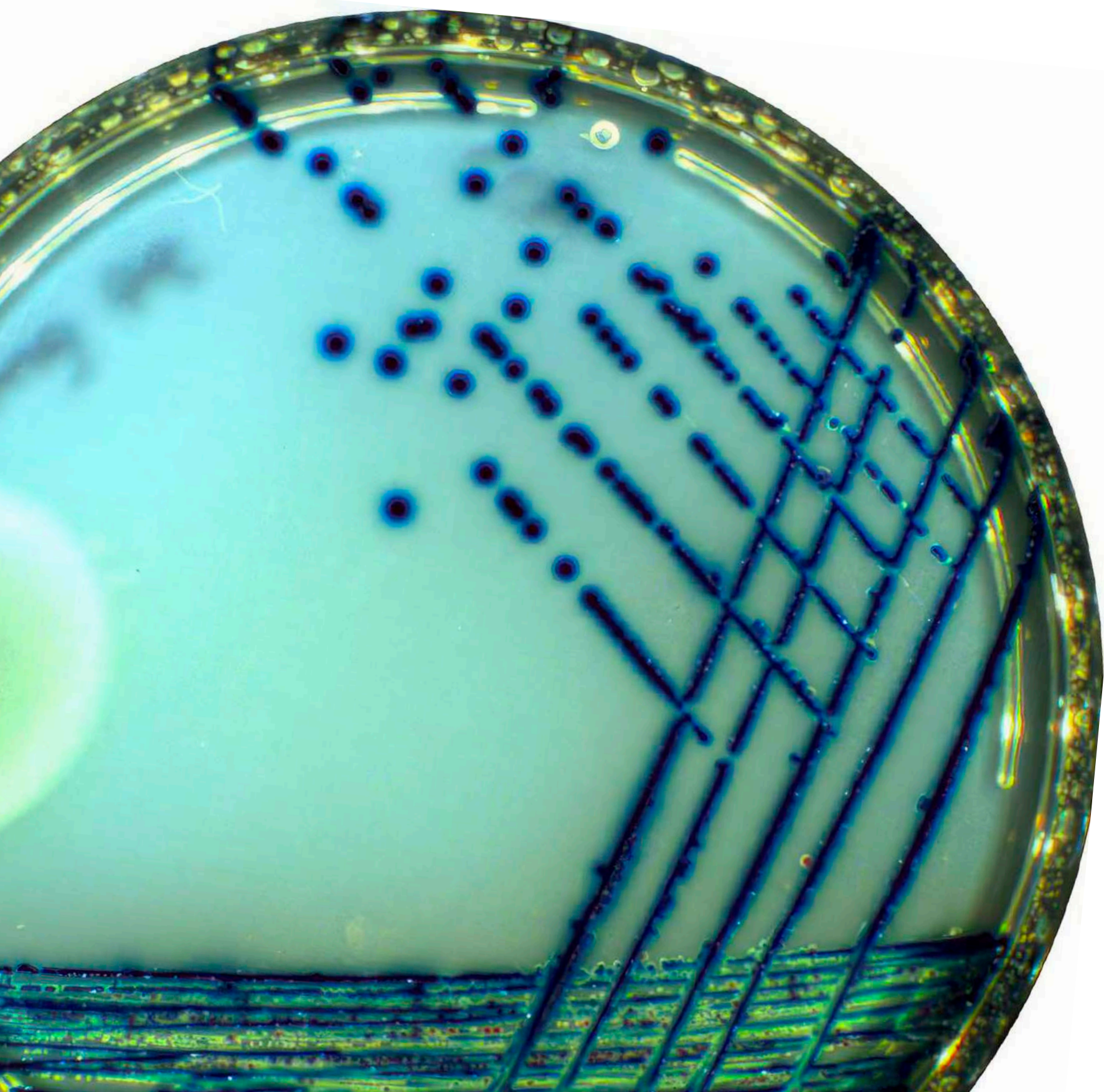


# **SYM | BIO | ART**

**INTRA-ACTING AT THE CRITICAL NODE  
BETWEEN BIOTECHNOLOGY  
AND CONTEMPORARY ART**

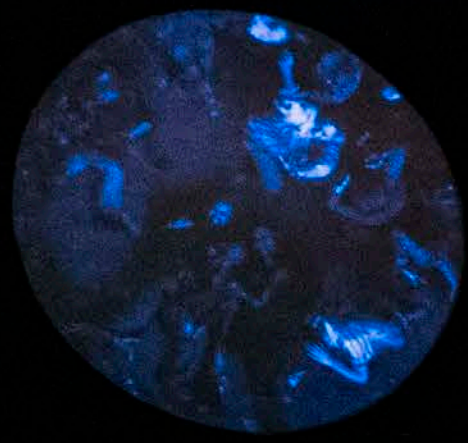
# CONTENTS



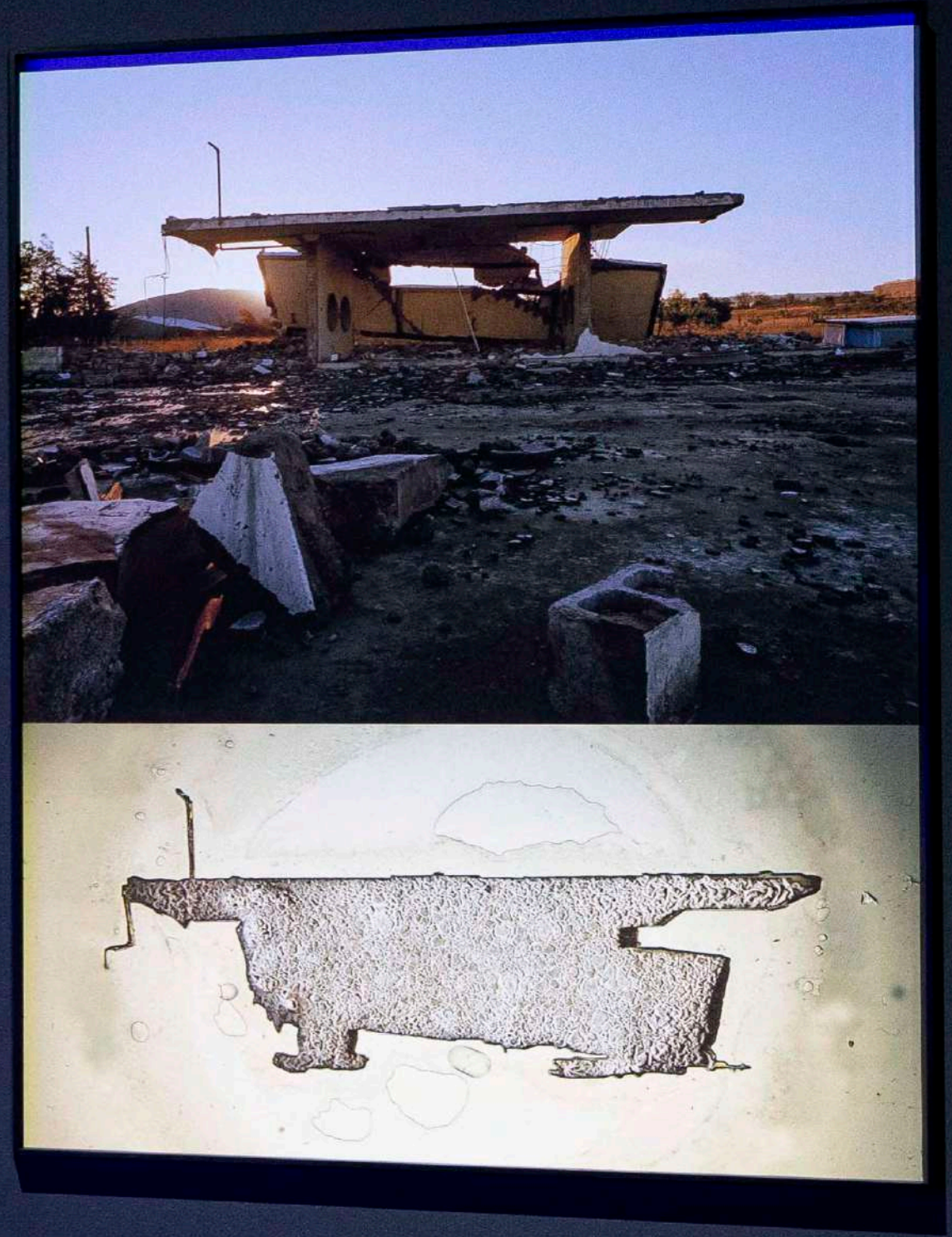
<b>Foreword</b> Professor Letlhokwa Mpedi	10
<b>Introduction</b> Professors Leora Farber and Tobias Barnard	12
<b>Intra-actions and Intra-sections</b> Dineo Diphofa	18
<b>Artist pages</b>	
Tobias Barnard	28
Nadine Botha	36
Xylan de Jager	44
Nolan Oswald Dennis	52
Leora Farber	60
Brenton Maart	70
Miliswa Ndziba	78
Nathaniel Stern	86
Nelisiwe Xaba	94

THE END



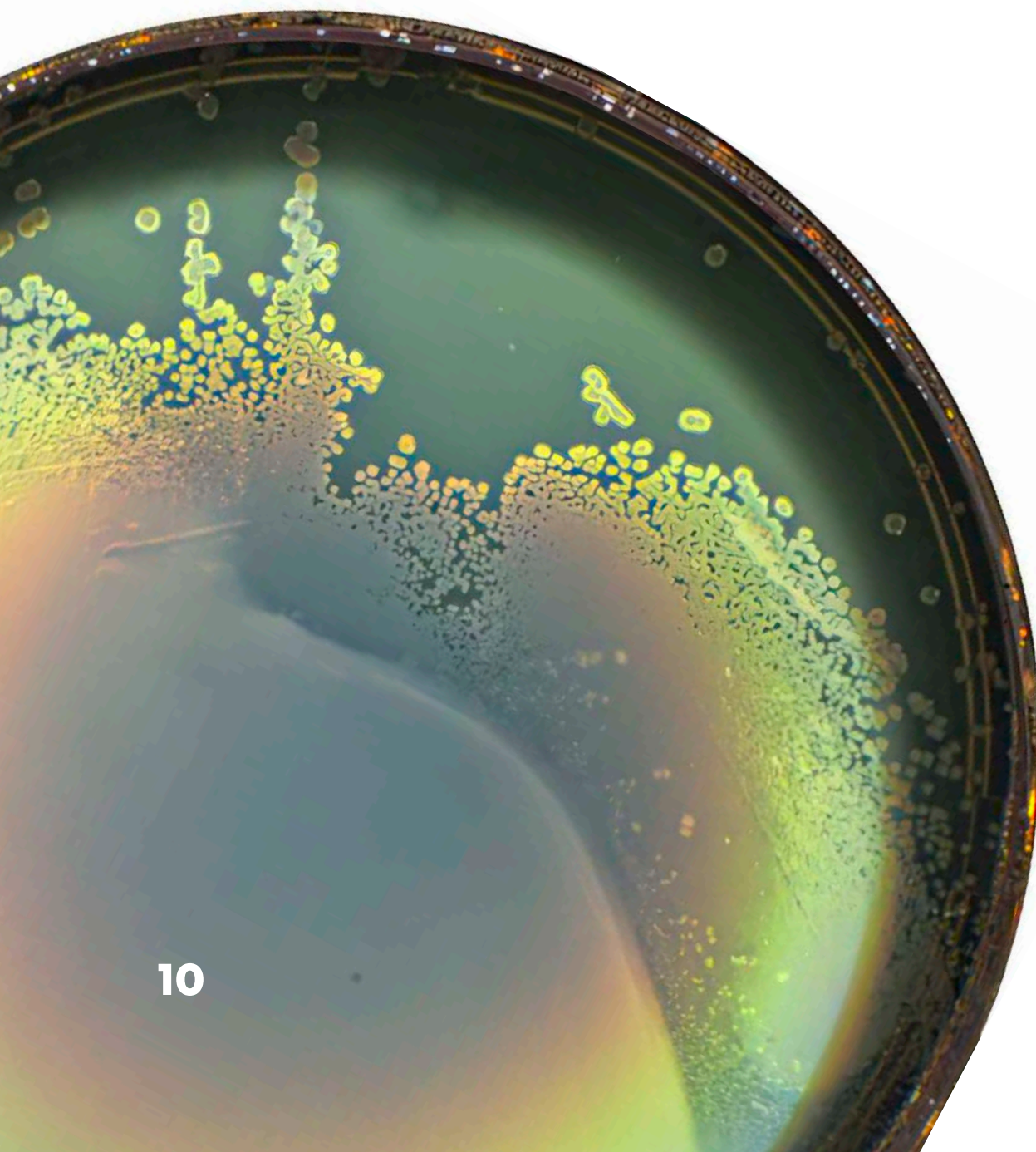






# FOREWORD

**By the  
University of Johannesburg  
Vice-Chancellor & Principal**



**PROFESSOR  
LETLHOKWA MPEDI**

It is my great honour to welcome you all to a viewing of this incredible exhibition that celebrates the launch of the Creative Microbiology Research Colab (CMRC), founded by Prof Leora Farber, Director of the Visual Identities in Art and Design (VIAD) Research Centre located in the Faculty of Art, Design and Architecture (FADA) and Prof Tobias Barnard, Director of the Water and Health Research Centre (WHRC) located in the Faculty of Health Sciences.

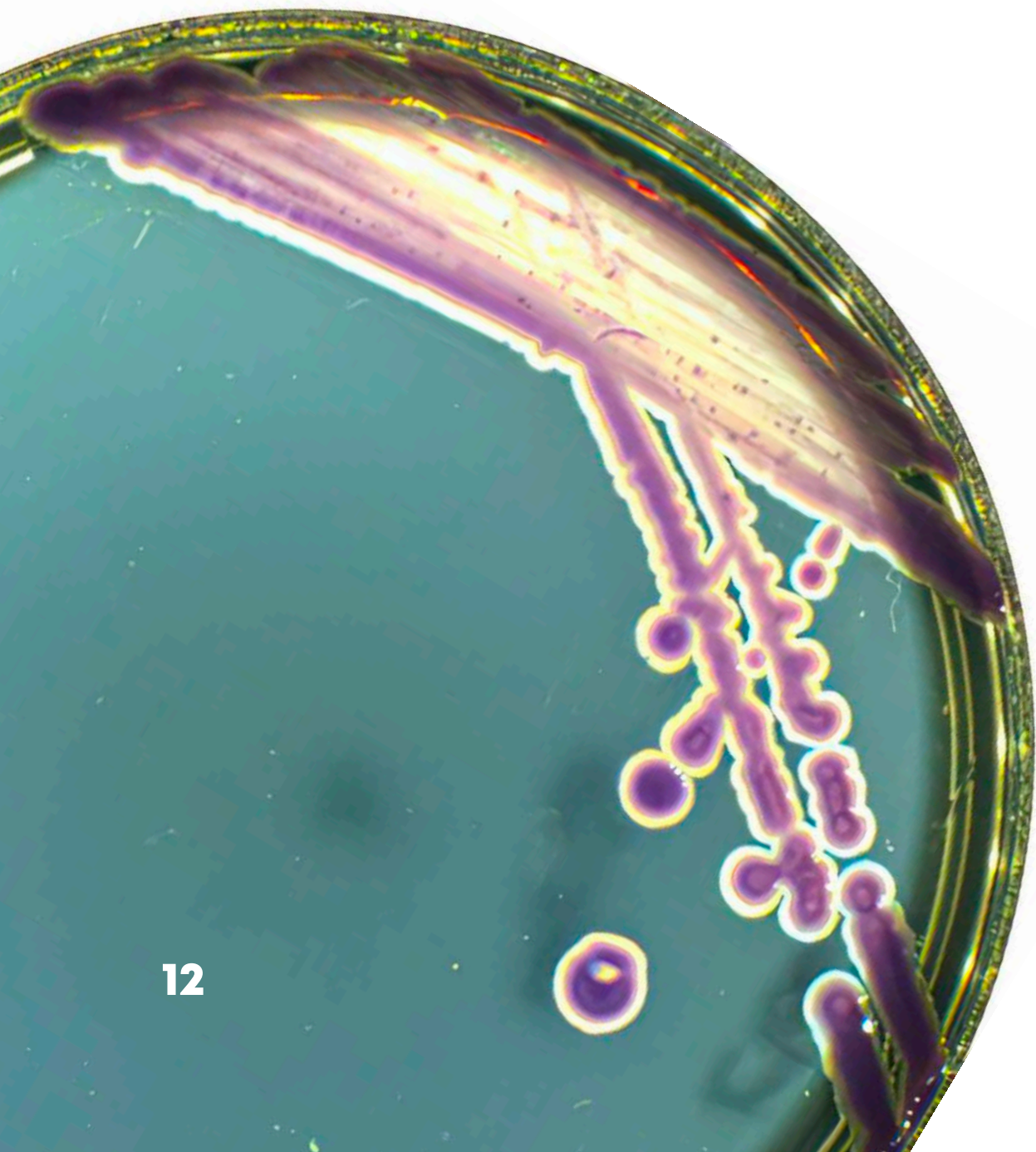
The CMRC makes use of microbes – miniscule organisms such as bacteria, mycelium, and yeast – as media and content in art and design practices. This exhibition represents an extraordinary convergence of science, art and imagination. It demonstrates how these tiny and seemingly inconspicuous beings, often relegated to petri dishes in dark corners of labs, can be used in new and innovative ways as they transcend their conventional roles and emerge as forms of artistic expression.

The African-American engineer and astronaut Mae Jemison once said, “Sciences provide an understanding of a universal experience; arts are a universal understanding of a personal experience ... they are both a part of us and a manifestation of the same thing ... the arts and sciences are avatars of human creativity.” As we stand at the threshold of an era where art and science collide, this exhibition spurs us to embrace a journey of exploration and witness how interdisciplinary approaches blur the lines between traditional disciplines and transcend boundaries. The CMRC presents us with the opportunity to explore this intersection, interrogate innovative uses of biomaterials and engage with new and exciting forms of collaboration.

As Albert Einstein’s words remind us, “The greatest scientists are artists as well.” In the Fourth Industrial Revolution (4IR) era, this certainly rings truer than ever. This is not merely an exhibition but rather a journey through time and culture, with microbes serving as our compelling tour guides and challenging the status quo at every tier. And in this realm, the smallest of things holds the greatest possibilities – this exhibition emerges as a message of triumph and hope.

# INTRODUCTION

## **Creative Microbiology Research Colab**



**PROFESSORS  
LEORA FARBER  
AND TOBIAS BARNARD**

### **INTRA-ACTING AT THE CRITICAL NODE BETWEEN BIOTECHNOLOGY AND CONTEMPORARY ART AND DESIGN**

Furthering the University of Johannesburg's (UJ) position as forerunner in the Fourth Industrial Revolution (4IR) for humanity – which explores how physical, digital, technological and biological worlds might come together to realise 'the future reimagined' – we are excited to announce the launch of the Creative Microbiology Research Colab (CMRC). The CMRC is an inter-faculty collaboration founded by Prof Leora Farber, Director of the Visual Identities in Art and Design (VIAD) Research Centre, located in the Faculty of Art, Design and Architecture, and Prof Tobias Barnard, Director of the Water and Health Research Centre (WHRC), located in the Faculty of Health Sciences at UJ. The initiative is dedicated to producing and disseminating art and design research that interfaces with biotechnology and the life-sciences. It is based on the premise that Creative Microbiology Research (CMR) is vested with significant potential to initiate and advance innovative, creative, academic and indigenous knowledges that work as agents of decolonisation across the disciplines of visual arts and design as well as those in the humanities, social and health sciences. As such, the CMRC not only fits squarely into the biotechnological aspects of UJ's 4IR initiative, but also furthers its strong decolonial agenda.

The CMRC is a creative space of play where microbial science, biotechnologies and art/design praxis operate synergistically towards the re-visioning of new, ecologically sustainable, futures. In contrast to the historical conception of creative disciplines and those in the sciences being diametrically opposed, in this collaborative space microbiologists and artists/designers work towards an inclusive methodology that brings these historically dichotomous disciplines together on an equal footing. CMR is a hybrid form of experimentally-driven practice in which artists/designers and microbiologists work together to explore the creative possibilities and speculative futures represented by the intersection of these disciplines. These trans-disciplinary collaborations are driven by a mutual curiosity and recognition that, at times, an objective may only be achieved through untested methods of working that involve risk and processes of discovery.



CMR can be positioned under the generic term ‘biotechnological art/design’ (bio-art/design) – the fusion of biology, biotechnology and visual art/design. While there is a plethora of (often contradictory) definitions of the term ‘bio-art’,<sup>1</sup> we follow the conception of it as involving creative practices that deal with the hands-on application of the latest advances in the life sciences and biotechnology (Catts & Zurr 2008; Da Costa 2008; Hauser 2008). As opposed to representing biological entities using non-biological media, ‘life’ – meaning living and non/living matter<sup>2</sup> – is used as a raw material and a subject to produce artworks, using (and abusing) practices and protocols applied in the life-sciences. Implicit within this art form is the actual physical presentation of biological life or its processes known as “wet biological practices” (Catts 2009:1). Bio-art/design materials can include, but are not limited to, cell tissue culture, extracted DNA, bacteria, mycelia, yeasts, invertebrates, insects, plants, animals and human bodily fluids.

While the CMRC covers the scope and diversity of the life sciences to provide a broad range of interactions between the living and non/living, its focus is on use of microbes – specifically bacteria, mycelia, slime mould and yeast – as raw material and content to generate art/design creative outputs. In so doing, the CMRC offers exciting potential for exploring innovative ways of working with existing biomaterials and producing new ones; introducing speculative methods of working with living and non/living matter; engaging in new forms of collaborative praxis; and using interdisciplinary approaches to arrive at research findings through practice-led research approaches linked to decolonial modes of making and thinking.

The CMRC also acts as an incubator that breaks down historical and existing divisions between the human and the more-than-human.<sup>3</sup> Often referred to as the ‘nature/culture’ divide, the origins of this hierarchical binary thinking can be traced to the rise of Enlightenment, humanism, anthropocentrism, anthropomorphism and Swedish naturalist Carolus Linnaeus’s binomial nomenclature in which organisms are classified according to genera and species. Many bioartists challenge the dichotomies between nature/culture, biological/technical, human/animal, mind/matter as well as the normative perception that humans, and thus human subjectivity, stand outside of, or apart from, the biological system (Anderson 2010:101-103). By implying that humans are both biological agents and, simultaneously, ‘hosts’ in a closely linked biological system of causes and effects, these artists point to the political and ethical consequences for the ways in which humans interact with the ecosphere. As Nicole Anderson (2010:106) puts it:

[A]rguably these dichotomies between nature/culture, human/animal, biological/technical have lent themselves to a perpetuation, if not the cause, of the ecological crisis that ... bio-art ... attempts to rectify through political awareness and action in order to potentially produce political awareness and action without allowing or simply bypassing the audience’s ability to aestheticise or fetishize biological-ecological concerns.

Bio-artists/designers usually take an experiential, bodily approach, connected to simultaneous processes of thinking-while-doing and doing-while-thinking through the application of practice-led research methods. This intra-active praxis

<sup>1</sup> Many artists disagree with the use of the term bio-art, arguing that it is “reductive” (Catts 2014), or should only be considered as a point of academic departure (Hudson 2014) because it tends to lump a range of diverse practices together under one overarching heading. Moreover, bio-artists’ work is differentiated by major philosophical differences: “Some see their work celebrating science – even contributing to it – while others are critiquing a technological dystopia” (Voigt cited in Franklin 2014:55). As Jens Hauser (2005:1) notes, ‘bio-art’ is a “proliferating and mutant term ... and cannot be nailed down” because the artwork produced constantly changes in response to developing biotechnologies and scientific practices.

<sup>2</sup> Rather than using the term ‘non-living,’ which sets up a binary opposition between that which is living and that which is not, we adopt Marietta Radomska’s (2016) use of the term ‘non/living’ in which the components of ‘non’ and ‘living’ are separated by a slash. For Radomska, the slash indicates a material processuality of both the organic and inorganic, and points to the enmeshment of the living and non-living. Furthermore, as she notes, the ‘non/living’ refers to the ambiguities that accompany bioscientific definitions of life – for example, the status of agents such as viruses as life forms are not clear (viruses need a host cell to replicate and cannot reproduce independently, which is one of the criteria for an organism to be considered a form of life), while the term also draws attention to the ambivalent entwinement of living and dying (Radomska 2016:35).

<sup>3</sup> The phrase ‘more-than-human’ is a compound noun that encompasses plants, animals and all other life forms.

contributes to vital debates related to phenomenological questions in the fields of biophilosophy, biopolitics and bioethics regarding relationships between humans and the non/human, as well as to decolonial discourses such as post-humanism, new materialisms, new feminist materialisms and neo-vitalism, which are based on the decentering of the self-sustaining Cartesian subject located at the centre of western metaphysics.

Similarly, by fostering innovative, inventive, speculative practices or what new feminist materialist writer Karen Barad (2003) terms “intra-actions” with the more-than-human based on empathy, respect and care, CMR advocates a decentering of the white heterosexual male human subject and dismantles the hierarchical binaries that form the foundation of western epistemology and colonial discourse. By identifying the symbiotic entanglement and intra-dependence of living and non/living entities and multiple forms of humanities in trans-species alliances that are based on diversity, complexity and hybridisation, CMR can, potentially, develop innovative creative research directions and approaches that prompt synergistic relationships between the human and the more-than-human.

From its beginnings in the early 1990s, internationally, bio-art/design has grown from a niche area of interest to a rapidly emerging field of research in academic institutions<sup>4</sup> and in the global art arena.<sup>5</sup> However, despite this international recognition, bio-art/design, and specifically CMR, has, until recently, been a relatively unknown, undeveloped field in South Africa and other African countries. While there are several artists that incorporate methods/knowledge from the sciences and particularly the life-sciences, and/or use living and non/living as artmaking materials, these practices have not been consolidated into structured programmes and facilities in South African universities. This, however, is rapidly changing, with three notable programmes having been established: the CMRC; the VIZ Lab at Stellenbosch University (SU)<sup>6</sup> and the Artist/Science postdoctoral fellowship programme offered at the University of the Witwatersrand (WITS).<sup>7</sup>

While acknowledging what has been established in the Global North, the CMRC is founded on the conviction that CMR holds enormous potential to re-situate the site of knowledge generation through the production of new insights and perspectives that arise from, and pertain to, an African context. As CMR offers an innovative approach of converging new methodologies, materialisms and forms of knowledge, we believe that it can be a powerful platform for African artists, designers and scientists – or bio-art/ design practitioners – to express and address concerns that are relevant and particular to the continent – be these socio-political, historical or environmental.

Work conducted under the auspices of the CMRC takes place in a dedicated microbiology laboratory, or biolab, custom-designed to produce bio-art/design. It is the first of its kind in Africa, putting UJ at the forefront of creative microbiology bioresearch on the continent. It offers creative practitioners access to specialised scientific equipment; scientific and art/design expertise; advanced protocols in microbiology; hands-on engagement with wet biology practices; and exposure to interdisciplinary approaches that, while rooted in practical process, also have strong theoretical underpinnings.

<sup>4</sup> Art-science research has become a pathway for postgraduate study, with seven new art-science postgraduate programmes having been established at higher education institutions in the United Kingdom since 2007.

<sup>5</sup> Numerous biolabs and related bio-art/design programmes and residencies exist in international institutions and, increasingly, new ones are being established. Notable existing biolabs include: Biofilia Base for Biological Arts, Aalto University, Helsinki; the Bio Art Lab, School of Visual Arts, New York; the Swiss Artists in Labs programme, Zurich University of the Arts; and the MIT Media Lab. There are several international public platforms for exhibiting bioart, including galleries such as the Wellcome Trust and GV Art Gallery, London; exhibitions such as Prix Arts Electronica; and museums of natural sciences and medicine worldwide.

<sup>6</sup> The VIZ. lab is an imaging laboratory based in the Department of Visual Arts at SU. The laboratory was launched by Dr Kathryn Smith – an interdisciplinary visual artist and curator – and Pearl Mamathuba, an academic researcher.

<sup>7</sup> The programme is offered through the WITS Innovation Centre and is run by Prof Christo Doherty.

To mark its launch, the CMRC is thrilled to present SYM | BIO | ART INTRA-ACTING AT THE CRITICAL NODE BETWEEN MICROBIOLOGY AND CONTEMPORARY ART<sup>8</sup> – the first major, consolidated group exhibition of bio-art/design to be held in Southern Africa. The SYM | BIO | ART exhibition – which comprises work produced by members of the CMRC – foregrounds the intermeshing of the human and more-than-human to create a heightened awareness of how human beings are in constant contact with the microbial world. The artworks are made using a diverse range of living and non/living biological forms that render the invisible visible.

Collectively, these artists and designers point to how our bodies are an ecosystem, enmeshed with the living and non/living matter that is inside us and surrounds us, and how our microbial environment is both external and internal – in many ways, we are one and the same. Acknowledging this enmeshment, they tend to engage with living and non/living materials as collaborators in the creative process.

By blurring the boundaries between practitioner and medium, human and non/human, author and collaborator, they take a critically intra-active approach to engaging with the microbial world. Through such intra-actions, they enact and make visible interspecies entanglements by identifying multiple forms of diverse, complex and hybrid humanities that exist in in trans-species alliances, while simultaneously putting forward a biocultural view of the complex interrelationships between knowledge and power, thereby providing a new, decolonial form of political art.

Artists and designers featured on the exhibition are directors of the CMRC Tobias Barnard and Leora Farber, biolab manager Xylan de Jager, VIAD Artist-in-Residence Brenton Maart; as well as VIAD Research Associates, Nelisiwe Xaba, Nadine Botha, Miliswa Ndziba, Nathaniel Stern and Nolan Oswald Dennis. In their work, some of these artists, specifically Barnard and Stern, respond to and raise public awareness of urgent environmental issues such as climate change, biodiversity loss, sustainable ecologies, sanitation and hygiene. Through the production of mycelium ‘slabs’, De Jager promotes a shift from human-centric to nature-centric design, or what is called ‘living design’ – design that is not aimed at production of a finished, marketable product, but rather investigates the development of a product for creative and functional applications by repurposing existing biomaterials and exploring new production processes. Botha, Farber, Dennis, Maart, Ndziba and Xaba work in ways that break down hierarchical western binary constructs to promote decolonial thought and action. In so doing, they explore how bio-art can be used practically, metaphorically and theoretically as an agent of decolonisation in transforming societies such as South Africa. Furthermore, Maart, Farber and Ndziba introduce innovative forms of CMR, the content of which pertains specifically to a South African and, more broadly, African context.

As is evident from the work on the SYM | BIO | ART exhibition, bio-art/design practitioners can engage the public through multidisciplinary forms of research, which, ultimately, has the potential to unlock immense potential for the continent to shape the future of art/design, science and culture on both regional and global stages. Through the introduction of new methodologies, processes, materials and ways of thinking, creative practitioners featured on the exhibition are paving the way for other artists and designers to play a role in critically and creatively re-imagining and reshaping our current and future ecologies. We invite you to join us on this exciting journey towards enacting new ways of being in the world that could contribute to a re-imagining of an Africanised future.

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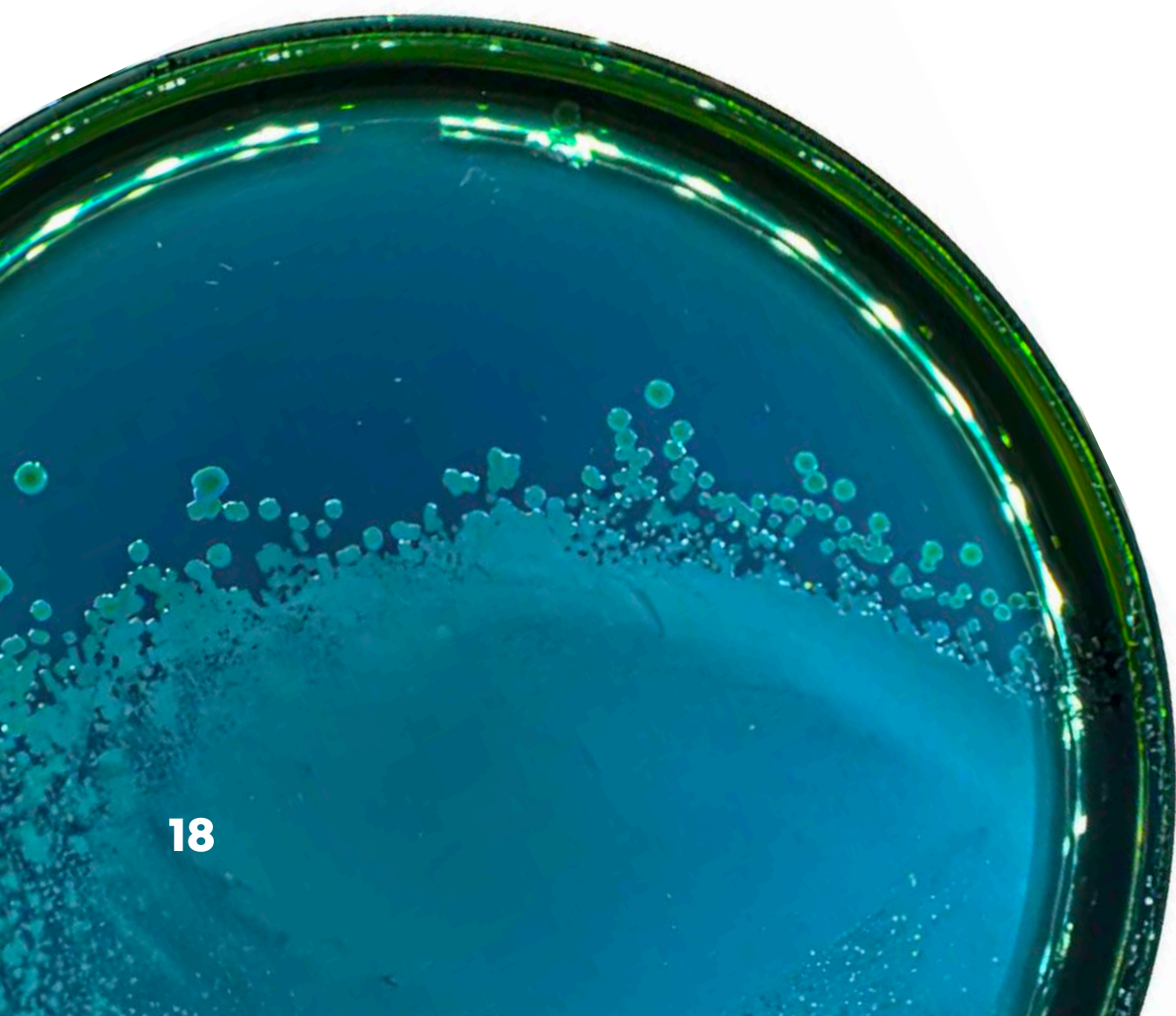
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<sup>8</sup> The exhibition is hereafter referred to as SYM | BIO | ART.

# INTRA-ACTIONS AND INTRA-SECTIONS

## Bioart as a means of Critically Engaging with the Colonial Canon



DINEO DIPHOFA

### INTRODUCTION

Engaging with the notion of decoloniality may lead to undoing the inner workings of coloniality. An additional possibility of such engagement could lie in the imagining of new worlds and ways of being in the world that extend beyond and/or revise the constructs upon which colonialism is predicated. One might think of these possibilities as infinite. These possibilities are alter-narratives<sup>1</sup> that challenge colonial epistemologies. Pluriversality<sup>2</sup> is an entanglement of these alter-narratives, never to be viewed as a totality. This could similarly be said for biological art or bioart<sup>3</sup> – as a modality of praxis it is neither singular nor separate. It is imbricated with entanglements between the life-sciences, biotechnology and contemporary visual art.

Bioart can be defined as a “cultural, humanities and art-based practice that deals with the technologies, issues and physical materials of biotechnology” (Franklin 2014: 52). Tom Idema (2012:213) states that “bioart stages a confrontation between art, science, industry, sociality and biology ... it not only foregrounds the degree to which these fields have become entangled, but also pushes for a more experimental attitude toward life – a vitalistic politics and aesthetics”. Bioart involves artmaking practices that deal with the hands-on application of the latest advances in biotechnology in which ‘life’ – meaning living and non/living matter – is used as a raw material and a subject for artistic production that employs scientific practices and protocols. Living and non/living materials include cell tissue culture, extracted DNA, bacteria, yeasts, invertebrates, insects, mycelia, plants and animals. Bioart can be considered to be a creative endeavour that establishes a space for the convergence of art, science (specifically the life-sciences), industry, social interactions and biotechnology. This convergence not only showcases the interconnectedness of these realms but also promotes a considered outlook on life – one that embraces vitality in both political and aesthetic dimensions. The acknowledgement of the political – by which I mean issues related to race, gender and class – is important, as it forms the crux of this essay.

<sup>1</sup> Alter-narratives (like narrative and systems change) expose, disrupt and challenge deeply-held patterns and dynamics that create and hold knowledge systems in place, prompting a reconsideration of our worldviews and received ‘truths’.

<sup>2</sup> ‘Pluriversality’ is a term coined by Walter D Mignolo (2011) that recognises and values the existence of multiple diverse worldviews, knowledge systems and ways of being. It acknowledges that there are many valid and legitimate ways of understanding and relating to the world, each shaped by different cultural, social and historical contexts.

<sup>3</sup> The term ‘bioart’ was coined in 1997 by the Brazilian-American bioartist Eduardo Kac in reference to his artwork titled *Time Capsule*. Kac commissioned the creation of a rabbit named ‘Alba’, who was injected with transgenic green fluorescent protein that glowed in the dark. Other early bioartists include Orlan and Stelarc. Stelarc is known for his 2003 collaboration with The Tissue Culture & Art Project (located in the SymbioticaA Research Centre, University of Western Australia) on the *Extra Ear* project, in which he grew a 1/4 scale replica of an ear using human cells. In 2006, Stelarc underwent the first of two surgeries to have his extra ear implanted into his arm. In the second, a microphone was placed in the implanted ear so it could ‘hear’ and project sound.

In this essay, I explore the possible relationships between bioart and the political, with specific reference to how bioart might be used as an agent of decolonisation. Bioart is a relatively new form of practice, generally recognised to have started at the end of the 20th and the beginning of the 21st century.<sup>4</sup> In this formative period there were few authors and artists that engaged with bioart as a political practice. While being innovative and even ground-breaking, many of these early forms of bioart tended to rely on the shock value or the seductive qualities of ‘wet biological practices’,<sup>5</sup> generating a form of ‘biotechnological hype’ that was used for publicity purposes.

Increasingly, collaborations between artists, designers and scientists are becoming part of the contemporary global academic and artistic cultural landscape. Bioart, as a practice, has grown from a specialised area of interest to a legitimate field of scholarly and artistic inquiry. Many exciting projects, interdisciplinary collaborations, conferences, exhibitions and lively debates across various academic and cultural institutions have taken place and continue to take place. Bioart laboratories are increasingly becoming a feature in universities in the Global North, and specialist bioart galleries have proliferated. Science, medicine and natural history museums frequently host bioart exhibitions. Art-science research has become a pathway for postgraduate study, with seven new art-science postgraduate programmes having been established at higher education institutions in the United Kingdom since 2007 (Roughley, Smith & Wilkinson 2019:226-243). Yet, despite bioart becoming a legitimate and recognised field of practice and study, there still seems to be a lack of engagement around the potential for bioart to encompass the political realms of race, class and gender. In many instances, scholarship in bioart has focussed on biological concepts and artistic expression; the formal characteristics of bioart and bioartists’ use of scientific protocols and methodologies; bioethics and/or bio-philosophy, rather than the political, social and cultural dimensions that are explored in decolonial theory. These complex and nuanced dimensions seem to have not taken priority in the larger scope of bioart practice to date and, arguably, also not in theoretical positions related or tangential to bioart, such as post-humanism, post-anthropocentrism, new materialisms, new feminist materialisms and neo-vitalism.

For, as Rosi Braidotti (2013:1-2) argues, despite the current “posthuman condition” in which individuals live in “emancipated, post-feminist, multi-ethnic societies with high degrees of technological mediation”, unresolved patterns of inequality still exist. Braidotti (2013:1) points out that although post-and anti-humanists have, for the last 30 years, questioned the humanist definition of the ‘human’, this definition still takes the white western heterosexual man as the principal subject. As Braidotti (2013:2) observes,

This paradigmatic self-representation, moreover, is deeply male-centred and Eurocentric. As such it implies the dialectics of self and other, and posits the binary logic of identity and otherness as respectively the motor for and the cultural logic of universal Humanism ... Subjectivity is equated with consciousness, universal rationality, and self-regulating ethical behaviour, all of them equating masculinity and European civilisation, whereas Otherness is defined as its negative and specular counterpart: irrationality, immorality, femininity and non-westernness. In so far as difference spells inferiority, it acquires both essentialist and lethal connotations for people who get branded as the ‘others’. These are the sexualised, racialised, and naturalised others, who are reduced to the less-than-human status of disposable bodies.

<sup>4</sup> Although it is difficult to pinpoint a date that marks the beginning of the use of biological material in artistic practices, one of the first known practitioners that used bacteria to create drawings in petri dishes was Sir Alexander Fleming in 1928. In the 1930s, artists such as Edward Steichen and George Gessert first employed genetics as an art medium to modify organisms. Both artists showed their works in art galleries. Thereafter, bio-materials (e.g., bodily fluids like sperm, menstrual blood and urine) were used in several 20th century western art genres – such as in early feminist body art and live performance work (see the work of Ana Mendieta and Carolee Schneemann); environmental/land art of the 1960s and 1970s (see the work of Richard Long and Walter de Maria); and translations of the genetic code into conceptual art/music (as realised by Aurora Sánchez Sousa and Richard Krull).

<sup>5</sup> This term is taken from Catts & Zurr 2008 and Da Costa & Philip 2008, and the *Introduction* to this catalogue gives further context.

It is important to explore bioart’s potential to serve as a means of questioning and overturning such western-centered viewpoints, and to recognise the importance of disrupting and dismantling the colonial knowledge systems that have historically influenced scientific investigations and artistic portrayals. Therefore, through a close reading of the work featured on SYM | BIO | ART: INTRA-ACTING AT THE CRITICAL NODE BETWEEN BIOTECHNOLOGY AND CONTEMPORARY ART exhibition (2023, FADA Gallery, University of Johannesburg),<sup>6</sup> I examine how, when it encompasses decolonial theory and practice, bioart has the potential to address gaps in the scholarship. My reading is informed by the following questions:

How are artists of Africa and the African diaspora asserting spaces for themselves in bioart? What do these assertions look like? How can bioart be used as a decolonial strategy? How can decolonial practice be integrated into a pool of scholarship on bioart? How can bioartists challenge colonial dichotomies that have historically positioned western culture as superior to other ways of knowing and relating to the world?

## COLONIAL CANONISATIONS: TASTE, VALUE JUDGMENT, POWER

Referring to visual representation, theorists such as Walter Mignolo (2011), bell hooks (1992) and Achille Mbembe (2001) point to the necessity of recognising diverse cultural expressions and artistic traditions, particularly those that have been historically marginalised or misrepresented by western art canons. They also critique the ways in which western art has been used to reinforce colonial ideologies and power structures, and call for the decolonisation of art institutions, academic curricula, theoretical discourses and curatorial practices. According to Anna Brzyski (2007:2) “canons are the ultimate arbiter of cultural value”. Brzyski (2007:7) identifies how canons are usually set up to be mechanisms of oppression, protectors of privilege, tools of exclusion and structures that reinforce dominant conceptions of race, gender and class. The canon’s content is defined by a specific politic, time, space and/or mode of practice – especially within the context of art history. As such, canons often have an agenda that correlates with and upholds certain western (and in the context of this essay, colonial) knowledge systems, interests, values and ideological positions. In contrast to Brzyski, Gregor Langfeld (2018:1) asserts that works of art exist “harmoniously side by side in the neutralised state of the canon and enter history”. Following Brzyski, I argue that canons cannot exist as a neutralised body. Active selection and assessment are the results of value judgement at play in canon formation (also known as ‘canonisation’).

Broadly, a canon can be defined as the ideal standard against which material, textual or ritualistic forms are measured. In art history, the canon comprises artworks that are deemed to be of “indisputable quality” within a culture, meet ideal standards of beauty or have passed an “ambiguous test of value that deems the works worthy for study” (Harjani 2020). Art historians, curators, art scholars, art teachers, critics, collectors and museums play a large role in the canonisation process and its legitimisation. These influential figures – known as ‘taste makers’ – shape the reception of art and its histories within specific historic contexts and backgrounds. Taste makers, who exert influence over the narratives, economies and interactions of art, form a network that operates like an ecosystem, with each entity relying on the others for survival.

<sup>6</sup> The exhibition (hereafter ‘SYM | BIO | ART’), marks the launch of the Creative Microbiology Research Co-Lab (CMRC). Dedicated to creative practices that bring together visual art/design, the life-sciences (specifically microbiology) and biotechnology, the CMRC is a collaboration between the VIAD, FADA, and the WHRC, Faculty of Health Sciences, at the University of Johannesburg. The exhibition is arguably one of the first consolidated exhibitions of bioart to be held in Southern Africa. As it presents what might be called ‘new territory’ in South Africa, SYM | BIO | ART is a prompt to engage practitioners creatively foregrounding alternative ways of relating to the ecosphere.

Canons are characterised by three interrelated dynamics: taste, value judgment and power. Power is inextricably linked to the taste makers. The powers-that-be are subject to their own biases, prejudices and judgements based on their respective social and historical contexts and backgrounds. The visual appeal an artwork holds is a component of value judgement. The formal qualities of an artwork are one of the many instances where visual appeal has been (and still is) a key factor in determining value. This notion is supported by North American modernist art critic, Clement Greenberg,<sup>7</sup> who notes that aesthetic judgement, or taste, is a key component in assigning value. Value judgment, or the determining of value, is an interpretative exercise; it is an inherently complex mediation of subjectivity and intellectual opinion.

Once the canonical artwork is deemed to be ‘significant’ its discursive agenda is concretised and it secures its place in the discipline. Brzyski (2007:2) puts this succinctly:

Since a canonical work of art (once it securely achieves a place in the canon) is assumed to be qualitatively superior to and hence more historically significant than noncanonical works, it becomes virtually unavoidable as an object of study. Its place in the art historical narrative, which guarantees its visibility and ensures its reproduction both as an image and as a referent within the shared disciplinary knowledge base, compels the production of discourse.

Exhibitions play a role in production of discourse too. Like canons, they can be structures for assigning value and determining artistic, curatorial, historical, social and political significance. Yet, as Celine George Harjani (2020) points out, canons are always evolving and shifting according to political and social contexts, in a similar way to exhibitions that are dynamic and act as sites for inquiry, critique and debate.

## **DISRUPTING THE CONFINES OF THE COLONIAL CANON**

As stated above, in early and current bioart practices prevalent in the Global North, it could be argued that the complexities and nuances of race, gender and class may have taken second place to the novelty of working with living and non/living materials, possibly resulting in a prioritising of the scientific, formal and technical aspects of bioart over social or cultural considerations. Bioart could be, and arguably is, at risk of being subject to the biases and perspectives of those in positions of authority or privilege. These biases may lead to the solidification of omitting or marginalising issues of race, gender and class, thereby perpetuating existing inequalities and reinforcing colonial norms. However, I contend that, for artists working from within the context of the Global South, bioart can offer an innovative approach to converging new methodologies, materialisms and forms of knowledge generation. As such, it can be a powerful platform for South African bioart practitioners to express and address decolonial concerns that are relevant and particular to the continent – be these socio-political, historical or environmental.

As the work featured on the SYM | BIO | ART exhibition demonstrates, bioart can be used to challenge established narratives from the west, amplifying intersectional voices and approaches, and fostering critical discussions about colonial legacies and their impact on culture, science and the lived environment. Broad themes underpinning the exhibition include intersectionality, environmental politics as well as colonial discourses pertaining to race. More specifically, these themes include an exploration of the colonial impact on land ownership and labour; indigenous

connections to the land and language; displacement; the exploitation of natural resources; pollution and ecological degradation.

For instance, in *CEION* (2022 – ) Nolan Oswald Dennis uses language and communication – which are tools that are often instrumental in decolonisation – within the context of bioart in relation to indigenous languages and storytelling. *CEION* consists of a greenhouse installation that houses chapters from African American feminist queer author Audre Lorde’s text *Sister Outsider* (1984) that have been translated from English to Sesotho.<sup>8</sup> The texts are printed on the pages of small books made from cellulose paper into which African wildflower seeds have been ‘implanted’. The public engage with the work by entering the greenhouse and watering the pages. Thereafter, they are asked to record their names, the exact time they watered the plants, as well as how much water was used. The act of accurate recording speaks to the institutional injustices many black bodies have faced. It addresses aspects of care, consideration, sensitivity, attention and, most importantly, *nurture* that is necessary in approaching these conversations.

The exhibition also showcases bioart projects dedicated to healing, regeneration, the reclamation of indigenous lands, knowledge and cultural practices. For example, in her installation *Forts of Sand* (2023), Miliswa Ndziba explores the ruins of a Portuguese slave ship wrecked in 1794 en route from Mozambique to Brazil. She focuses on the narratives of the enslaved drowned children that were omitted from the archive and artistically reimagines their remains as algal bloom. Her use of mycelia instead of algae acts as a metaphor for the degradation and reclamation of colonial structures – in this case, the Nossa de Baluarte chapel in Mozambique – and the land on to which these structures have been imposed.

Similarly, in his examination of archival practices in South Africa, Brenton Maart uses bioart to engage colonial structures and legacies in South Africa. In his series of works on the show, Maart presents a biological visualisation of the ruins of the headquarters of the Ciskei Agricultural Corporation established under the apartheid policy called ‘betterment’.<sup>9</sup> The artist draws from the photographic documentation of this building that now stands as a ruined architectural vestige of apartheid. As he notes, after South Africa’s new constitution dismantled the ‘homelands’, government subsidies were withdrawn and many of these places “continued their ideological ruination into more material, tangible decay”. In making the works, Maart experimented with innovative ways of using biological systems to visualise these decaying buildings. Using the bacterium *Bacillus amyloliquefaciens*, Maart grew silhouettes of these ruined buildings, presenting the shapes as glowing ruins: the putrefying ‘jewels’ of apartheid.

In his spectacular installation, *The Wall After Us* (2020 - ), Nathaniel Stern addresses the ecological impact of e-waste in the world and, in so doing, raises pertinent questions around capitalism and its environmental footprint in the production and (over)consumption of technology. *The Wall After Us* is a gallery-specific installation featuring outdated and degraded electronic waste such as keyboards, tapes, cables and drives, in which living plants grow. The intermingled cables and plants cling to and climb up the walls to create an overwhelming and affective sense of what humans use and discard, what this detritus might grow into, and how the Earth may (or may not) claim it. Through the work, Stern poses a series of questions:

<sup>8</sup> Sesotho is one of South Africa’s indigenous languages.

<sup>9</sup> Linked to displaced urbanisation, ‘betterment’ saw the relocation of millions of people, resulting in an enormous scale of opposition. Villages were planned in relation to agricultural services that had been established in unsuitable areas. These violent relocation strategies left complex spatial legacies.

<sup>7</sup> See Jason Gaiger (1999).

What will happen to our electronics over time? What life may spur and flourish, how will techno-minerals diffuse and grow? What are the implications of those happenings? Where could computer media lead our environmental and economic politics? Can we plan and act toward new and different possibilities and potentials? Can we reinvent what digital waste might be and do right now? Where and how might such aesthetic encounters with and around science and technology create new theories, new experiments, new projects, research, disciplines, and more? And in this, how might we image more sustainable technological futures?

These questions act as a prompt for the viewer to engage with the work in ways that raise awareness of the (digital) relationships between humans and the non/human (or, the more-than-human), politics and commerce. For example, the *Phossils* are what Stern calls “fossilised phones”. They are devices subjected to heat and pressure, extreme cold or high speed blending, and/or pyrolysis to create a kind of artificial, geological time. The computer detritus that makes up the *Server Farms* takes up Alan Weisman’s (2007) core proposition of more-than-human life retaking the planet. Here repurposed computers and other technological equipment function as planters: an Apple™ watch grows moss and mushrooms; in a gutted iMac™, grass replaces the screen and motherboard; an old telephone sprouts shrubbery through earpieces and keys. Each flowers, flourishes, incubates, and spreads.

In suggesting a cyber-natural future that is neither apocalyptic nor utopian, but a possible co-mmingling of the supposedly conflicting categories of biology and human engineering, the work might become a primary discourse for a next generation of social and therefore ecological, spatial and political engagement. The concept of interconnectedness, or “intra-connectedness”, to use new materialist feminist writer Karen Barad’s (2007) term, is a phenomenon that exists in many pools of scholarship. Intra-connectedness, as conceptualised by Barad (2007), refers to the idea that everything in the universe is intertwined and co-constituted through “intra-actions”. Barad’s revision of the term ‘interactions’ challenges traditional notions of separate entities, emphasising the entanglement of matter, meaning and agency. The recognition of the entanglements, as well as their nuances, are integral to understanding the power bioart can have in challenging western-centered narratives and positionings.

This power can be seen in Leora Farber’s *cultured colonies/colonial cultures* series of large-scale digital prints shown on the SYM | BIO | ART exhibition. This series depicts casts (or what Farber calls ‘impressions’) of commonplace domestic items such as bowls, saucers and plates – specifically those associated with Dutch and English colonialism in South Africa. These objects (and the impressions of them) carry hauntological resonances of British and Dutch imperialism and colonialism. Sugar, tea, luxury goods and porcelain were commodities of colonial commerce that were shipped by the Dutch East India Company and the East India Company from the East to Europe and the colonies alongside enslaved peoples, themselves, as Farber points out, “fungible objects of trade”. Farber made these items, rather ingeniously, as three-dimensional artworks using a process involving the casting of bacterial agar and the meticulous application of pigmented bacteria, which were used in place of paint. The colonies of bacteria, which form intricate growth patterns on the agar surfaces, poignantly mirror the complex structures and dynamics of historical colonialism prevalent in the western world. The organic growth patterns of these bacterial colonies echo the historical pathways of colonisation, thereby highlighting the intricate interplay of power, influence and expansion.

The three prints depicting an abstract arrangement of blue and white fragments reference the blue and white patterns of Chinese origin, such as the willow pattern, which was copied by the British in their production of blue and white 18th century porcelain and by the Dutch in the city of Delft. These elegant porcelains find a compelling place within Farber’s exploration. By juxtaposing the artistry of Delft porcelain with the captivating imagery of bacterial colonies, Farber’s work invites viewers to contemplate the interconnectedness of cultural phenomena and their historical underpinnings. The series thus serves as a testament to the potential of art as a medium for critical discourse. By

seamlessly weaving together scientific processes, historical insights and artistic expression, Farber offers viewers an immersive experience that stimulates reflection on the intricate tapestry of colonial legacies and their impact on those that they colonised.

## CULTIVATING CRITICALITY: DEPLOYING BIOART AS AN AGENT OF DECOLONIAL PRACTICE

As noted earlier, canonisation, in art history, pertains to the recognition and establishment of certain artworks as noteworthy and influential, serving as important benchmarks or standards in the discipline. This process encompasses the selection, validation and preservation of specific artworks that exemplify and represent the field’s progress and accomplishments. Canonisation influences the shaping of history, scholarly pursuits and future trajectories.

Nevertheless, as mentioned previously, it is important to note that current processes of canonisation are subject to ongoing debate, negotiation and reinterpretation. The boundaries of the canon are constantly challenged, expanded and redefined as new views, narratives of lived experiences and the restaging of histories and perspectives that emerge within artistic communities – as is the case with the Global South counterparts asserting their voices. Consequently, it is essential to engage critically with the limitations of the colonial cannon and continually reassess its relation to evolving practices and contexts. What we can take from this understanding of colonial canons is how they have impacted the African continent and that there is growing potential to disrupt them.

One way of disrupting the colonial canon is the inclusion of race, culture, class and gender in the understandings of bioart and its implications for society. It is not enough to assess bioart’s impact on humans in relation to the ecosphere. In order to disrupt the exclusionary nature of bioart, it is crucial to give visibility to the othered bodies and voices that were marginalised or completely disregarded in the colonial cannon. This needs to be done using a intersectional,<sup>10</sup> multifaceted approach in which subtle (or overt) nuances are taken into account.

Amalia Kallergi (2008:1) writes that “the term [bioart] is a recent and much debated one that undergoes constant reconsideration, expansion and restriction”. Although Kallergi says this in reference to the term itself, it can also apply to bioart as an ever-growing discourse. It continues to expand and, in so doing, defies the restrictions of historical forms of canonisation. Challenging conventional disciplinary boundaries, bioart employs biological materials, genetic manipulation and methodologies used in the life-sciences, as well as in biotechnology, as mediums and methods for artistic exploration. However, the ethical implications and wider societal ramifications inherent in bioart prompt continuous deliberation, leading scholars and practitioners to implement specific restrictions and guidelines to ensure responsible and conscientious engagement with the field. As more scholars theorise about bioart in decolonial terms – acknowledging the intersectionality of the complex human condition – bioart should gradually allow for more nuanced and considered contributions to the discourse.

Bioart is characterised by its dynamic nature, necessitating continual reassessment, growth and the establishment of boundaries. This ongoing process of re-evaluation reflects its adaptive and evolving nature, which seeks to delve into the intricate interplay between science, technology and artistic creativity. The perpetual state of flux and tension

<sup>10</sup> The word ‘intersectional’ indicates the recognition of overlapping of identities and a reading of these identities in relation to each other. It is an acknowledgment of the complex intersections of multiple points of identity, notably in conversation with ideas related to race, gender and other oppressive structures. See Crenshaw, *On Intersectionality: Essential Writings* (2017).

surrounding bioart highlights its capacity to push the limits of artistic expression, fostering discourse and making significant contributions to the broader dialogue on the intersection of art, science and ethics in the contemporary world.

## CONCLUSION

I therefore suggest that the works on the SYM | BIO | ART exhibition can productively be viewed through a decolonial lens. As demonstrated in the works, decoloniality presents a potent form of resistance and a platform to imagine alternative possibilities for the future. By questioning and destabilising colonial hierarchies, artworks on the exhibition might aid in the restoration of indigenous knowledge systems, promote responsible environmental care and make significant contributions to wider decolonial movements. This sentiment is echoed by Eduardo Kac (2010:15) who notes that,

... rather than commenting on what it means to create life, [bioart] actually creates life. These works embody the absolute freedom of creation of poetry while simultaneously emerging from the sustained inquiry upon the world brought about through philosophical rigor. They make us question not only who we are as humans, but also what that physical identity means in the context of a wide universe of living beings. Bio art [sic] suggests that idealized notions of what is ‘natural’ must be challenged and the human role in the evolutionary history of other species (and vice versa) acknowledged, while at the same time respectfully and humbly marveling at this amazing phenomenon we call ‘life’.

In conclusion, the SYM | BIO | ART exhibition and the artists involved, along with the scholarly analysis presented here, reveal a concerted effort to disrupt and challenge dominant western art canons. Through a multifaceted approach that includes language translation, environmental interaction and critical inquiry, the artists featured on the exhibition confront the complexities of identity, history and power dynamics. The *CEION* greenhouse installation, housing translations of Audre Lorde's text alongside African wildflower seeds, invites public engagement and highlights the importance of accurate recording, thereby shedding light on institutional injustices faced by marginalised communities. Similarly, artists like Ndziba, Maart and Stern employ bioart practices to question colonial structures, archival practices and environmental impacts of the colonial and racial Capitalocene (see Verges 2017), drawing attention to humanitarian concerns and the interconnectedness of global systems. In her *cultured colonies/colonial cultures* series, Farber uses bioart techniques to depict the complex structures and dynamics of historical colonialism. The juxtaposition of Delft porcelain artistry with bacterial colonies prompts viewers to contemplate the entanglement of colonial and postcolonial histories as they play out through commonplace domestic objects.

Bioart's ability to challenge boundaries and ethical considerations, while fostering discourse on the intersection of the life-sciences, biotechnology and visual art, positions it as a vital agent of change in the contemporary world. Bioart that engages with decolonial theories disrupts western-centered narratives and opens spaces for underrepresented voices and perspectives, thereby contributing to a more interconnected understanding of art, society and human experience.

Bioart not only prompts us to question our human identity, but also encourages recognition of the intra-connectedness between humans and forms of living and non/living matter while foregrounding marginalised voices and alternative knowledge formations. Bioart therefore offers an important opportunity to interrogate and disrupt established narratives, ideologies and practices by engaging with issues of biology, biotechnology and the body – especially the

*black body* as a contested site. By subverting historical western notions linked to power and control, bioart can serve as a means of reclaiming agency and challenging the hegemonic forces that have shaped colonial relationships with living and non/living matter. By inviting critical reflection and dialogue on the intersections of art, science and decolonisation, bioart can contribute to broader efforts to decolonise knowledge, challenge dominant paradigms and foster a more inclusive and equitable society.

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# TOBIAS BARNARD

## **Come Dine With Us**

2023

Cast agar media with bacterial suspensions grown from dishcloths, hands, soil, water and surfaces; glass bell jars

Dimensions variable







Bioart has the potential to challenge us to push the limits of science. Microbiology, specifically, is an abstract science as it works with organisms that we cannot see. Bioart allows public audiences to visualise this usually invisible world. One curiosity driving my work is the question: What effects might this have? Might bioart be the bridge between science and the public at large? Can engagement with bioart stimulate African artists and scientists to find new ways of telling stories and new ways of imagining their environment?

In making my work for the SYM | BIO | ART exhibition, I wanted to show that our world is inhabited by microbes – each with its specific preference of environment – and to demonstrate how that might impact our lives. I also wanted visitors, after viewing the exhibition, to be practical about the harmful effects of pathogenic microbes without becoming germophobes. It is a fine balance.

Making the work expanded the limits of my conceptual thinking, as flat agar plates became life-sized, three-dimensional sculptures of hands and petri-dishes that were volumetrically expanded into incubator containers. I was also delighted to learn that sometimes beauty lies in the accidental or in a chance occurrence. There was a continuous balance between the technical and material aspects of the work and its conceptual framework. I continually faced new challenges – from conceptualisation, through to production and to display in the gallery – but the north star that kept me focused was working towards getting a visceral reaction from people visiting the exhibition: a combination of intrigue and disgust. One visitor commented that, “It is absolutely macabre, but I keep on coming back to it.” And that was exactly the feeling that I wanted the work to elicit. I wanted to display how beautiful microbes can be, but also to show that microbes can be pathogenic if you do not keep them in check.

In the future, I would like to convert aspects of this work into print media that can be used for educational purposes. This pedagogical aspect forms the basis of the work and reaching this endpoint is an important motivator for me.

The work consists of a series of casts of human hands made from bacterial agar. Various strains of bacteria, taken from surfaces of common objects such as dishcloths and handrails, were applied to the agar surfaces. The hands are displayed in glass domes in which cakes are more usually displayed. I used the domes to reference food, because, as indicated by the title of the work, the underpinning concept of the work is centered around the phrase ‘come dine with us’. By using this phrase, I want to reference those South African cultures in which there is an aspect of sharing food, eating from the same bowl, breaking bread, and so forth. In this way, we potentially transfer bacteria and fungi to the food, and to each other.

My intention was therefore to show how handwashing can influence our personal and public health and that of the broader society. Washing one's hands can drastically reduce the risk of infection. It is a basic, cheap and effective way to reduce disease, and could therefore lead to the saving of lives. I am always amazed by how such a simple act can make such a potentially significant impact on our quality of life.





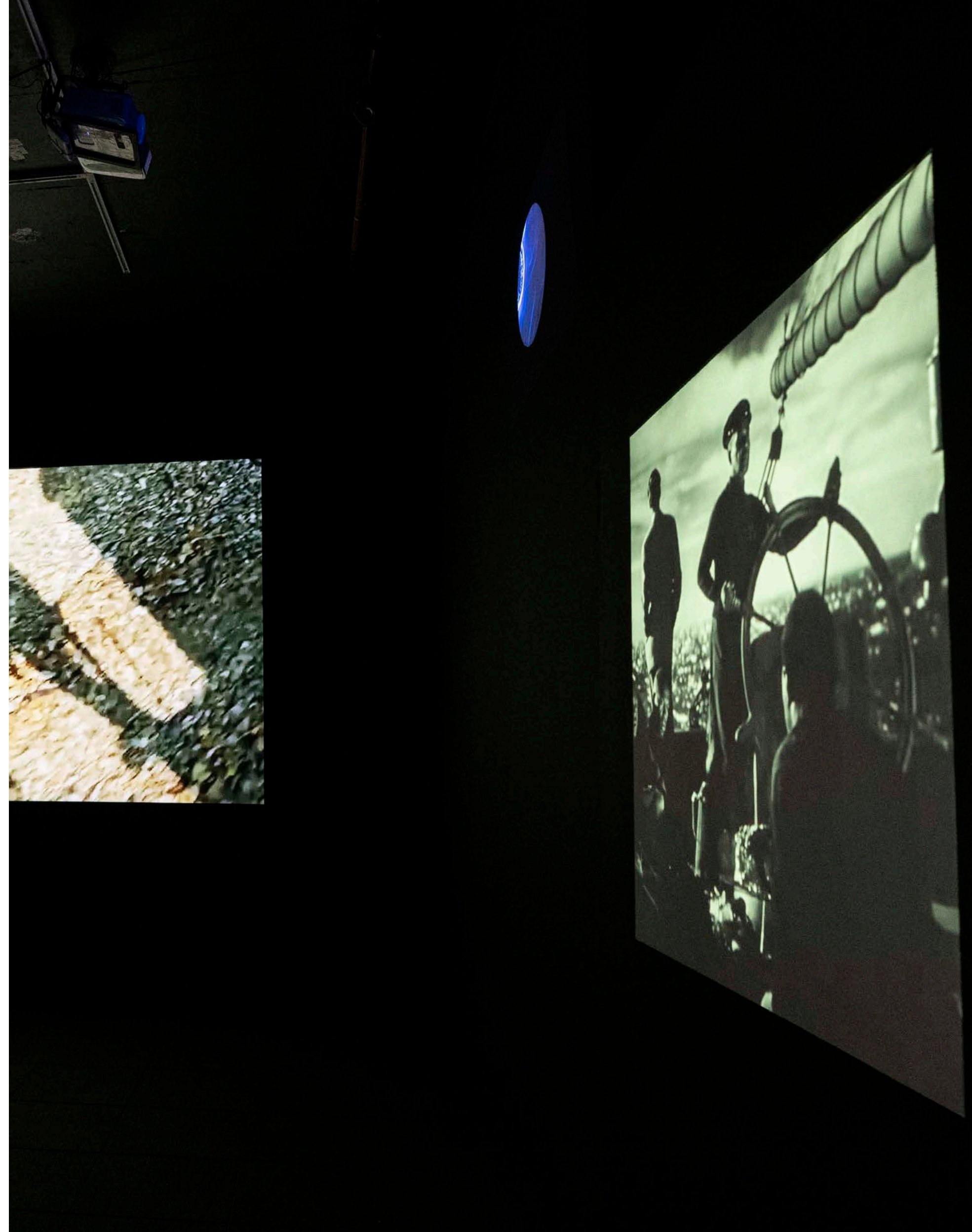
# NADINE BOTHA

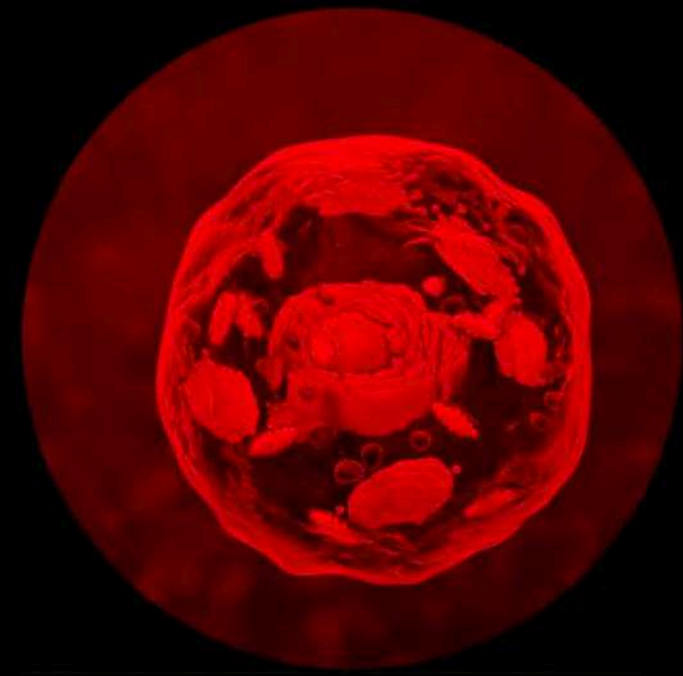
## The Orders of the Undead

2020

Four-channel video installation with sound

Dimensions variable





Bioart might use materials, methodologies and discourses from the sciences in the artistic process and/or output. More significantly, though, bioart engages with western science’s definition of ‘bios’ or ‘life’ and how this is ingrained in political, social and ontological regimes of modernity/coloniality. The colonial legacies of contemporary science lie not only in its applications, for instance, in epidemiology, but also in the foundational logics of science and, amongst other things, its definition of ‘life’ as something extractable and categorical. However, having a critical conversation about science can too quickly become caricaturised and instrumentalised by scientific denialists of various political persuasions. Bioart can be an opportunity to raise critical and meaningful engagement with controversial and nuanced questions about science without throwing the baby out with the bathwater.

My hope is that my collaborations offer scientists an opportunity for creative and critical freedom to play with and reflect on their practice, and that the project outcomes can invite a broader audience into nuanced critical engagement and reflection on complex issues without feeding scientific misinformation. I am compelled by a conviction that there is another way of understanding what can sometimes seem like loggerheads of crisis and injustice but are simply the conditions of modernity/coloniality, as well as a conviction that another way of understanding – other than the colonialised knowledge with which I have been schooled – is essential to living and to evolution.

I believe bioart will become a primary field for amplifying and circulating critiques of how the colonial underpinnings of science limit our understanding of how life on this planet is a far more complex relationship between many more elements than can be quantified in economic terms. In addition to critique, bioart also has a role in shifting our capacity to imagine and visualise a more socially and environmentally just life on this planet. A bioart programme at a university provides a space for science to reflect on its biases and applications outside of commercial and institutional imperatives.

The African continent is composed of individuals, organisations, cultures and countries variously impacted by colonialism and its legacies, which gives bioart on the African continent a unique position from which to challenge the biases ingrained in western knowledge production. The continent possesses a wealth of traditional, scientific and artistic knowledge that can inform an exploration of radical and alternative approaches.

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During the first lockdown of 2020, I met Henry de Vries, a dermatologist who specialises in infectious diseases. We had numerous discussions about the colonial and racial legacy of epidemiology, as well as the colonial tropes that emerged in the rhetoric surrounding COVID-19. At the time, numerous clickbait listicles promoted watching zombie movies to understand the pandemic. I started watching them, and was surprised to see how many of my conversations with Henry were echoed in zombie movie tropes. This led me into the history of the zombie mythology, which can be traced back to soul-capture narratives, surrounding the transatlantic slave trade ships, that were further developed in *vodou* to narrate the resistance movements in Haiti. Later the zombie was appropriated by Hollywood, initially in heavily racialised plantation narratives, and later in movies about insatiable consumption and global apocalypse.

*The Orders of the Undead* – my work on the exhibition SYM | BIO | ART – began as an inquiry into the use of zombie metaphors and mythologies in epidemiology; however, it quickly became clear that epidemiology is itself informed by the zombie tropes embedded in the epistemologies of colonialism and biopolitics. These epistemologies determine the paradigm of the known and the imaginary, and the temporalities of the past and the possible.

The concept of ‘the undead’ in *The Orders of the Undead* evolves. In the first film, it refers to ideas and behaviours originating in colonialism that are perpetuated in entertainment media and in everyday prejudices. In the second film it starts developing Achille Mbembe’s concept of “Necropolitics”,<sup>1</sup> where some populations are subjected to living conditions conferring the status of the living dead – these death-worlds are the coloniality of the majority that sustains the modernity of the minority. In the third film, the ‘undead’ summons Elizabeth Povinelli’s geontological imaginary of the virus,<sup>2</sup> which creates chaos by refusing notions of life and death.

The zombie mythology itself is an example of centuries-long post-production – originating during the trans-atlantic slave trade and now a mass media figure onto which various meanings and interpretations are projected, and most recently cutesified by Disney. As such, the zombie movie perhaps says something about how modernity/coloniality is in constant post-production. For me, the process of cutting up zombie films based on colonial and epidemiological tropes, and trying to stitch them back together again with a different narrative – which turned out to be pretty difficult – made me even more aware of how automatic metaphors and thinking habits prevent recognition of alternative opportunities.

The tropes were organised into four films. *The End*, or apocalypse, is one of the most prevalent tropes in zombie movies, which are almost all a scramble against, or rebuilding after, the end. However, colonisation is itself an apocalypse, and shifting the apocalypse into the future is itself a colonial denial. *The Calculation* considers the quantification and equations that go into considering who has a life worth saving and the violences through which these calculations are performed. *The Virus* considers the category of ‘chaos’ and various viral agents that are exceptions to the norm – the virus can introduce alternatives, but these are not automatically emancipatory. *The Wake* is inspired by Christina Sharpe’s call to wake<sup>3</sup> – as in becoming conscious; as in holding space for the grief with which the colonial past must be regarded; and as in recognising the ongoing colonial repercussions that follow.

The soundtracks are excerpts from public lectures by Mbembe and Povinelli. There is also rousing and enlivening music that seeks to evoke a mood of refusal and empowerment. It is loud, leaky and uncontrollable, like a virus.

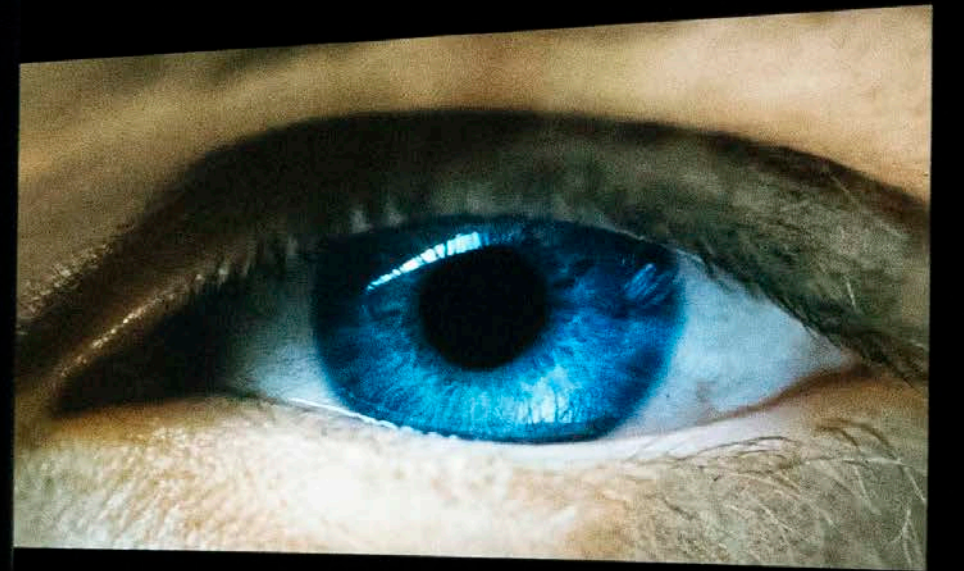
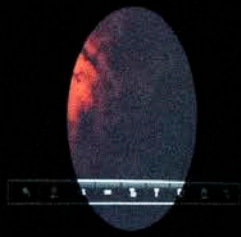
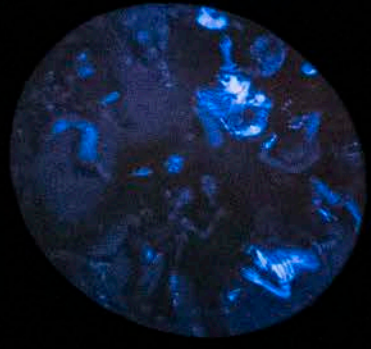
*The Orders of the Undead* began with a recognition of how epidemiology labels and prescribes value, thereby othering different humans and species. However, through reading contemporary geontological, necropolitical and border thinking, I became increasingly interested in the conditions that give rise to this way of understanding and knowing. The difference between life and death, what and who is considered alive and not, and who (and increasingly what) gets to decide these questions, are fundamental to the scientific, economic, political and social systems of modernity/coloniality. The video essay is a reflection on how the epistemology of coloniality, emerging during the transatlantic slave trade — when the zombie myth itself first emerges — reveals itself in contemporary epidemiology, geopolitics and pop culture memes.

The production and reproduction of video has impacted how knowledge is produced, consumed and mass-distributed. Using that same medium for art draws attention to how we as humans design our tools, but, as the adage goes, ‘once our tools are designed, our tools design us’. Video is a particularly potent medium in this regard because, on the one hand, it can really transfix and transport the viewer very quickly; however, on the other hand, it also introduces its own limitations and critique through glitches and appropriation.

<sup>1</sup> Mbembe, A. 2019. *Necropolitics*. Durham: Duke University Press.

<sup>2</sup> Povinelli, E. 2016. *Geontologies*. Durham: Duke University Press.

<sup>3</sup> Sharpe, C. 2016. *In the Wake: On Blackness and Being*. Durham: Duke University Press.



# XYLAN DE JAGER

## Exploring Co-Created Futures

2023

Mycelial bio-composite, ABS/PETG plastics installation

Dimensions variable







Bioart is the creative expression of human symbiosis with other biological organisms. It is a contemporary art practice that uses living organisms, their systems, processes, or life-related scientific technologies as a medium. Its goal is not necessarily to create aesthetically interesting objects, but rather to provoke thought and discussion about larger issues. These can include the relationship between humans and biological forms, ethical questions about the manipulation of life and biological systems and the implications of biotechnological advancements. Bioart is a mechanism that can be used to navigate new relationships and new forms of collaborations that may re-shape the ecosphere. It brings the conversation around beauty in function to the surface and, in the case of my work, merges biology, art, computation and generative design methods into a fascinating cross-disciplinary approach to practice.

Bioart makes possible the vision of a future where people live in a world of symbiosis with what is usually known as ‘nature’ – a biophilic society that thrives on the inter/intra-relations of all species. Imagine waking in a world where all buildings grow by recycling waste and where every road purifies air and harvests water; a world where concrete jungles have been replaced by living buildings that house nature alongside people. Bioart can provide a platform for discussing several important themes that are highly relevant in an African context. The continent is home to incredible biodiversity and bioart could be a way to highlight, celebrate and provoke conversations about this richness and the urgent need to preserve it. It could serve as a tool for public education about health and biology. Many African communities are on the frontline of dealing with the impacts of climate change, and bioart projects that use sustainable practices or that bring attention to environmental issues are of relevance. Bioart can also provide a platform for cultural expression and exploration, reflecting on the interactions between culture, biology and technology.

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My interest in science was sparked when I explored using mycelium in an architectural project. From then onwards my obsession with the organism infused my architectural practice. Through exploring mycelium as an avenue of future architecture, I was drawn to using it in a visual and tactile manner, as a means of communication. I became increasingly inspired by its properties and its abundance of surprises.

Mycelium, along with its propensity to network, drew me into envisioning future uses for the material.

We are still figuring out how to communicate with mycelial intelligence. Mycelia can make decisions and alter their developmental patterns in response to interactions with other organisms. They may even be capable of spatial recognition and learning, coupled with a facility for short-term memory. Mycelia have an ability known as the ‘Wood Wide Web’, which allows for the culture to communicate internally and to act as a communication network between trees and plants. This network is also used to transport nutrients within the mycelial network and between plants. It has fabulous functional qualities such as being hydrophobic, fire retardant and carbon available, which allows for the creation of composite, functional and novel materials.

I embarked on a project many years ago that investigated the feasibility of using mycelial matting – produced using agro-waste – as fireproofing in buildings in informal settlements. Having this cyclical economic approach to using the runoff from one industry as the input to the next proved to be a cost-effective solution. Current fireproofing is chemically heavy whereas mycelium production incorporates no chemicals and is also almost carbon neutral. The implementation strategy was to upcycle agro-waste into mycelial mats, which were then compressed to form a dense leatherlike material that can be easily fitted to the structures. From a performance aspect, it is not only compliant with fire regulations but is also waterproof and, as redundant as it may sound, it has anti-fungal and anti-bacterial properties.

Conceptually we, as humans, are constantly in synergistic collaboration with living organisms. I therefore employ a biophilic approach by working with the strengths and needs of the mycelium, trying to balance the project objectives with the properties, needs and desires of the fungus. The mycelium rarely does what one tries to force it to do.

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Overall, to make my work, I combine mycelial biomas with an array of materials including reclaimed wood, recycled paper, sawdust and other waste materials. I compact the composites, form them into shapes, and cure them into tiles that are sound- and waterproof. Their applications include architecture, construction and interior design. It is part of an ongoing research project in which I aim to change the material composition to make new materials with new applications, just as my artistic output on the SYM | BIO | ART exhibition is an attempt to apply aesthetic considerations to practical solutions. One particularly exciting innovation would be the potential to move away from single-use materials – bricks to make walls, glass for windows, wood for furniture, and so on – toward a fungal material that, in addition to construction, might also be used in plumbing, electronics, air filtration and solar paneling, perhaps even all at the same time? The research question would be: How does this one material serve multiple functions in the most sustainable environmentally-friendly, progressive way possible?



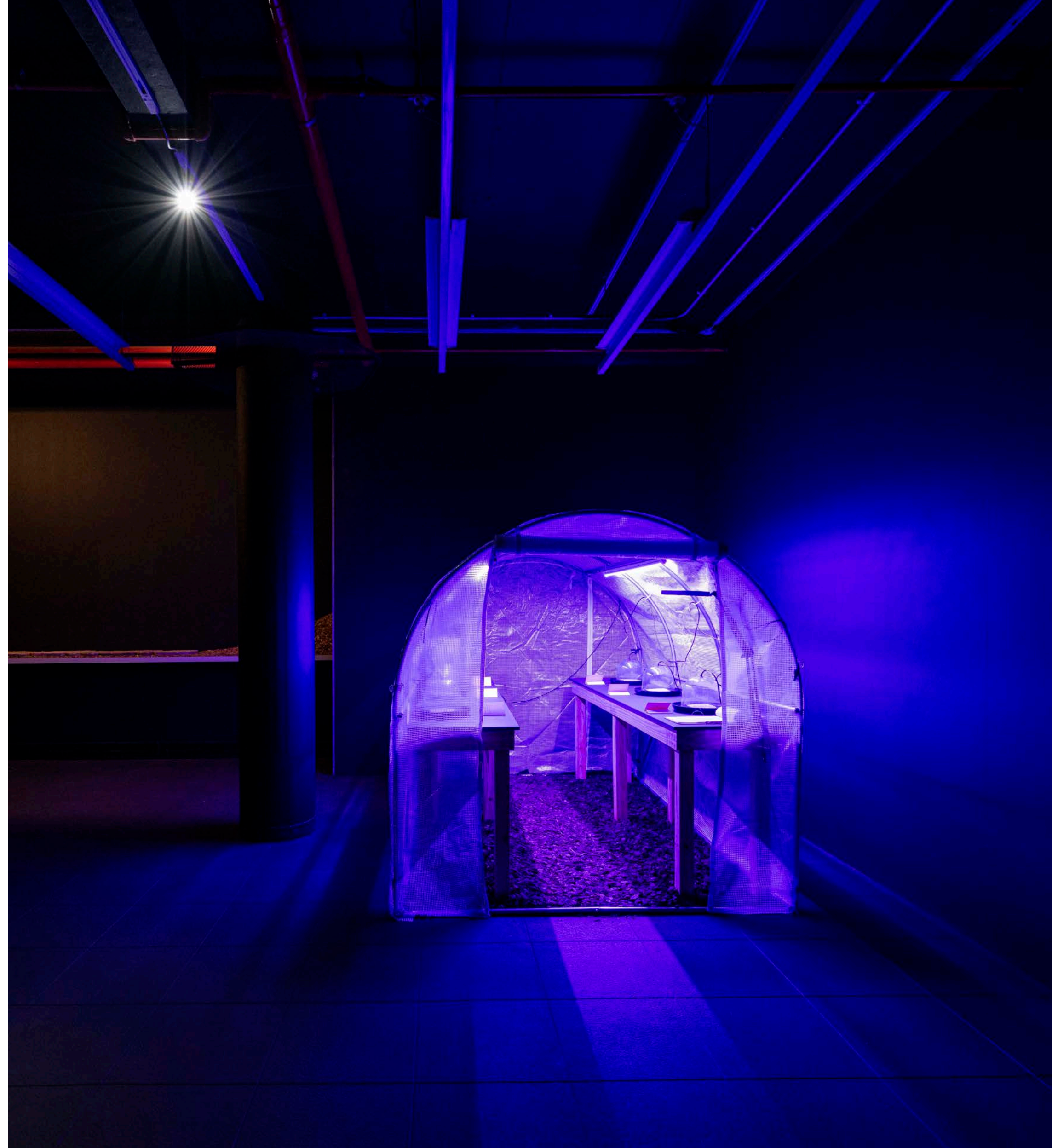
# NOLAN OSWALD DENNIS

## CEION

2022

African wildflower seeds, closed environment, bioactive system, grow lights, books,  
plant domes, community of ambient microorganisms, care protocols

Dimensions variable





YLOVA  
BOJNETS  
MERTYKA  
PLORICE

YLOVA  
BOJNETS  
MERTYKA  
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## Even when they are dangerous examine the heart of those machines you hate before you discard them

### Audre Lorde - *For each of you*<sup>1</sup>

I find bioart a confusing category. I'm not sure if it refers to a medium, process or period, or all of these. I guess I don't understand what makes bioart distinct from other modes of art making. I see my work in a continuum with African and Afro-diasporic critical cultural practices in which hard lines between scientific and cultural work are not drawn.

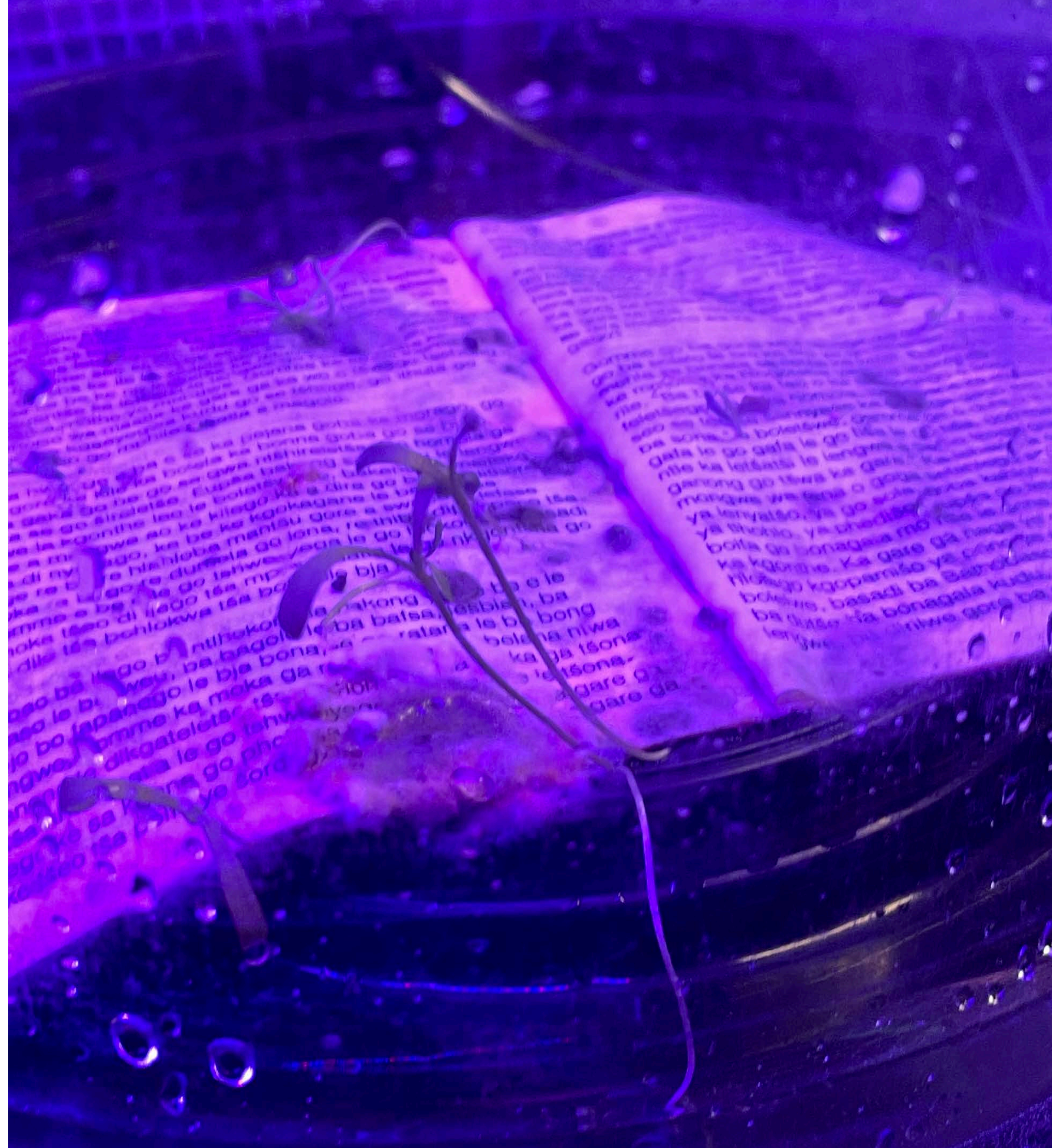
A condition for my work on the SYM | BIO | ART exhibition is a local language translation of *Sister Outsider* – a collection of essays of Audre Lorde. For this iteration, I had a small selection of essays from Lorde's book translated into Sesotho. I imagine one day the work will have its own library of translations, a body of relations. This relation between knowledge, agency and intention is the ground of all encounter. There is a question of care that is central to this dynamic. Generally, exhibition visitors are consumers of cultural objects that are maintained by the hidden labour of art-workers. Through my work, I try to shift this relation by asking visitors to participate in some of the acts of care that maintain this artwork. The status of the artwork – whether it is overwatered or underwatered, whether seeds germinate, if the flowers blossom, and so on – is a register of how people respond to this invitation. It is the social relation manifest.

A common question is: What must be done in order to know the world (and also ourselves) differently? We could say this other-world-knowledge (more correctly 'actual-world-knowledge') is a condition for the kind of material change that both Audre Lorde and Frantz Fanon write towards. Part of how my works attend to that question is to create conditions of thinking that extend beyond the horizon of western conventions. This means thinking as a collective act, thinking as distributed and embodied action in collaboration with others. Translation suggests ways of thinking in dialogue with other worlds that include the microbial, the spiritual, the technological, the world of memory and forgetting. My works are experimental in the poetic sense, a generative process of accumulating methods and techniques, ways and means, not in the scientific sense of testing a hypothesis.

Knowing is embodied and inseparable from the knower – knowledge disembodies what is known and allows it to move independently of any specific person. We could ask: What is lost when knowledge moves in this disembodied way? What is left behind? There is violence here, so we should also ask: What is gained, and by whom?

The technical aspects of my work are in service of the social relations; this we could call the conceptual framework. Through this framework, the cloud of possible futures collapses into an actuality, which could be called the material world. I want visitors to the exhibition to walk away with a sense that, for this work, they are a part of a necessary community that includes the water, the latent and introduced nutrients, the text, the reticulation system, the gallery workers, the wildflower seeds, the light, the air, and I.

<sup>1</sup> Lorde, A. 1997. *The collected poems of Audre Lorde*. New York: W. W. Norton.





LENGWALO LE LE  
BULEGILEGO GO  
MARY DALY

LEORA  
FARBER

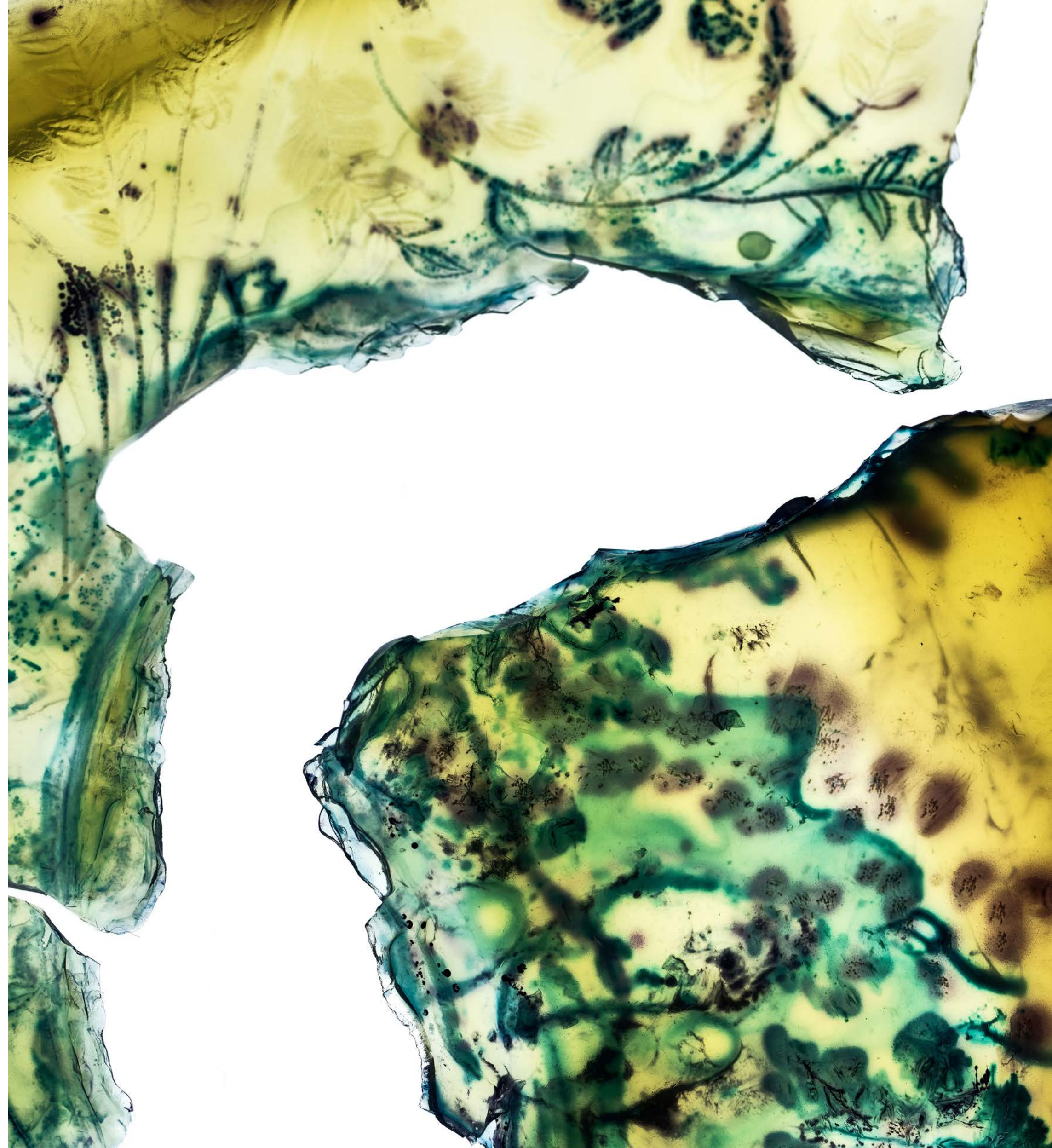
**cultured colonies |  
colonial cultures**

2020-2023

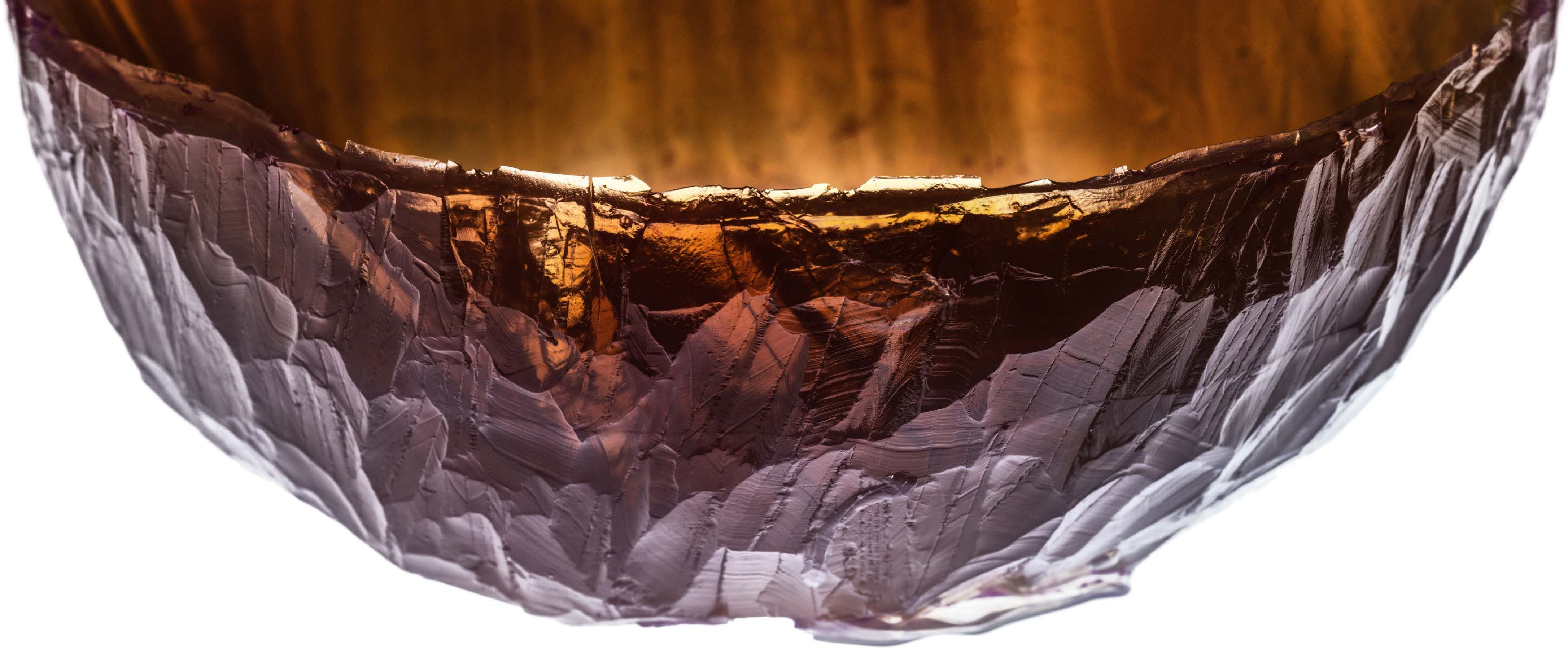
Bacterial growth on nutrient agar, digital prints on Ilford smooth cotton  
300gsm, Dibond

137 x 91.5 cm (three items), 210 x 91.5 cm; 134 x 91.5 cm, 185.6 x 91.5 cm

Editions of 5







Bioart is the abbreviation for ‘biotechnological art’. As I understand it, bioart – which also incorporates biodesign and other forms of visual representation – involves creative practices that deal with the hands-on application of the latest advances in the life sciences and biotechnology.

I find bioart to be a useful working term, but it is a contested and slippery one – perhaps it is best described as ‘proliferating’ and ‘mutant’, because it cannot be nailed down. In other words, this art form constantly changes in response to developing biotechnologies and scientific practices. Also, artists differ in what they understand bioart to be. Some see bioart as limited to ‘living forms’, while other artists include art that uses the imagery of contemporary medicine and biological research or require that it address a controversy or blind spot posed by the life sciences as a discipline. Other artists make a range of work in different media, some of which cannot be located under the term bioart, and so they might not want to call themselves bioartists. It is also a generic term – rather like ‘video art’, ‘land-art’ or ‘body art’ – in which the term is defined by the medium or subject with which one is working.

When I talk about the living and the non/living, I am using terminology from the literature to draw attention to the material processuality and dynamics of both an organic and inorganic kind, where the slash points to the enmeshment of the living and non/living. Furthermore, the non/living captures the problematic that comes with the bioscientific definitions of life. For instance, one can think of agents like viroids, prions, or viruses – the status of which as forms of life is not entirely clear. Another example comes from the fields of chemistry and synthetic biology, in which scientists have created structures or inorganic protocells that meet the four basic criteria of the living. Finally, the concept of the non/living draws attention to the ambivalent entwinement of living and dying, and thus exposes one of the key aspects of what Marietta Radomska calls “uncontainable life”.<sup>1</sup>

I am deeply fascinated by the seemingly endless possibilities that can come about through the merging of science and art, although, for me, the term ‘science’ is too broad – I prefer to bring it down from the macroscopic to the microscopic. My focus is on microbiology, specifically using bacteria, yeasts and mycelia as artmaking materials – microbes that one cannot see fully with the naked eye. As a practice, bioart is underpinned by play, exploration, curiosity, chance, risk and recognition that, at times, an objective may only be achieved through unconventional methods of working that involve processes of discovery. All of which brings us into the realms of the unknown.

Life is only possible because of a complex interplay between the living and the non/living; the human and the more-than-human. Dating back to Enlightenment thinking and humanism, which emerged during the Renaissance, these intermeshed life-forms were subject to a divisive form of hierarchical categorisation and classification (speciesism). Such binary thinking was perpetuated throughout modernist art movements of the 20th century and in colonial discourses. Unfortunately, during the development of the Anthropocene over the past century, these categories have led to the development of areas of specialisation, or ‘silos’, in the academy, posing artificially constructed divisions between faculties and disciplines. Therefore, on a phenomenological, ethical, philosophical, scholarly and practical level, bioart is important because it breaks down these artificial barriers by bringing together science and the humanities, the factual and expressive, the real and the visionary, the contemporary and the future. From an artistic perspective, this relatively new field of creative expression allows us to utilise and create new materials, methods and ways of collaboration, often with innovative and unexpected outcomes. It provides a context that allows a sense of adventure and exploration. By bringing new forms of practice, methodologies and materials into creative realms, artists and designers can play a role in critically and creatively shaping our current and future ecologies.

<sup>1</sup> Radomska, M. 2016. *Uncontainable Life: A Biophilosophy of Bioart*. PhD thesis. Linköping University, Sweden.

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From end-2019 to the beginning of 2020, I worked in a microbiology lab in Perth, Western Australia, for three months. During this time, I created casts, or what I call ‘impressions’, of domestic objects from bacterial agar, which is a jelly-like medium infused with nutrients on which bacteria feed. After the impression had set, I would paint or draw onto it with live, mildly pathogenic strains of naturally pigmented bacteria. Once I had finished, I tried to curtail the growth of the bacteria using toxic substances such as acetone and ethanol. After that, by leaving the painted impressions in sealed plastic containers in a cold-room, I was able to keep them for three months, after which time contamination started setting in. And, despite my efforts, the bacteria kept growing!

I could not take the impressions back to South Africa, and I couldn’t leave them in the cold-room, so my only choice was to photograph them in ways that were both documentary and as photographs that would be artworks in themselves. But this posed an interesting conundrum, because one is photographing material matter, which has its own properties – it wobbles, shakes and moves. Translating material matter into a two-dimensional print makes it a completely different work. Also, in this case, the photograph is contrary to the nature of the material object, where microbes are in a constant state of change. The photographs are interesting, but complex, because they show the live bacteria that are actually growing on the impression, but that growth is frozen in time. The photograph ‘fixes’ that which is unstable and, imperceptibly, constantly transforming; it is a paradox, and, if one chooses to see it that way, a compromise.

The works on the SYM | BIO | ART exhibition form part of a much larger series titled *culturing colonies/colonial cultures*. The title is obviously a play on words, taken from Lorenzo Veracini’s analogy between the growth patterns and characteristics of bacteria cultured in vitro, and the functioning of colonialism and settler colonial systems.<sup>2</sup> Veracini notes that while both viruses and bacteria are exogenous elements that usually dominate their destination locales, a crucial difference is that viruses need living cells to operate, while bacteria attach to surfaces and may or may not rely on the organisms they encounter. As Veracini points out, viruses first attach to a host cell and then penetrate it in a way that is similar to how the colonial system depends on the presence and subjugation of those deemed as exploitable ‘others’. Alternatively, while settler colonies benefit from the subjugation and exploitation of indigenous peoples, they have more in common with bacterial colonies in that settler collectives attach to the land but do not necessarily need indigenous ‘others’ to reproduce and function.

Working with agar, which is a medium that is both material and, given its translucency and light-weightedness, seemingly immaterial, became a way of thinking and working through the hauntings of colonial histories via storied matter. The impressions I make are of domestic objects – dinner plates, teacups and saucers, bowls, vases and so on – specifically those that can be associated with Dutch and English colonialism in South Africa. They include English porcelain, which references traditional English styling and patterning such as that found on Royal Doulton, Royal Albert and Royal Worcester ranges. Some of the casts feature quintessential and ubiquitous blue and white patterns of Chinese origin, such as the willow pattern, which the British copied in their production of blue and white 18th century porcelain, and the Dutch reproduced in their Delft blue porcelain. China was the first country to make porcelain, which is why, in some English-speaking countries, it is informally referred to as ‘china’.

Reproductions of the original designs of the cast objects, and the originals themselves that are still in existence, can be found in many South African homes, as they have become domestic ‘classics’ in many global post-colonies. These

<sup>2</sup> Veracini, L. 2014. Understanding Colonialism and Settler Colonialism as Distinct Formations. *Interventions* 16(5):615-633.

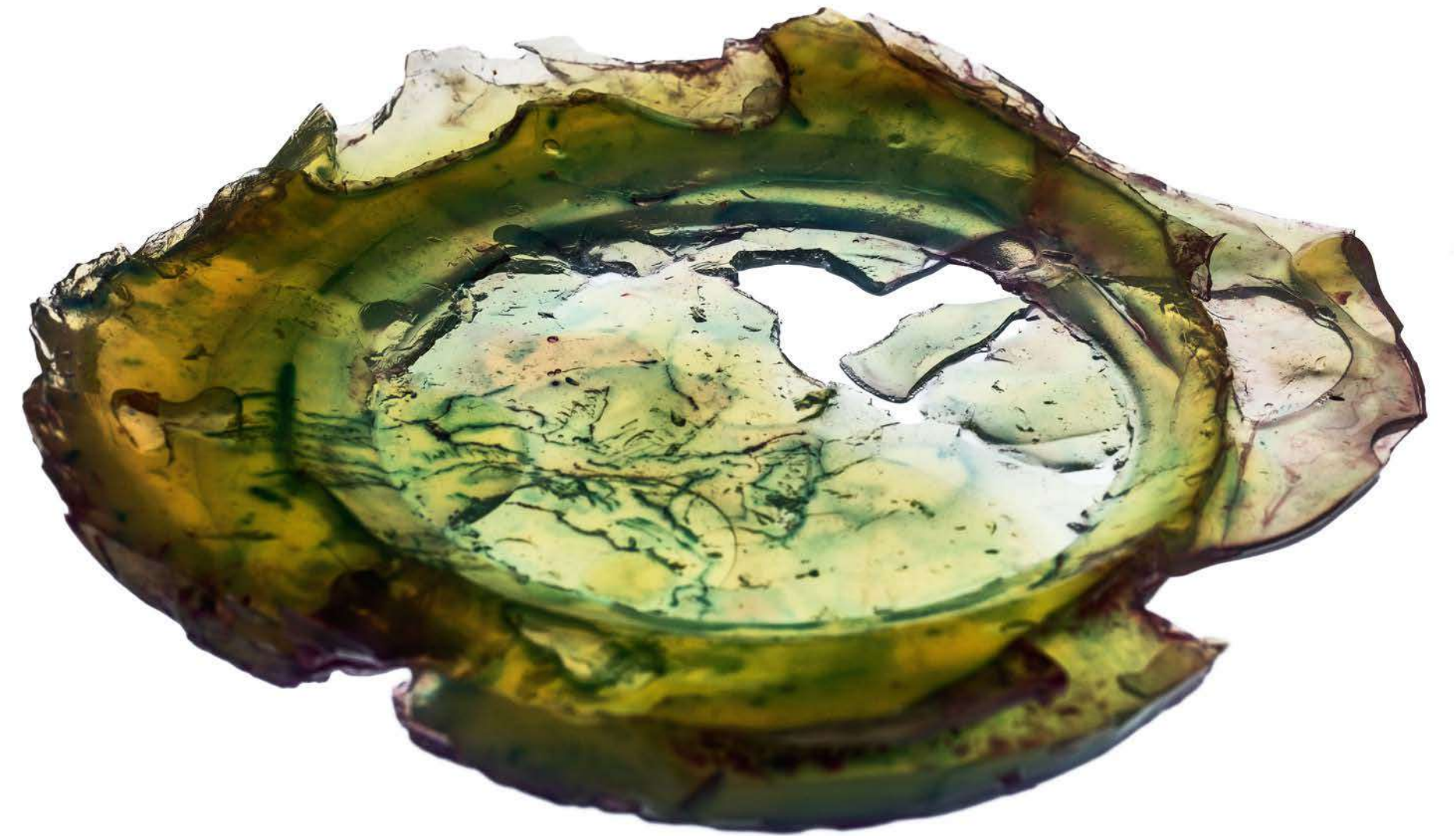
objects have personal meaning, as they were the objects with which I was raised – they were part of my mother’s ‘best’ crockery only to be taken out for family dinners on festivals or special occasions: crockery that was passed down from generation to generation as a source of pride and marker of respectability.

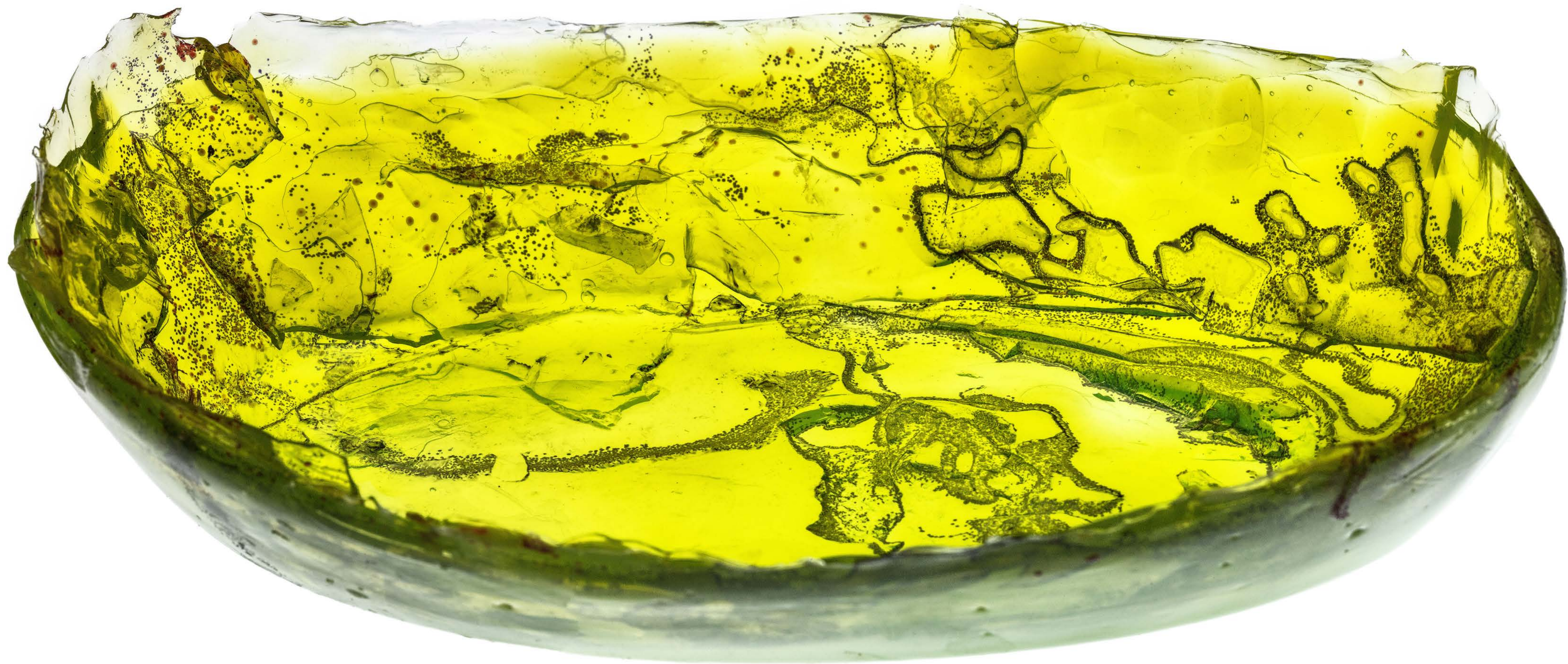
These objects (and the impressions of them) carry hauntological resonances of British and Dutch imperialism and colonialism as they were acquired through trade with the East via the Dutch East India Company (*Verenigde Oostindische Compagnie*, or VOC) and on the British side, the East India Company (EIA). Sugar, tea and porcelain were commodities of colonial commerce that were shipped by the VOC and the EIA to the colonies alongside enslaved peoples, themselves considered fungible objects of trade.

In domestic contexts across South Africa, the actual objects, as well as the impressions I take of them, thus resonate as spectral traces of the violent colonial legacies that haunt domestic interiors and broader individual and collective imaginations. If read against this historical backdrop of dispossession, exploitation, genocide, displacement and precarity, the translucent impressions may be seen to resonate as spectral traces of colonial legacies that haunt domestic interiors; they are uncanny spectres of disquietude that continue to inhabit the present, and are likely to continue to haunt the future.

I started out with fixed ideas of wanting to make the ‘perfect’ replica of the object, such as a cast of a ‘whole’ bowl. I landed up waging war with the agar and the bacteria, because the agar has a propensity to break, crack, fall apart and collapse as one works with it. Although occasionally the bacteria grew according to the patterns that I had delineated for them, they mostly grew unpredictably and uncontrollably; at times their movement was so extreme that I could not recognise the initial pattern that I had rendered. In time, I came to realise that, unlike conventional artmaking media, bacteria are not inert matter but have their own agency and life force. Thus, rather than being the product of my creative efforts alone, the work became a collaboration between the microbes and myself. I became a co-author, a participant in an organic, unscripted, sometimes asymmetric collaboration that necessitated my relinquishing of artistic autonomy and control.

With the agar casts, I found that it was more productive to work *with* rather than *against* the medium’s tendency to break, crack or disintegrate. And that was a breakthrough for me – I was forced to rethink my ideas around what constituted a ‘successful’ impression and to embrace ‘failure’. The fragments depicted in the series of three prints on the SYM | BIO | ART show are examples of this – they were bits of painted agar that came from a bowl that broke. I was going to throw the bits away, but when looking at them, I realised that they were visually interesting as shapes and forms in their own right. In some ways, they were more interesting than a perfectly formed, whole cast of a bowl, because they were no longer tied to a clear visual referent. So, working with agar and bacteria proved to be an unpredictable process and I loved learning to embrace that sense of the uncertain.





BRENTON  
MAART

**Ruins of the  
Ciskei Agricultural Corporation**

2023

*Bacillus amyloliquefaciens* on nutrient agar, pigment prints on cotton rag on M-Foam

195 x 195 mm (ten pieces), 600 x 600 mm (two pieces)

Editions of 10



There are probably as many definitions of bioart as there are practitioners of bioart. In my practice, though, I use biological organisms to create visual images that – either through medium, process or concept – can further my understanding of my humanity in relation to a changing political, environmental, physical and spiritual world.

The purported disparity between arts and science invents a misguided, misleading dichotomy. If one looks back in history, one sees that art and science are really part of the same consideration, the same practice, the same field of enquiry. Often, they were, and still are, inherently part of the same production. As humans became more specialised, there was a splitting of those two sectors. I find, certainly in the work that I am producing now, the more I link biological processes with art-making processes, the more it makes sense. It allows me to see all of life and all human experience as part of the same field and fosters what might be termed a transdisciplinary, post-humanist approach. One catchphrase of that combination might be the term ‘creative logic’. Thus, my understanding of the term ‘bioart’ is the return to a practice that is grounded in history and in the evolution of humankind, and that, with its practice, is a return to a more holistic form of productive philosophy – one that is generous and all-encompassing.

About 20 years ago, design per se was touted as the leading discipline in novel developments and applications including information technology, medicine, architecture, manufacturing and industrial technologies, business and financial systems, as well as many others. It also became useful for modelling systems in a vast array of theoretical and practical disciplines across the sciences and the humanities. Now, in many ways bioart – and its sibling, biomimicry – is the next phase of that evolution (bioart is often referred to as, perhaps more accurately, bio-art and design). It is the appreciation that biological systems – biotechnologies – are intrinsic to almost everything with which we are familiar, and that they are vital to the evolution of our humanity. The role of bioart is significant to our future as a human species in relation to our environment. It allows us to generate contemporary solutions for inevitable future problems. In a few decades, bioart may be integrated into almost all aspects of humanity and could be the forerunner in the intelligent merger between the human and more-than-human.

A major advantage of establishing a bioart programme at a university is that one has access to the intellectual and technical resources of many different departments and faculties. It is this interaction across fields and sectors that can provide a significant evolutionary boost to bioart methodological advancement that – once it has gained traction because of relative ease of practice – would facilitate being taken up by a broader arts sector. Bioart, though not a new discipline, has only recently been explored as a legitimate form of creative expression. As such, it is jostling to locate itself within a sector dominated by the avaricious western canon of visual cultural production. This is an ideal time, then, for African practitioners to lay claim to its history, methods and forms originating on the continent, before its appropriation and theft. Thus, its enthusiastic practice by African practitioners might be seen as a form of political activism.

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For several years, I have conducted field work in the apartheid homelands, photographically documenting the architecture of what, effectively, are the ruins of apartheid. Through this process I have generated a visual archive of government buildings and casinos, agricultural development corporations and factory parks, sports grounds and personal homes of the ruling homeland elite. At the fall of apartheid, because of the withdrawal of subsidies and the incorporation of these areas back into South Africa, many of these places continued their ideological ruination into more material, tangible decay.

My photographs are now being used in various creative and scholarly outputs. Specifically, for my artist’s residency at the University of Johannesburg, I am experimenting with different ways of using biological systems to be able to

visualise these decaying buildings in novel ways. I use bacteria and fungi – the rot organism of earth – to make what might be termed ‘biological prints’. Thus, in many ways, the work I am doing is an analogue approach.

As a visual artist, I am concerned with the relationships between the brain and the eye, and how to strengthen the links between them. The brain is the engine of our cognitive function, and is responsible for our conscious mental activities like thinking, reasoning, remembering, imagining, learning and using language. The eye is the organ responsible for seeing – for visualising – and helps in perceiving light, colour and depth. In other words, the eye functions as the camera of the body. It is our collector of light, and its delicate structures enable the light energy that enters the eye to be converted to electrochemical energy. This, in turn, stimulates the visual centres of the brain to produce the sensation of seeing. In fact, sight is essential to humankind’s survival as a species and has been integral in our evolution.

For that reason, embedded within the policies and practices of colonialism and apartheid, there was an attempt to systematically decouple our vision from our ability to communicate, interpret and act upon those visions. This is not a spurious, gratuitous claim: it is evident in the removal of arts education during apartheid’s Bantu education practices – an act supported by the destabilisation of culture because of language colonisation. That is why, for example, the anti-apartheid battle drew so significantly on visual culture as one of the weapons in its arsenal, and why the rallying against, for example, Afrikaans as a language of educational instruction, became such a violent, fraught arena of contestation.

Thus, part of the decolonial function of my work is its insistence on relinking the brain and the eye and returning, to the visual, its power and its agency. One way to do that is to slow down the act of looking through the slowing down of the process of making and, for me, there is no greater meditative action than observing life – organically, analogically, through bioart processes of production – as it unfolds.

Photographs are ubiquitous and, although contemporary photographic art has seen a rapid growth in popularity and value, the hyperglut of visual imagery in everyday life is proving to make the photograph less and less interesting. My project introduces a new medium into this field of cultural production through the development of a novel methodology that can be used to visualise photographic images using selective biomass growth.

The photographic subject matter is reflected conceptually in the form of production. Thus, the starting material of my work is a contemporary photographic archive of buildings in previous South African apartheid homelands that are in the process of ruination. I captured these high-resolution digital and medium format film images during a three-year fieldwork period. The buildings photographed, like the race-based capitalist ideology that spawned them, were conceived and constructed with permanence in mind (which is true for all buildings, and all ideologies). Ironically, neither the apartheid ideology nor its homeland buildings proved to have the longevity that might have inspired their existence. The critical research question at the heart of my work is: Might the visualisation of apartheid ruins, through biomass growth, be used as a metaphor for the piling of wreckage upon wreckage of the putrefying ideologies of post-apartheid, neo-colonialist, late-capitalist neo-liberalism?

Ruins are structures that can invoke so many new narratives. One can look at a ruin and project one’s own psychology, or a political ideology, or a historical reality, onto it. Ruins provoke interpretation, interpolation, extrapolation, translation, transcription, reformulation of new meanings. They invite ‘factual’ documentation and fictional flights of fancy. They are a narrative device, a palimpsest, a synecdoche for so many other related and unrelated things. They are both emblem and symbol.

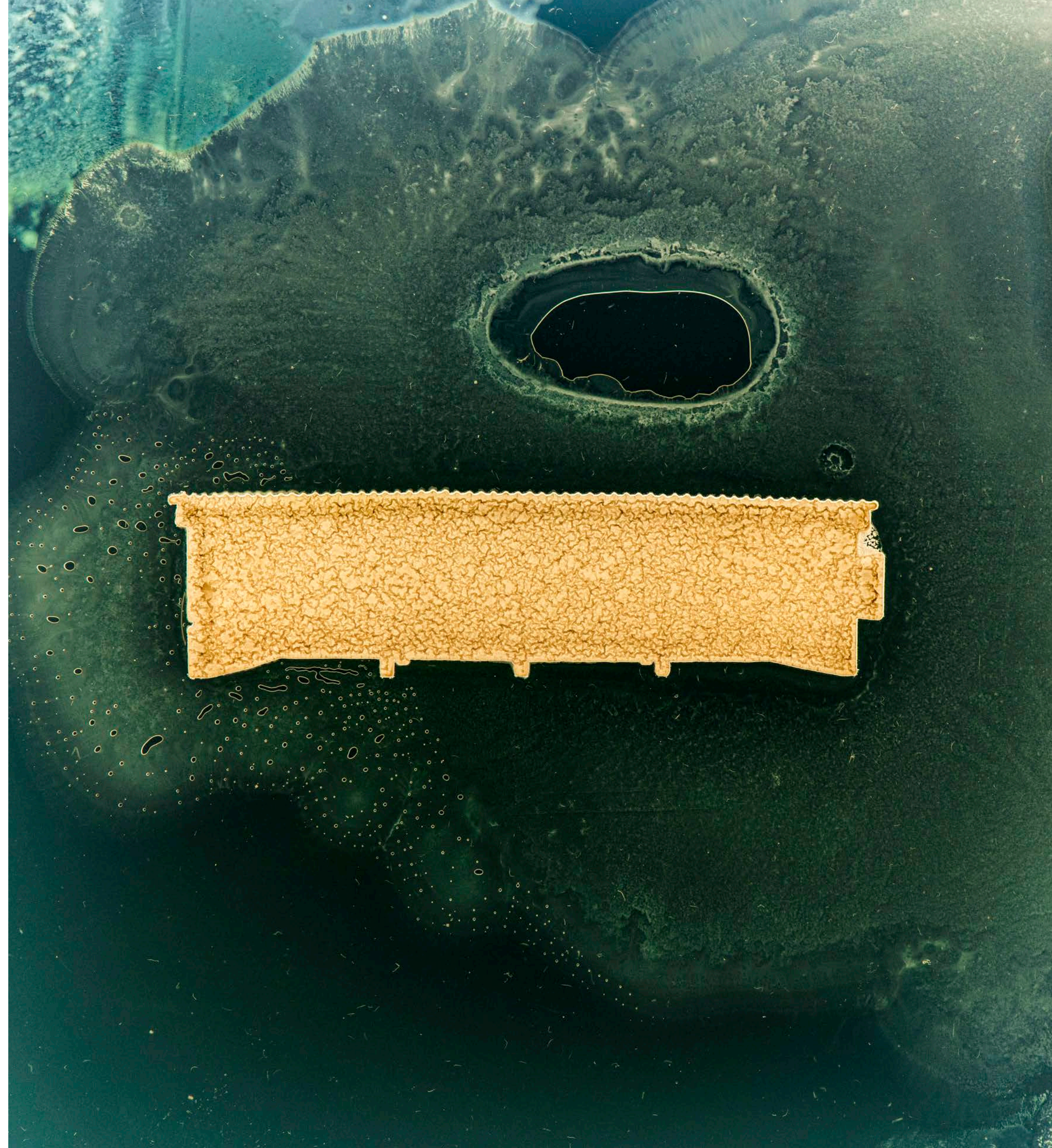
Viewers of the SYM | BIO | ART exhibition can expect to see images of ruins rendered in what I would describe as a beautiful, ghostly, ephemeral, ethereal way – almost like jewels. I find it poetic that images of ruins are rendered as rare, bejewelled objects of beauty.

I have conducted various experiments in a laboratory looking at different ways of growing these bacteria; different ways of formulating and delineating their edges; different ways of lighting them; different kinds of bacteria; different forms of media; different forms of lighting; different ways of photographing them. And what one can expect to see on exhibition are the outcomes of two of these vectors of experimentation.

The first project comprises photographs that represent the ruins of the Ciskei Agricultural Corporation – a group of buildings on the outskirts of Bisho in the now Eastern Cape province. The Ciskei Agricultural Corporation and its ilk were established by the apartheid government to destroy rural agricultural practices and replace them with the ironically termed ‘betterment’<sup>1</sup> – a practice that led to soil erosion, depletion of nutrients, destruction of agricultural and animal husbandry systems that had been developed, refined and had evolved over centuries. At the end of apartheid in 1994, the apartheid subsidies were withdrawn, and the Ciskei Agricultural Corporation closed, leaving a destroyed ecosystem, people without employment and families without income and food security – destitute and poor. These ruins have now become metaphors for a historical system of abuse that continues to increase in ferocity.

The second body of work on the exhibition is part of an ongoing series on Dimbaza Industrial Park, also on the outskirts of Bisho. Dimbaza is an apartheid township built as a place to dump surplus people during the forced removals in the 1960s and 1970s.<sup>1</sup> A township was created, people were forcibly moved there and, as part of creating ‘employment’, the apartheid government, with the assistance of the Ciskei government, built Dimbaza Industrial Park. As with the Ciskei Agricultural Corporation, when apartheid ended in 1994, subsidies were withdrawn and the factories were closed, leaving hauntingly empty ruins.

<sup>1</sup> Forced removals in South Africa. 1983. Volume 1-5 of the Surplus People Project report. Cape Town: Surplus People Project.







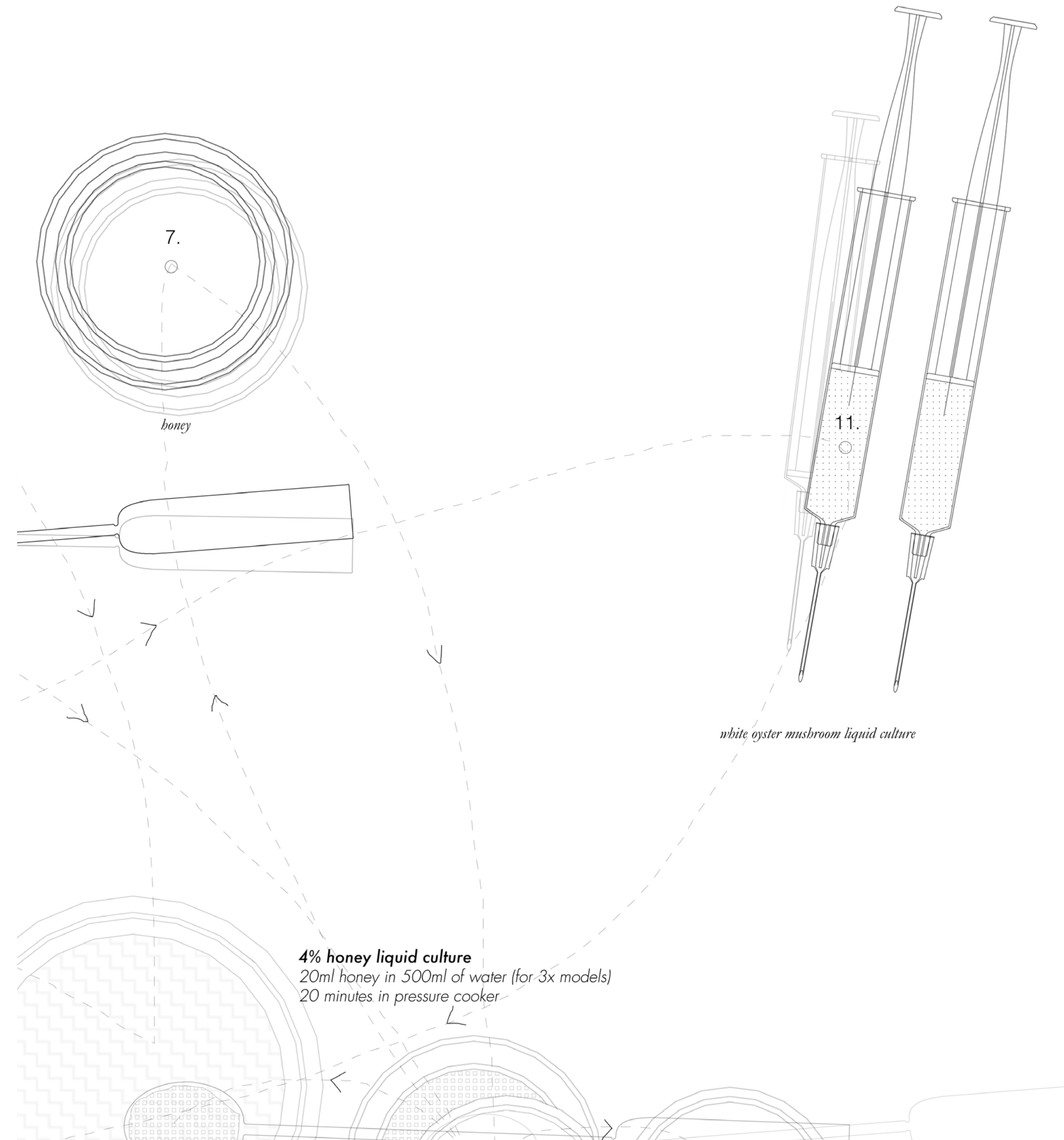
# MILISWA NDZIBA

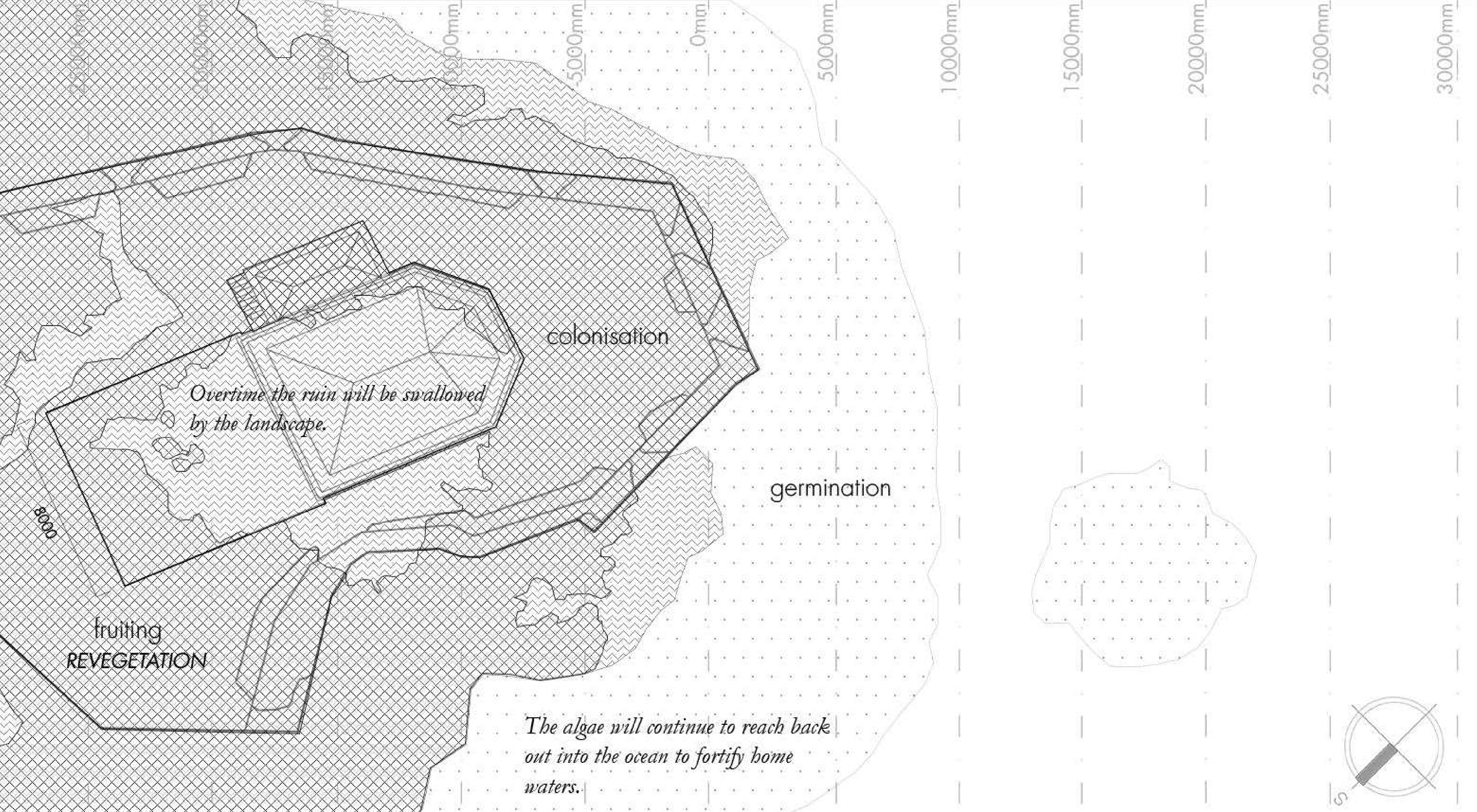
## Forts of Sand: Reimagining the Aesthetics of Demolition through Worldbuilding

2022

Mycelium, honey liquid culture, cement, brown rice flour, psyllium husk or grass

Dimensions variable





My bioart practice is a collaboration with scientists, engineers and other experts, where I draw on their technical knowledge to create my works. For me, this has blurred the boundaries between art, science and technology, and has become a powerful tool in the worldbuilding, mythmaking and projecting of alternate paradigms that form the core of my work. It has also helped me make better sense of the relationships between humans and biology.

Because my practice is experimental and rooted in child-play, I am constantly uncovering new ways of seeing. It is incredibly exciting, as I am finding immense value and relevance of analogue modelling processes in storytelling, even within a digital age. Child-play-as-analogue-modelling is a worldbuilding practice, which means that it sits at the intersection of world design and storytelling. While I would not say that I have an art practice, I am intentional in creating an architectural practice that is accessible. I am making sense of what it means for my work, which is inherently a spatial enquiry, to be read alongside the work of artists.

\*

My project on the exhibition SYM | BIO | ART began with the findings of the archeological research of the Slave Wrecks Project that used spatial inquiry methods to map the site and site conditions of the *São José* shipwreck on the ocean floor off the coast of Clifton Fourth Beach, Cape Town. While most of the wreckage of the ship had been lost to time, the archeologists used historical archives to identify it from artefacts found on-site. I attempted to fill in gaps in the archive through child-play-as-analogue-modelling. I used this data as the starting point for my methodology of sand play and performance in order to visualise the conditions of the *São José-Paquete de Africa* shipwreck and its cargo of drowned Mozambiquan slave children. I then introduced mycelium – an analogue for algae found in the ocean – to the ecosystem I created. Through eutrophication, the remains of the drowned slave children transform through metaphoric materialism into an algal/mycelium bloom that, in turn, drifts from Cape Town to Mozambique, returning to end its journey with the colonisation of the Nossa Senhora de Baluarte chapel on the Island of Mozambique. In effect, then, my work is a bioart map-as-metaphor for a proposed fourth passage of the slave trade that takes the children back home to their final resting place in Mozambique. My work on the exhibition is the modelling of this process.

The Chapel of Nossa de Baluarte is protected both from demolition and the natural process of decay, and is required by the Law of the Protection of the Mozambican Cultural Patrimony (Law No. 10/88) to be secured and maintained. The protection of this and other such colonial structures become part of colonialism's fortifying, territorialising and dispossessing paradigm. Thus, the colonisation of the ruin by algae, which is fantasised as it returns to the earth, dissolving, vanishing back into the landscape upon which it was placed, might also be a subversion of the mastery of nature agenda in western culture.

My work challenges preservation laws, defying what it means to preserve colonial structures. I propose that the preservation of colonial structures is also the preservation of this colonial paradigm in which we still live. I thus make a case for the natural degradation of these buildings, where the buildings are transformed into generative landscapes, where they begin to melt back into the landscape, and then provide ground for alternate paradigms to be ushered in.

Despite the fact that my work sits in fabulation, it provides avenues for real-life application, such as the use of alternative building materials to make an architecture that can melt back into the landscape. In addition to questioning what it means to make buildings, I also explore new ways of modelling spatial conditions, particularly those that are a result of natural events. As a design, my work also proposes a myth, owing to how it works together with existing social beliefs to produce alternate versions of reality (and the future) that are powerful enough to override the current present. I would like the audience to walk away with the knowledge that there are alternate worlds waiting to be revealed.





# NATHANIEL STERN

## The Wall After Us

2020 (re-produced in 2023)

Electronic waste and botanical installation

Dimensions variable



I have a very inclusive definition of bioart – or any category of art for that matter – since I’m more interested in the value of a given work than its label. That said, for me, bioart includes any work that avowedly encompasses the use of, and/or conceptual-material engagement with, biological forms. I tend to think of myself as in the broader ecological arts realm, in that I fold in a cross-section of influences and forces across humans, natures and politics.

Actual experimentation with biological forms has been very slow for artists, with bursts in the 1970s around environmental art, in the 1990s with genetics from artists like Eduardo Kac, and finally with a huge boost from the Tissue Art and Culture Project in Australia in the 2000s. I believe we will continue to see new (but short) bursts of pioneering work, likely moving into forms of natural intelligence and ‘computing’ possibilities via networked life and non-life (mycelium as an example of the former; quantum computing for the latter). I would love to see bioart as a focal point in a university setting, especially where ethics and politics, ecological systems and scientific approaches are all taught.

The relevance of bioart on the African continent ranges from a critique of historical and current racism to experimental farming (both livestock and plant-based), to artificial intelligence (AI) algorithms that might simulate weather, wave patterns, or evolutionary predictions, as well as affective work that looks towards climate change problems and solutions. It has to be acknowledged that so much of the raw material needed for our technologies comes from hugely problematic spaces on the African continent, devastated by contemporary capitalism, alongside international/institutional racism and classism. Bioart is an extremely fertile space for cultural and political, scientific and artistic potential, in particular at the point where their possibilities intersect in ways we cannot yet see.

\*

Generally, my work is and always has been engaged with the question of how art amplifies science and vice versa. I do not think of myself as a cutting-edge technologist using only the newest forms of technology; rather, I push at the boundaries of new science just as its discourse hits the mainstream. Here, my goal is to complexify and nuance those conversations, bring creative possibilities to the fore and critically optimistic understandings of potential to broader audiences. In my next major show, I plan to do this with AI, including, but not limited to, large language models and ‘small data’ training.

Metaphorically speaking, I am fascinated by biomimicry as a form of creative thinking and so, right now, ecological forces and AI seem like a ‘natural’ progression in which to play. I love toying with conceptual-material formations: how does one ‘feel’ what one doesn’t ‘know’ and where might that lead to? I have always moved between affection and reflection, between what we *see* and *feel*, and what that *implies* (both socially and scientifically). And the work I choose to dedicate my time to is centered around three questions: What do I get to work on? Who do I get to work with? What impact could it have?

This background and approach have led me to explore how we experience ourselves and each other, electronic waste, or AI’s implications. But it also has me working in the social sciences, exploring how creative technologies can grow community for neurodiverse individuals; in the climate action sector, putting AI, Blockchain and everyday sensors to use so as to increase carbon removal possibilities by threefold; in the battery industry, looking for safer and easier ways to obtain materials for rechargables, and so on. I am often artful in my approaches to science (materially experimental in ways that lead to novelty), and scientific in my approaches to art (collaborating with scientists and doing advanced engineering so as to dig deep into a given subject area for my work). At the University of Wisconsin-

Milwaukee, where I am Professor, I teach across three departments: Art and Design in Peck School of the Arts, Mechanical Engineering in the College of Engineering and Applied Science, and the Lubar Entrepreneurship Center. I like to say I teach artists how to engineer, engineers how to art and everyone how to sustain their passions (which is how I define entrepreneurship).

\*

The piece that I’ve installed at the University of Johannesburg (UJ) is from a larger exhibition titled *The World After Us*.

I started growing plants out of computers or phones. I started artificially aging electronics and scientific equipment to see how they might fossilise. I started wondering how life might regrow and spread, but also how the electronics themselves might thrive; how they might become homes or habitats in a kind of cohabitation with plant life.

The installation at UJ is titled *The Wall After Us*. It’s a large-scale piece that’s meant to have us affectively feel our electronic waste and what it might become. The work is made – to scale for any given space – of phones laptops, monitors and electronics that are no longer useful to us, creeping and climbing up the walls alongside plant life, cables, tape and similar materials, to create this kind of cyber natural space. The work looks at the science associated with electronic waste and makes it ‘personal’.

Here I try to engage audiences across intimate, systemic and inspirational levels. For example, an intimate question might be: What would happen if everyone in the world kept their mobile phones for just one more year? What difference might that make? A systemic question is: Can we regulate waste – from both mining *for* and production/ waste *from* electronics – in the same ways we regulate food and health? One inspirational engagement may be: Can students and young professionals find new pathways of ecological impact in their fields that we have not yet thought of? So, to be able to actually encounter this work physically at a larger than human scale, and feel it, might have us act or behave differently.

I am trying to get us to encounter how we understand ecological systems and our places within it. What the Anthropocene – the human being at the centre of it, the impact on the earth – might actually mean when we take into account our non/human partners in this space, because for all time we have always thought that we are the centre of the planet, and now that we finally are the centre of a planet, we are also finally starting to think about our cohabitants.

I often get asked: Do the plants suffer if I’m growing them in soil with computers? Might there be contaminants that get into the plants? On the one hand, they sort of do, and I would not necessarily eat them. But, on the other hand, the plants actually clean the soil. Electronic waste might be the perfect nook or cranny for certain kinds of smaller life to thrive. On the one hand, I want us to think ethically and responsibly about how we dig up the materials we need to make our electronics, and how we then throw them out. On the other hand, I do not want us to forget the agency that our partners here have, and I want us to think about what else we might become together.

I hesitate to frame my work as ‘postapocalyptic’ – firstly, because I’m hopeful. I believe life will certainly find a way (plants can turn our waste into thriving habitats), but I also want us humans to find *our* way. I want us not to complain about what is coming, but to change our ways. Second, we tend to think of ‘the apocalypse’ as event driven. Either fire and brimstone, or zombies, or a virus, or nuclear Armageddon. But as a society, we are generally better at

responding to immediate needs and tend to outsource long-term problems to our future selves. The changes we have been making to the planet have been like boiling a frog: a slow and steady rise in temperature that can seem normal enough ... and by the time we do something about it, it may be too late. We need to think differently here.

I would like to see three things:

1. More international legal involvement, including regulating the mining of raw materials and what we throw out, and opening up export and import law for used electronics across borders.
2. Precious metals turned into a circular economy. There are regular innovations around extracting our needed materials from not only mining or used electronics, but also waste from other fields.
3. Bigger moves in the energy sector. The most wicked problem we have right now, in my opinion, is climate change via human-made greenhouse gases. And there are two main factors we need to concentrate on in the energy sector: production and storage. Regarding production, I have become pro-nuclear as of late, knowing that we cannot move to green energy fast enough to keep up with our consumption. In terms of storage, there are safer, cleaner and less supply chain-taxing technologies than lithium ion. I want to see more investment there.

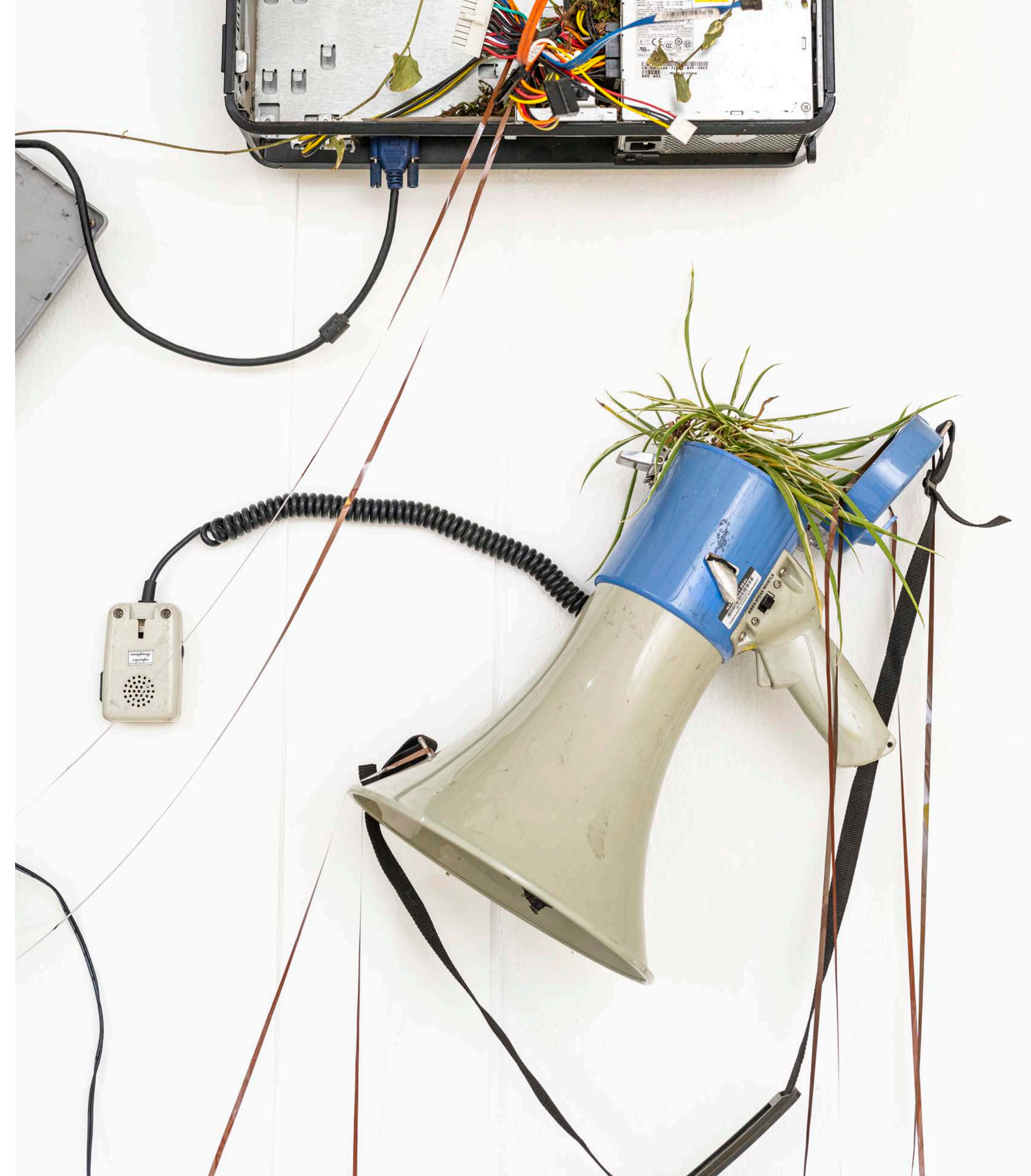
There is very little separating the technical, material and conceptual aspects of my work. Artists already productively confuse *materials*, *technologies* and *disciplines*. To the practitioner, paint is all three of those things. Metal is all three of those things. Ink is all three of those things. Printmakers *think in ink*. They choose the technology, material and discipline (the plate and how to make it, the medium, the press, etc.) as much as the plate (or whatever) influences their work, and they understand why and how that will happen as they work, play and tease something out through years of *practice*. Like any artist, my digital and bioart ideas can start conceptually, or by playing with a new medium or form, or in conversation, or via a new technology, and these come together (and tear apart) across the stitches of conceptual-material-technical fabrics.

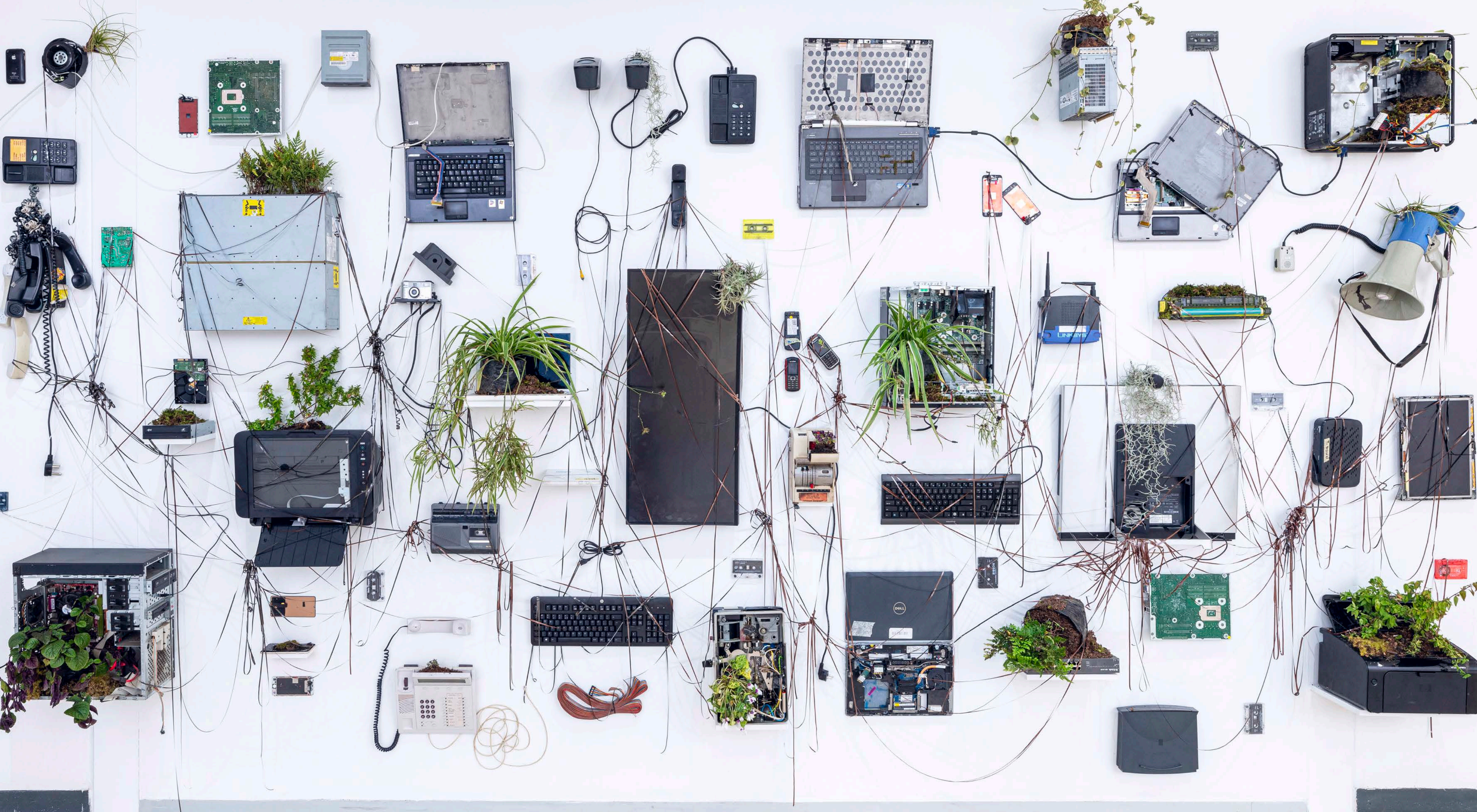
The plants seep and infest, root and grow 'out of order'. And so does our waste and the technologies around them. So do we and our influences. Concepts and things, life and not-yet-things, they are all *radically radican*t in their continuity and breakages, infectious to, and inflecting on, all that is: I am going to start using this term now.

\*

*The World After Us* was inspired by the writer Alan Weisman's book *The World Without Us*,<sup>1</sup> where he asks the question: If all humans were to disappear tomorrow, instantly, how long would it take for non/human life, or even non/human matter, to reclaim the planet? The answer turns out to be not very long at all. I started asking this question aesthetically, specifically in relation to electronics and electronic waste. But instead of thinking about it from a post-apocalyptic vision, I wondered whether there might be a kind of cyber-natural echo system where each one thrives.

<sup>1</sup> Weisman, A. 2007. *The World Without Us*. New York: Thomas Dunne/St. Martin's.







# NELISIWE XABA

## **vRot – MOULD, DECAY & THE STATE OF THE NATION**

2023

Performance with cling-wrap plastic, mirrored floor, woven fabric and beads, food and drink, ASMR by Joshua Brayton Arnold

Duration and dimensions variable





As an artist whose medium is dance, my training is physically demanding – it involves flexibility and cardio training. My work is also conceptual. My focus is on concept rather than choreography, as this allows me to explore new territories.

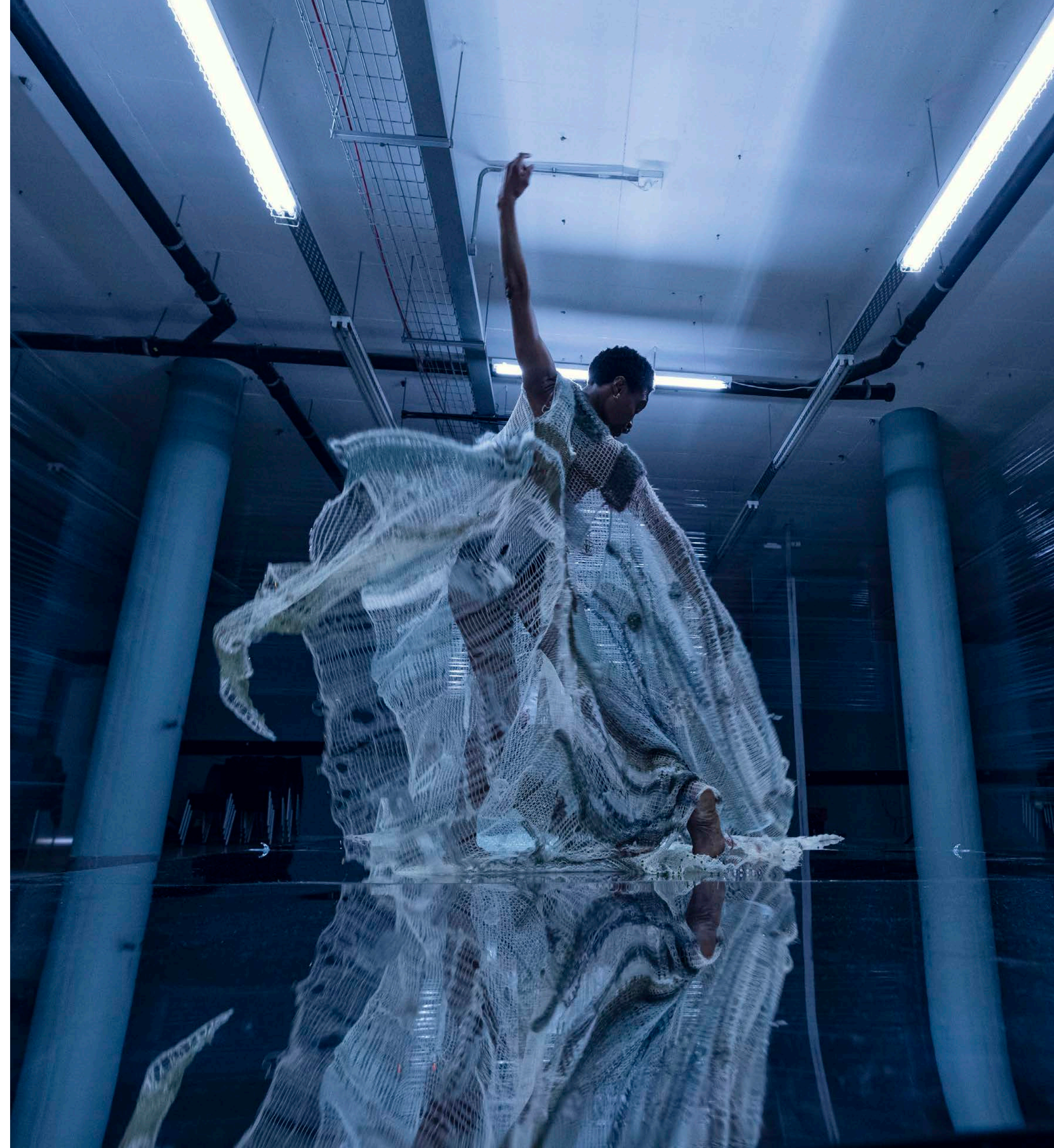
When I was commissioned to create a work for the SYM | BIO | ART exhibition, I was intrigued by the challenge of the unknown. I began conducting research and I was introduced to Záá Delair, one of the senior scientists at the Water and Health Research Centre at the University of Johannesburg. We had conversations about the biological form that is mould. I then started experimenting with the processes of moulding using staple home ingredients such as bread, fruit and vegetables. I was fascinated with the process of growing mould in my kitchen and watching its metamorphosis from invisible to visible and then to ubiquitous. Its evolution in terms of colour, texture, patterns and odour served as further inspiration.

For my new work, titled *vRot*,<sup>1</sup> I wanted to integrate textile and mould, and the most practical way to do this was to make a knitted blanket. I collaborated with Hannelie Baker, a knitwear designer and owner of Wrapt Knitwear, who knitted individual pieces that we layered with mohair, as well as different types of cotton and beads, to add depth and weight.

Sound is always a difficult element to add, especially for a conceptual live show with elements of improvisation. I had worked with Joshua Brayton Arnold in one of my earlier projects, so I asked him to collaborate with me in *vRot*. I invited him to join me on stage and create autonomous sensory meridian responses (ASMR) during the performance. We placed two microphones on top of a lightbox table to amplify the sounds of Joshua eating fast foods and drinking alcoholic beverages. We also displayed toy sports cars in reference to the entrepreneur lifestyle. In effect, I used ASMR to put corruption and greed under the microscope.

Although we, as South Africans, like to point fingers at our government, corruption is actually a societal issue. The government is an institution run by civil servants who form part of our society, and this society is made up of you and me. Like the moulding process, corruption starts small and it grows. By bribing a traffic officer, for example, one becomes an enabler. It is not only the government that's rotten. When one scratches deep down, we are a society that still has to accept our own rot.

<sup>1</sup> *vRot* premiered on Women's Day, 9 August 2023, at the FADA Building, University of Johannesburg





Catalogue for the exhibition held at FADA Gallery, 20 July – 19 August 2023, University of Johannesburg  
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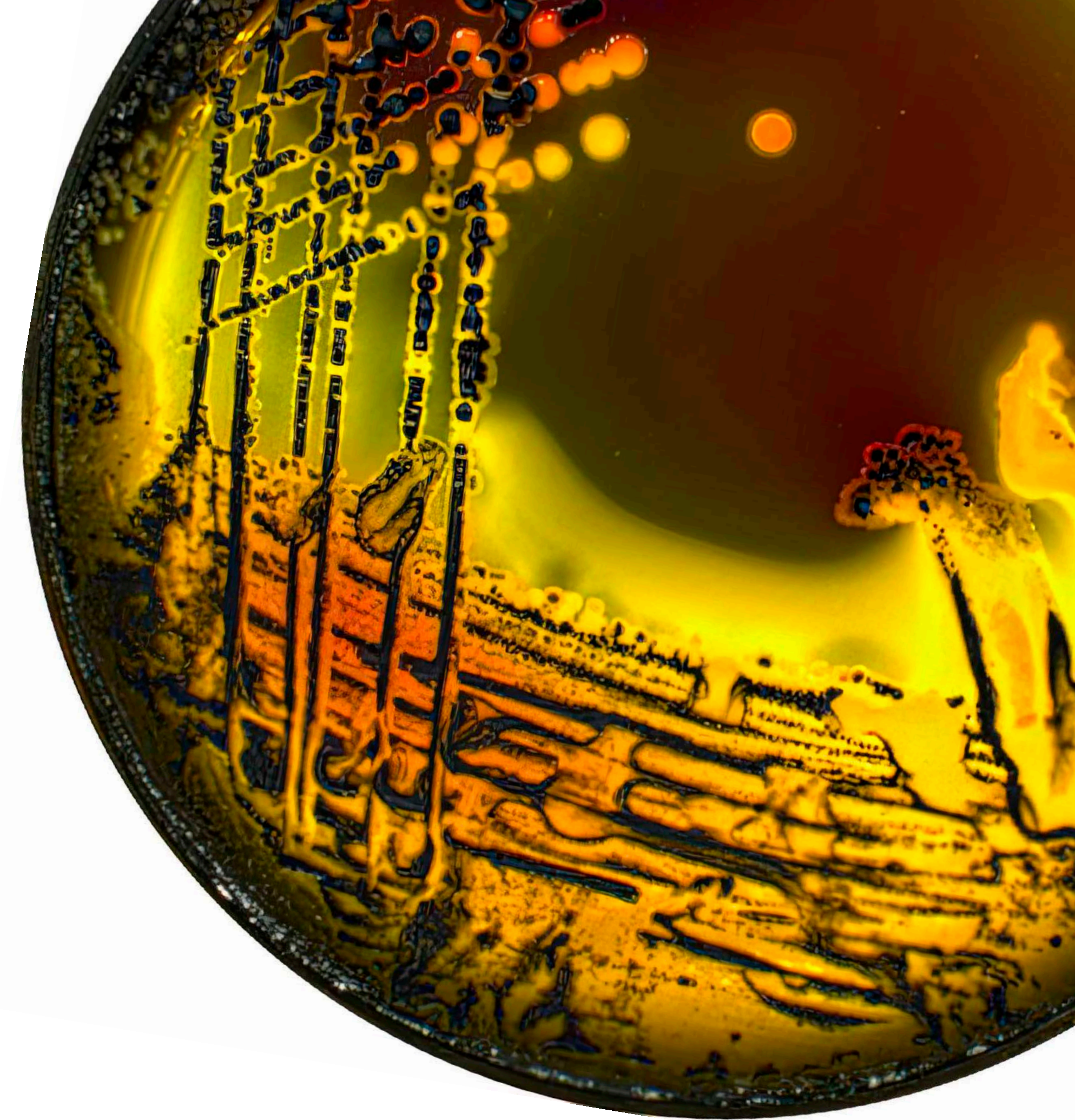
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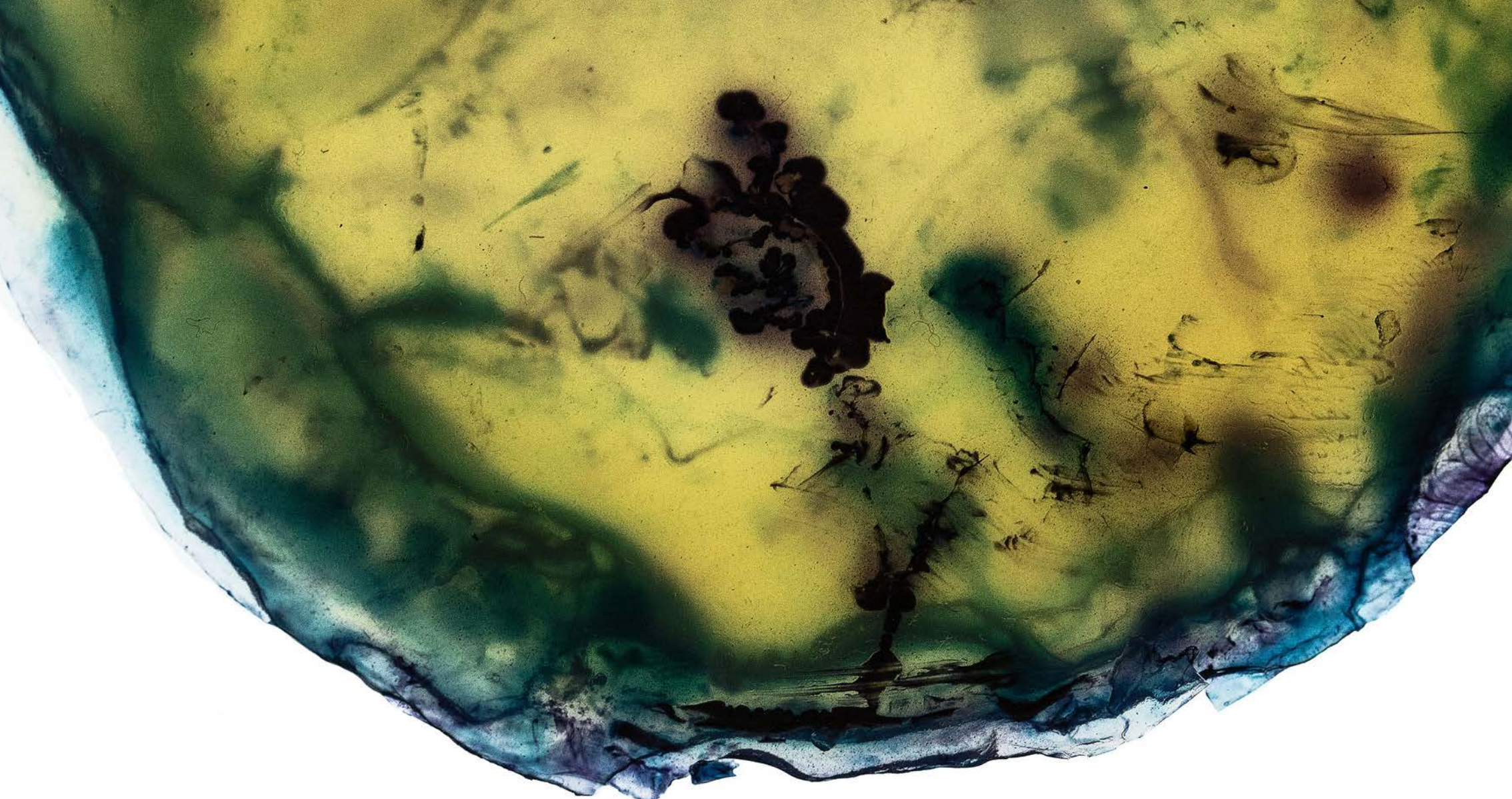
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