in the Link Gallery[26]. These sessions aimed to provide insight into the viewer's perspective, as well as provide advice on the development of the project and how it relates to the theoretical component. When presenting the works, I was continually met with the challenge of incorporating the process into the method of display. These critique sessions provided a productive space to explore various ways of exhibiting the work, and through trial and error, I developed a sense of how processes could be read and become visualised through the display methods applied in exhibiting the works.

I was preparing to exhibit the works in the 2-1 Gallery space for the culminating exhibition 'Co-creating with materials' (2025). Since the main gallery space was significantly larger than the Link Gallery, I sought to present the works as individual series in relation to their respective material explorations, yet part of a larger constellation of interlinked works. I was faced with the challenge of making visual sense of the process as a whole and communicating key moments throughout the process. The iron bowl that created the rust transfer process ended up becoming part of the display of the work *Path of least resistance* (Figure 71) in such a way that it was lifted from the ground gesturally, signifying its role in the co-creation of the rust printing process and subsequent artworks. The shaped paper with deep rust stains, *Unresolved* (Figure 72) was displayed alongside the stones that were used to weigh the paper

[26] The Link Gallery is a shared exhibition space adjacent to the 2-1 Gallery. The 2-1 Gallery serves as the main gallery wherein departmental and external art exhibitions are presented.

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down while the rust water evaporated from the iron bowl. These stones were approached as a sculptural solution, incorporating two-dimensional prints to juxtapose the more sculptural papers (Figure 73). I sought to display these components together to provide a sense of the development of the process and the kinds of experiments that were conducted.

Figure 71: *Path of least resistance*, 2024, Iron oxide on cotton, 1 x 4.5m.

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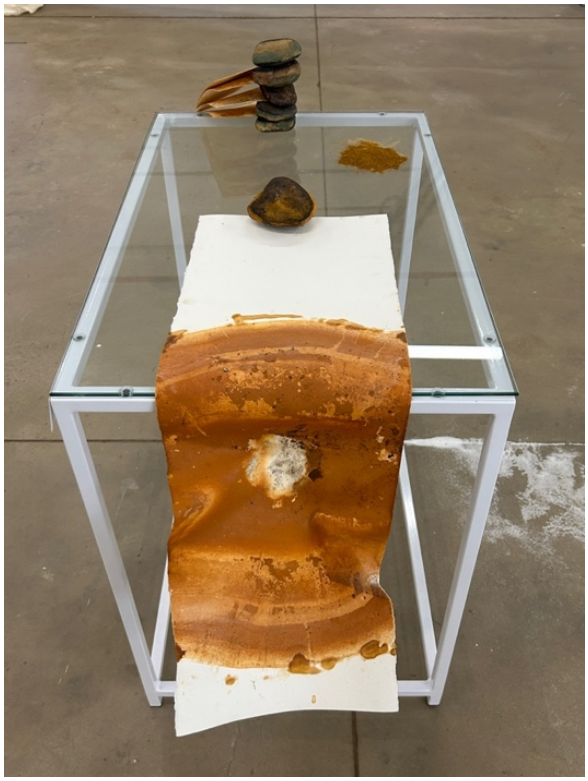

Figure 72: *Unresolved*, 2024, Found stones, Iron oxide on Fabriano and Hahnemuhle, Monotype, Dimensions variable.

Figure 73: *Unresolved* (detail), 2024, Found stones, Iron oxide on Fabriano and Hahnemuhle, Monotype, Dimensions variable.

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The disparate nature of the print from the process was a challenge faced in other water-based processes as well. Two processes that involved printing from water were critiqued as static, separating them from their process that relied on the dynamic interaction of resistance between oily ink and water. These processes involve the grinding of soot, stone and black slate as respective pigments, mulling the ground stones with a linseed oil and glycerin binder and allowing the ink to disperse on the surface of the water. The inks were then pulled from the water onto sheets of Hahnemuhle paper, as shown in all works presented from Figure 76 to Figure 82.

It was essential to communicate the process involved here, as the works relied on chance and the involvement of specific materials that create specific conditions. The involvement of the flat-bottom glass in the ink mulling process as an in situ material brings the domestic space into the gallery space. Furthermore, the consistency of the ink, as seen in *Suspended slate* (Figure 77), altered its miscibility from a condensed and reluctant state to a more diluted state, shown in *Synchronous* (Figure 78). The display of the process shows how the same body of water carries the ink for a series of prints (Figures 74 and 75), and how the ink's interaction with the water's surface alters its miscibility. These remnants of the process allowed the audience to make connections about how the works were created, encouraging them to look closer at the processes and materials. I attempted to elevate these materials, connecting them to the narrative of the process.

Figure 74: Installation photograph, *Co-creating with materials*, 2025.

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Figure 75: Installation photograph of process display, *Co-creating with materials*, 2025.

Figure 76: *Curious I-XI, Soot and stone*, 2023, Found stone and soot on Hahnemuhle, Monotype, Each 11 x 16cm.

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Figure 77: *Suspended slate*, 2023, Black slate on Hahnemuhle, Monotype, 27 x 47.5cm.

Figure 78: *Synchronous*, 2023, Black slate on Hahnemuhle, Monotype, 24 x 42cm.

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The soot water monotype works presented similar challenges as the stone monotype works. Due to the intricacy of the ink formations, the prints sometimes read as drawings or etchings, concealing the reliance on chance and material behaviours of the ink expanding on the surface of the water. As a solution to the static nature of the prints, a video of the soot water monotype process was projected in the space, allowing the presence of moving images to provide viewers the opportunity to reflect on the fluid and unpredictable nature of the process (Figure 80). As shown in *Expansion II* (Figure 81), selected prints were explored as sculptural objects. This approach, inspired by the sculptural nature of the paper presented in *Holding time* (Figure 65), allowed the bathtub from which the prints were made to be present in the final work. By soaking the prints in water, the papers became malleable, while the oil-based ink remained fixed and was placed to dry in the bends and curves of the bathtub.

Figure 79: *Relying on time*, 2023, Soot on Hahnemuhle, Monotype. 32 x 53.5cm.

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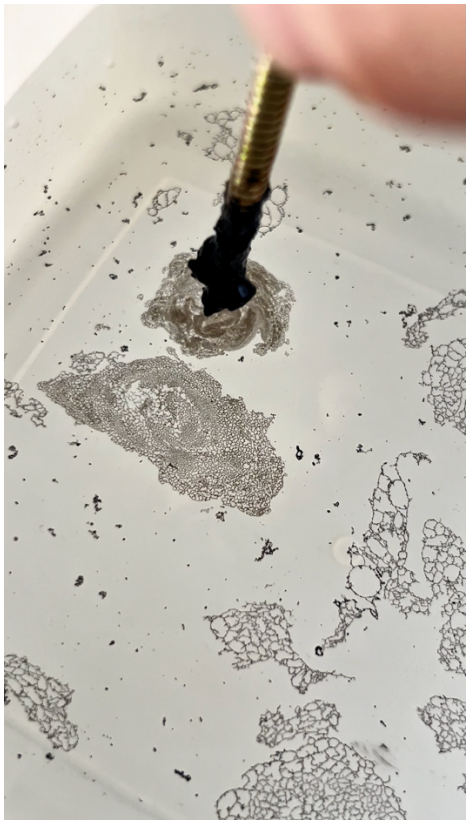

Figure 80: Still from *Voyeur*, 2024, Single channel video, 5 minutes 18 seconds.

Figure 81: *Expansion II*, 2023, Soot on Hahnemuhle, Monotype, 32 x 85cm.

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Furthermore, a response to the space was encouraged due to a chance incident allowing rainwater to enter the gallery. I had spent time in the space prior to the exhibition, working as a gallery intern during my undergraduate studies and presenting works in progress in the Link Gallery. Fortunately, it was raining quite substantially during previous years in February and March, which allowed me to consider the curatorial decisions in relation to the space's allowances for moisture. As seen in Figure 82, the smaller soot water monotype prints were displayed in a shallow pool of water, allowing their reflections to contribute to the reading of the work as a print, a projection of mirrored information from one surface (water) to another (paper). Furthermore, the contact between the works and the water provides possible insight to how they were produced.

Figure 82: Installation Photograph, *Co-creating with materials*, 2025.

To connect the pivotal role of the process to working in situ, my home studio was relocated to the gallery space and remained present for the duration of the exhibition. I had planned to continue and carry out the creative process in the studio space, creating a nexus of practice from which the viewer could draw connections between

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prints, materials and experimental methods (Figures 83-86). It provided a context from which to view the artworks, continually allowing them to be read through a lens of process-based artmaking. The space was functional and created a sense of familiarity during the process of installation. As seen in Figures 83 and 84, processes were ongoing. Specifically shown here (Figures 83 and 86) is the process of polishing a copper plate after oxidation to reveal the marks present that were created on the surface during the process. Figure 84 shows the elements that remained after processes were displayed during the exhibition, providing suggestions for materials and the effects and remnants of their interactions.

Figure 83: Installation photograph of the studio space, *Co-creating with materials*, 2025.

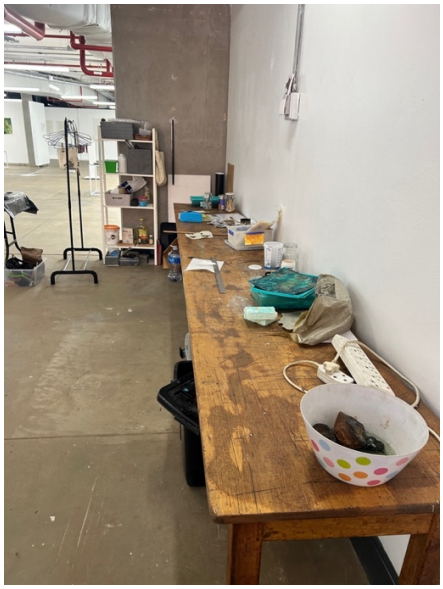

Figure 84: Installation photograph of the studio space, *Co-creating with materials*, 2025.

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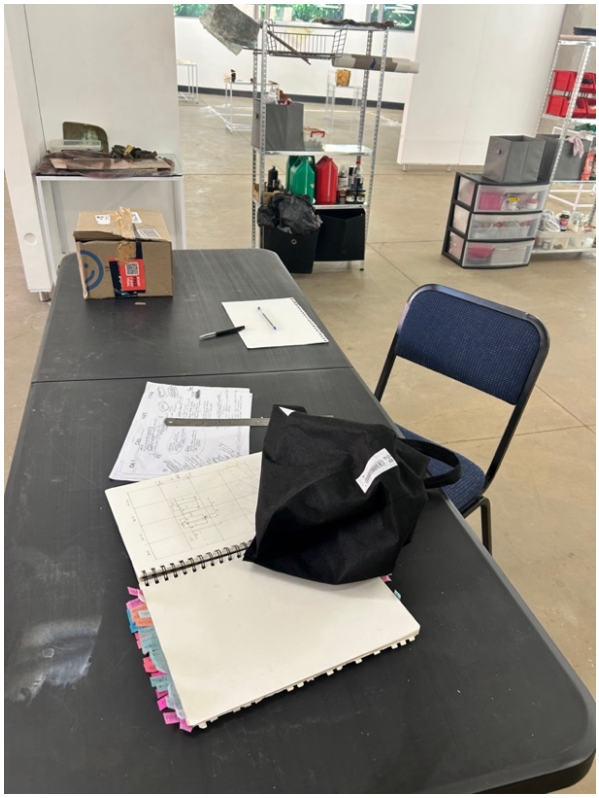

Figure 85: Installation photograph of the studio space, *Co-creating with materials*, 2025.

Figure 86: Installation photograph of the studio space, *Co-creating with materials*, 2025.

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Certain elements involved in the creation of the works bled into the space to situate the works in relation to the materials that participated in the making processes. Among these was salt, the material collaborating alongside vinegar in the corrosive processes[27]. I began by adding the salt to the floor in lines, attempting to draw connections between processes. However, the lines seemed too rigid and literal, and I instinctively incorporated the salt's behaviours as I did during the oxidation process. My movements towards the salt were gestural (Figure 87), and I began lightly blowing the salt around with my breath (Figure 88). This resulted in formations among the salt crystals that echoed the patterns and formations created in the artworks during the creative process in my home studio (Figure 89). The formations created by materials were now brought into the space itself. Furthermore, the salt crystals, a receptive and responsive material configuration, gave way to the footprints of many human beings and insects (Figures 89 and 90). Although this was not an intentional decision, interactions within the space were recorded in the surface of the salt, contributing to the idea of an expanded field of printmaking.

Figure 87: Documentation of working with salt in preparation for *Co-creating with materials* (2025), 12 March 2025, Photograph by Thabang Moatshe.

[27] These include the copper oxidation processes, as well as the iron rust transfer processes.

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Figure 88: Documentation of working with salt in preparation for *Co-creating with materials* (2025), 12 March 2025, Photograph by Thabang Moatshe.

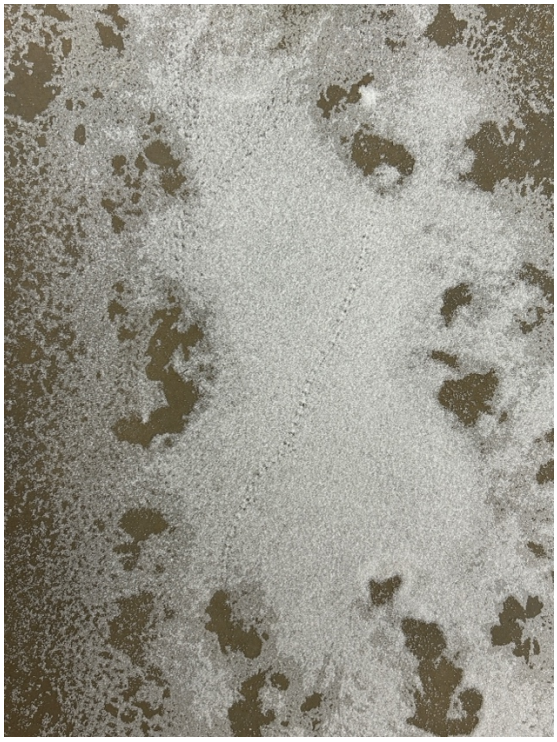

Figure 89: Detail of salt on the gallery floor during *Co-creating with materials* (2025), 14 March 2025.

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Figure 90: Detail of salt on the gallery floor on the last day of *Co-creating with materials* (2025), 28 March 2025.

This chapter examines the balance between the integration of materials as active participants and avoiding their exploitation, a key challenge that emerged. My interactions with gelatin highlighted this complexity, as the material demonstrated both vulnerability and strength through its cooperation and resistance. The relationship between gelatin and its environment was discussed as simultaneously receptive and reluctant, offering a foundation for considering responsibility through an ethical and responsive lens. The tensions between control and allowance in artist-material relationships often lead to fluctuations in accountability, yet the act of engagement itself inherently suggests a shared responsibility among all participatory entities. This shared responsibility is fostered by the dynamic, embodied interactions between the artist and materials. As the process unfolds, it becomes clear that knowledge emerges through the engagement with materials and surfaces. The acts of polishing, mixing, and heating were discussed to reveal how materials and the body coalesce to generate new insights and adapt to the situational requirements. Through these embodied experiences, I actively co-produced knowledge with the materials. Throughout the set-up phase of the exhibition, I explored ways to visually communicate the series of events that led to the works, incorporating objects like the iron bowl from *Path of Least Resistance* (Figure 71) and stones from *Unresolved* (Figure 73) to reflect key moments

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in the material exploration. The presentation was further expanded by video projections and interactive elements, such as the salt on the gallery floor, which evolved throughout the exhibition, connecting to the interactive surface's ever-changing nature. By integrating my home studio into the gallery, the display underscored the continuous, in situ nature of the work, allowing viewers to draw connections and compile narratives of the process as they viewed the work in relation to a space of process.

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CHAPTER FIVE: CONCLUSION

In the creative process that led to *Co-creating with materials* (2025), materials had become participants in the generation of prints, and their behaviours participated in creating surface impacts and transfers involved in the experimental process. The material influences were approached with enquiry at the centre of the process, as I had searched for their thresholds, reactions and unexpected behaviours that led to further methods of investigation (Leavy 2017:191). My role in the process grew from instigating and observing the interactions of materials to becoming dependent on the relationship between the materials and the environment as co-responsible agents of artwork production (Bolt 2004:52-53). I came to understand my own relation to materials by analysing the works and processes of local and international artists. As my printmaking practice developed, my reading of contemporary practice became more versatile, allowing me to recognise possible elements of expanded printmaking in works that were not intended as print processes. My understanding of the integration between theory and practice emerged through the embodied process of engaging with materials, where the tensions within the material interactions continually informed and drew from both my theoretical understanding and my material practice. New materialist theories became the foundation of my approach to materials, and the practice itself revealed that materials could never be fully understood as static, isolated bodies (Bolt 2007:3).

Chapter Two has investigated how materials and environments can significantly affect the methodological approach to artmaking and discussed examples of local and international artistic practices that embraced and adapted to these influential instances. I analysed the creative processes and works of Chrisél Attewell and Penny Siopis through a new materialist lens, attempting to understand how their approach influenced the subsequent participation of materials. This chapter provided discussions on the importance of the process when considering the influence of materials in creative practice and how the pivotal moments in the artist-material relationship exist within moments concealed in the process. This study has sought to bring these relationships to light as creative engagements. Furthermore, the discussion in this chapter has contextualised the artist-material-environments collective within a field of art practice. By embracing the participation of materials and environments, histories of material interaction within situated environments surfaced as conceptual connections within

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Attewell's practice. Siopis's reflection on the creative process became essential in understanding her relationship with materials. In the case of both examples, writings and interpretations of their processes allowed me to follow the human and non-human participants in their relationships to materials and their creative practices (Ingold 2012:435).

To situate practice-led approaches in the context of expanded printmaking as a collaborative practice, this study has discussed creative processes and artworks that involved material and environmental participation as modes of transfer. In Bullen's *Breath Drawing no. 22*, the gestural interaction between the artist, materials and environment was considered as a recording of movement through Bullen's line drawing from the interior of a Georgian Building's architectural features and textures. In considering the works and processes involved in van der Kruijs' *Made by Rain* and Krimes' *Purgatory*, I realised that the participation of the environment in creating surface impacts alongside materials could be something that is either encouraged or adapted to. Van der Kruijs involves the environment directly as a resolution and an enquiry, experimentally approaching the response of the rainfall and its interactions with various material compositions as recordings. Jesse Krimes responds to his environment, and with limited resources available in prison, Krimes explores the materiality of soap and newspaper beyond his perceptions, finding the thresholds of their interactions in his adapted offset lithography process. The sensitivity of these practices to environmental conditions, be it the unpredictable weather or the material limitations of prison, mirrors my growing awareness in the studio, where bodies of water and environmental limitations created productive parameters for materials to interact. This awareness is central to my practice-led study, recognising that both the materials and the environment influence artwork creation. This study has revealed the importance of being attuned to these environmental factors and their effect on the boundaries that surface during the process.

Chapter Three has provided a discussion of my creative process, offering insight into investigations of generative matrices, alternative substrates and processes that speak to the roles of both the artist and the materials' creative control. Working without a printing press has allowed me to realise that the certainty of mechanical pressure creates particular limitations. The printmaking press itself provides parameters, requiring the participation of materials that can structurally withstand the intense

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pressure applied by a press. This limits the selection of materials to more rigid and durable surfaces. However, when the printmaking press was omitted from the process in this study, more fluid and temporal surfaces were involved, and the matrices co-evolved with these substrates, as their involvement also affected the nature of the transfer that was possible. By framing printmaking within new materialist perspectives, my understanding of expanded printmaking grew to inform my approach to participatory materials. My domestic space became a catalyst for material experimentation, instead of a limitation. Specific characteristics of materials were sought out and explored by introducing them to each other and cultivating relationships of receptivity and sacrifice of the surface. I realised that my intentions, the environmental contributions and restrictions, and the material influences all impacted the direction of the practice.

Alternative substrates were investigated in response to the oxidised copper surfaces. Because these surfaces were materially complex, the materials incorporated into the substrate needed to settle without disrupting the surface. This focused investigation led me to explore fluid substrates that adhere just enough to their formations to be lifted from the surface upon drying or curing over the oxidised copper. Biomaterials were studied, and a complex and volatile relationship with gelatin prompted me to consider the versatile potential of materials in relation to practice-led insights. Gelatin became a material that challenged the boundaries between the matrix and the print, inspiring me to explore print beyond contact into projection with light. The concept of print as projection was first introduced through arguments for expanded printmaking (Kallio 2017:94). When the gelatin interacted with sunlight, I realised that the process was guiding me towards a more integrated approach between material practice and expanded notions of printmaking. A printed surface on a gelatin substrate became a matrix in the moment the light passed through it, projecting the shadows created by the monotype ink onto another surface. This insight blurred the line between the print and the matrix and challenged the idea of a static, definitive print.

Challenges faced with cornstarch biomaterials diverted me into deeper explorations with gelatin, allowing the relationship with the material to generate complex questions of responsibility and the often conflicting nature of material engagement. My relationship with gelatin became increasingly layered by moments of collaboration and resistance, and allowed me to experience tensions produced by the material's

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behaviour, leading me to question my own authority in the creative process. This was accompanied by a critical reflection of the material origins of gelatin, implicating me as a participant within a history of harm and exploitation towards animals. This insight was not met with a solution, only a moment of reflection that allowed me to accept the responsibility of my engagement. This relationship of harm was echoed in the material's regular resistance to my advances, resulting in the traces of my actions revealing my impatience, aggressiveness and damage to surfaces.

Retrospectively comparing this relationship with the gelatin and the relationship developed between myself and the iron bowl yielded a particular understanding of my distinct relationships with different materials that require different responses from me. The rust transfers began with much experimentation. However, due to the practice-led research process generating an understanding of materials and the reading of certain material responses, I had abandoned the materials to interact almost independently from my interventions by initiating a process and allowing the materials to carry it out. I had been attempting to build a relationship of participation with the materials and ended up establishing material trust in the process as a whole. The material trust cultivated in this study caused the creative responsibility to shift more towards the materials. This was not conscious but instead occurred because of the material knowledge accumulated during the process, and my lack of response that was met with particular sculptural, dynamic reactions of the paper. The enquiries that prompted material explorations began with a focus on how materials would respond to my own gestures, each other and the environment under the parameters of printmaking.

Later on in the study, the parameters of printmaking began to set up moments of interaction where the materials would resolve their own relations, creating artworks as recordings of those resolutions. These instances of material autonomy, integrated with the discussion of agency, provide context for the idea of agency as a space of possibility within material interactions rather than belonging to a particular participant (Barad 2007:178). I observed copper's reaction to vinegar and salt, and realised that the material responsible for the oxidation of its surface was also responsible for the cleaning of its own corrosive marks for that same surface. The collaboration between materials created marks underneath layers of corrosion and revealed those same marks underneath the corrosion by acting as a self-cleaner. This insight allowed me to develop an experimental etching process that incorporates material influence and

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volatility onto the surface of the matrix. The findings allowed me to consider the dynamic nature of the matrix and the complex interactions that contribute to its materialisation. The matrix was considered transformative in that it remained susceptible to surface interferences, and the very idea of the matrix was challenged by material compositions oscillating between positions of print and matrix throughout the study.

Chapter Four has provided a reflection of the intaglio inking process and copper crackling that required embodied responses to the materials and tools. Processes resurfaced and enacted the embodied knowledge that I had cultivated in prior material engagements, and these bodily responses to the requirements of the process invited bodily forms of archived knowledge and sensory engagement with the involvement of heat. During the course of this study, I investigated and experimented with various modes of displaying the prints; the curatorial decisions were challenging in the sense that the prints themselves contained specific material transformations cemented in time rather than being able to communicate the series of events that led to their material resolutions. This posed a significant challenge, as the mode of display played the role of elevation in the dependence of the outcomes to the process (Makela 2007:158). The process was communicated in such a way that the prints could be contextualised within their respective series of methodologies, interactions and materials while remaining part of the process as a whole. The domestic studio space formed part of the exhibition to allow the viewer to create connections between artworks and materials. The studio was a working area and provided opportunities to engage with the space. During the set-up phase and the period of the exhibition, I worked in the gallery space, and viewers and fellow students engaged with me, asking questions about the process and the artworks, as well as the research process and what it entailed. The exhibition was met with curiosity from the audience, indicating that these kinds of exhibitions, where the creative process is tangible, are important to the broader public visibility of artistic research methods. My ability to engage with the audience allowed me to share insights into the process and interactions between materials.

Furthermore, rainfall created instances of chance, where water leaking into the gallery space was incorporated into the mode of display. The stone water monotype process was conducted in the exhibition space during the set-up phase, and the remnants of the process were left to be viewed in relation to the works. The soot monotype process

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was displayed as a video work to incorporate dynamic imagery that allowed the viewer to reflect on the unpredictability and intricacy of the specific material's relation to water. Salt was incorporated as an active and receptive material, allowing the interactions within the space to be present on the floor of the gallery, further developing the idea of printmaking processes as often ephemeral and transformative modes of recording interactions between bodies.

The experimental and versatile nature of printmaking becomes the ideal space for these entanglements, as its processes inherently require contact, recording of material behaviour, transfer, and adaptation. Through this, printmaking is framed not merely as a technique but as a site of dynamic negotiation where materials assert their own agencies, surfaces interact, and the artist responds within an ongoing exchange. The study further establishes the potential for print processes to be conducted in situ, revealing how environmental forces, whether atmospheric conditions, site-specific constraints, or material properties, become integral to the formation of works. By highlighting these interactions, this research expands perceptions and expectations of material engagement in printmaking, demonstrating its relevance within broader discourses of new materialism and process-based methods of artistic enquiry.

While this study has focused on material interactions and processes, the works themselves show how these relationships play out visually. The tangible layering, textures, and details in the surfaces of the prints contribute to an affective experience that engages the viewer beyond theoretical discourse and echoes the material configurations present in the natural environment. These elements highlight the depth of interaction between the material and environment and connote the participatory relationship of the human as fleeting and yet impactful. These aesthetic and material qualities co-created in the works not only reveal the depth of engagement between artist, material, and environment but also suggest avenues for further exploration into how visual and tactile elements shape perceptions of material agency.

This study foregrounds a relational perspective of creative practice, positioning the artist, material, and environment as co-creative agents in the production of artworks. By reconsidering artistic authority, it challenges hierarchical notions of authorship, demonstrating how materials in relation actively shape both process and outcome. This study thus advocates for a more expansive and nuanced understanding of materials,

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moving beyond their treatment as passive objects to be manipulated at human discretion (Hodder, 2012:2). Furthermore, this study highlights the ethical complexities inherent in human-material relationships, as shown by my decision to prioritise creative outcomes over the ethical considerations surrounding the animal-derived gelatin used in the process. Although this study advocates for a consideration of the active participation of materials in processes usually directed by the human, the human and material relationships won't be consistently gentle or harmonious. The nature of relational material engagement is improvisational, volatile, unpredictable and uncontrollable. However, this is not inherently negative or unfavourable. The unruly nature of materials creates complex surfaces in their tensions with surrounding bodies.

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