Becoming Plant: a supplement to Roger Caillois' compendium of 'le fantastique naturel'

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vegetal entanglements

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THE JOURNAL OF NATURE IN VISUAL CULTURE
edited by Giovanni Aloi

Antennae (founded in 2006) is the international, peer reviewed, academic journal on the subject of nature in contemporary art. Its format and contents are inspired by the concepts of 'knowledge transfer' and 'widening participation'. Three times a year, the Journal brings academic knowledge within a broader arena, one including practitioners and a readership that may not regularly engage in academic discussion. Ultimately, *Antennae* encourages communication and crossovers of knowledge amongst artists, scientists, scholars, activists, curators, and students. In January 2009, the establishment of *Antennae*'s Senior Academic Board, Advisory Board, and Network of Global Contributors has affirmed the journal as an indispensable research tool for the subject of environmental and nature studies. Contact the Editor in Chief at: antennaeproject@gmail.com Visit our website for more info and past issues: www.antennae.org.uk

Front and back cover: Raksha Patel, *Myrtle,* and *Rose*, Acrylic on canvas, 2014 © Raksha Patel

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Right: Cole Swanson
The Hissing Folly, Invasive phragmites, wood, and sound installation, 2020, © Visual Arts Centre of Clarington

editorial

Giovanni Aloi

Many articles published in the wake of Lois Weinberger's death in April 2020, shared a recurring motif. Commentators would often, implicitly default on an anthropocentric hermeneutical register to address his work. As it was expected, the majority of texts mentioned his memorable dOCUMENTA X (1997) installation *Das über die Pflanzen/ist eins mit Ihnen (What is Beyond the Plants / Is at One with Them)*, an open-air biotope in which the artist mixed native vegetation with neophytes in the gravel bed of the decommissioned Track 1 at Kassel's Kulturbahnhof train station. While commentators were right to read the work as a metaphor for social relations—plants as immigrants—they regularly bypassed the vegetal register of the work, as if the plants Weinberger worked with were images rather than living beings.

There is no doubt that Weinberger's work deliberately lends itself to multiple interpretations. His desire to often express himself through poetry and to acknowledge, and yet maintain creative freedom in the context of, scientific certitude evidences his underlaying rebellious attitude. But I argue that works of art featuring living plants demand different hermeneutical approaches in which the living must come first in order to bypass the objectifying tropes that have characterized the anthropocentrism of Western approaches.

As it is well known, the history of plant representation in art is fraught and complex — it is a history of omissions and objectification, of aestheticization and oblivion. Relegated to the bottom ranks of artistic genres since the 17th century, plants still struggle to be taken seriously in art today. In 1997, when this work was made they were mostly considered marginal. In this sense, Weinberger was a true pioneer because his work with plants put plants first.

If instead of rushing to read Weinberger's plants as immigrants we prioritize plants as living organisms, the interpretation of *Das über die Pflanzen/ist eins mit Ihnen* more directly gestures towards rewilding practices like that heralded by Alan Sonfist's *Time Landscape* (1965). Sonfist's urban oasis was devised as a fragment of native forest reinstated right in the heart of New York City. Today, *Time Landscape* simultaneously stands as a pre-colonial, living monument and a shelter for local wildlife. Works such as these, are political in essence. Simply put, everything Weinberger did was implicitly political because plants are essentially political-living-beings. At times, their agency is harboured in what is perceived to be their weakness: sessility. Because they are intrinsically inseparable from the land upon which they grow—in itself a conflicted site—plants are always symbolically complex beyond their species of membership. Plants' political charge also emerges in part from their physical persistence and material recalcitrance. The plants growing among the pebbles of Weinberger's reclaimed train tracks are much more than a simple metaphor for immigration. They are manifestations of what I call "vegetal realism" – the ability of a plant to resist symbolic imposition and to retain some kind of semantic independence from metaphorical registers. As it is known, their laconic essence so well lends itself to our ventriloquizing cultural games.

Plants that grow across train tracks exist first and foremost as a statement of ecological/vegetal rights. They exist where they should have rightly existed all along. In the case of *Das über die Pflanzen/ist eins mit Ihnen,* they are allowed by Weinberger to reclaim the built environment. Like in Sonfist's *Time Landscape*, they challenge our conception of the urban environment, derail obsolete nature/culture divides, and provide the opportunity for a localized biosystem to instate itself where that would have previously been impossible.

Of course, Weinberger's mix of native vegetation with neophytes is a deliberate provocation charged with symbolic layers too. The non-native species can symbolically be understood to stand in for migrants—this is clear. But the all-important message delivered by the work is that plants simply don't care about our conceptions of nativeness and that they are not concerned with geographical borders either. Positioned in a high-pedestrian traffic area, *Das über die Pflanzen/ist eins mit Ihnen* can also make us curious about the species Weinberger chose and how they can adapt to live in the setup devised by the artist. Which pollinators or other animals have incorporated these 100 meters stretch of tracks in their umwelts? How are these plants going to change throughout the seasons? Is there an opportunity to standardize this type of intervention in order to integrate "wild meadows" in other public spaces?

Our hermeneutical efforts should not totalize livingness since this ultimately is the essence of works of art like these. There is something intrinsically myopic in approaches that methodologically skipping over it. In so doing, we leave the non-human behind, flattened into an image. However, symbolism is not wholly bad, and we should certainly not demonize it outright. We should learn not to rush to it and to assume that symbolism alone holds the main interpretative key to the work of art.

The symbolic register of a work of art involving plants will always be the easiest handle we can pull to open hermeneutical doors. We have been programmed by art history professors, books, cura-tors, and institutions to reach for it. It's part of a game of affirmation in which we can easily find the keys to knowledge. But the symbolic register always brings us back to us, our presumed exceptional-ism, our fictitious finitude.

Weinberger's poetic writing essentially aimed at disrupting meaning just enough to pry open a space through which weeds could grow. Well-tightened, carefully knitted, sentences leave no room for that opportunity to arise as far as the non-human is concerned. Weinberger's texts are very much like the pebbles surrounding the tracks in *Das über die P lanzen/ist eins mit Ihnen*. They offset the liner smoothness of the tracks, which only allow for rectilinear movement back and forth, with myriad opportunities for organic randomness. This is one of the most important lessons we can derive from Weinberger's body of work. His legacy has already become visible in the way it has changed the way we think about art and its potential to produce more sustainable futures.

The contributions gathered in the third installment of *Vegetal Entanglements*—a tryptic entirely dedicated to plants in art and culture—focus on the inextricable, actual, and metaphorical links that bind plants, ecosystems, and humans. In this issue, the interconnectedness that characterizes plant life is explored through a variety of media and approaches designed to foreground vegetal alterity. What role does anthropomorphism play in human-plant relations? How can we approach plant alterity in ways that bypass objectification? How can plants help us build fairer and more sustainable futures? These and many more questions are addressed in this issue.

As always, I'd like to thank everyone involved in making this issue—from the wonderful contributors to those who generously lent their time to peer review, proofread, and assisted along the way. This issue of *Antennae* is dedicated to Lois (1947-2020).

Giovanni Aloi
Editor in Chief of AntennaeProject

Overleaf: Lois Weinberger, Beitrag zur dOCUMENTA X, 1997: *Das über Pflanzen / ist eins mit ihnen.*
photo: Eigenes Werk © Archive Lois Weinberger


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Lois Weinberger
Area Vienna, 1988-1999
Black and white photographical work, ed. 5, 125 x 150 cm © Archive Lois Weinberger

Lois Weinberger: Fieldwork

At the center of Lois Weinberger's work is the idea of a garden as a "perfect temporary territory" in marginal areas. Their focus has always been on biodiversity and the interaction between the binding forces of cultural growth and nature. In their images, texts, objects, slides, video installations and site-specific works, the Weinbergers have created a universe that is both incidental and poetic. Their exhibitions and projects have been exhibitied out in the most important museums and institutions in the world. The text that follows is a transcirption of a previously unpublished talk delivered by Franziska Weinberger in 2005 at the Accademia di Architettura, Mendrisio, Switzerland.

text by **Franziska Weinberger**

images by **Lois Weinberger**

First of all, I would like to present a project that was started in 1988 and came to an end in 1999: the garden in Vienna that Lois Weinberger entitled *Area.* In 1988, Weinberger began working on a piece of land 500 metres square, located in the city, with forsythia and arborvitae growing on it. To achieve a certain degree of botanical variety, he removed the trees and shrubs that were growing, there, because in such shady conditions it would have been impossible to create the garden he had in mind. Then he tilled the soil, adding masonry debris, gravel, and clay.

This poor soil recreated the conditions in which plants grow in eastern Austria, the region of Pannonia. Wherever plants did not spring up autonomously on this prepared ground - in this case, we could call it second-hand nature - in years of steady work, he went to collect the scarce vegetation of the roadsides or pebbly slopes outside Vienna, perfectly suited to the kind of soil in the garden. The development of the *Area* project was accompanied by an in-depth examination of the contemporary concept of nature, which Lois dealt with in all its cultural, natural, philosophical, political, and poetic implications.

In the early 1970s, for example, American scientists found that trees must be removed to give many shorter plants room to live. Also, Lois started in the 1970s with ethnopoetical works, which are still the basics for a development over some decades – concerning standard social behaviour in both natural space and that of civilisation. From *Michel Leiris's The Eye of the Ethnograph* to Hubert Fichte's *The House of Mina in Sao Luiz de Maranhao,* ethnology, botany, culture studies, and philosophy were important for him.

A thick mantle of vegetation sprang up in this garden, which Lois then thinned out to make room for new vegetation, bringing in rare species that reproduced themselves here in areas where they had disappeared through human intervention. The area was a cell - a reservoir - and a dispenser.

This process of drawing on nature to then give back to nature takes place in spaces that do not specifically belong to us and is therefore tantamount to a temporary appropriation. A path is outlined that leads from insecurity to apparent security and then back to insecurity.

To quote Lois:

> "I also see these transferals as poetically political actions / why not a poetic policy/ if poetry is seen as a branching of different planes / as a concentration from which new shoots can sprout. At the margins / we mobilize nature towards specialization / to fill our gaps / who doesn't know the plants that sprout from the rubble of buildings / and who doesn't know that nature / loses abstraction through our work and that plants are given a name / the wilderness progresses / so to speak - the wilderness is progressive - among other things / my work with gardens is a reminder of these necessary free spaces".

And further: "If the garden / the study of visible and invisible nature can be considered / a space for the most varied reflections / on finding and seeking / transformation and death / beauty and its opposite / from a standpoint close to nature and from one as far removed as the lost paradise / then this closure refers to both interchangeability with any one of the systems around us and at the same time / to an opening in the direction of a micro-subdivision / looking at another level of the field / whose connections seem less clearly determined".

I spoke earlier of abandoning gardens, and this abandonment is a basic principle of Lois' work: on the one hand, the terrain in Vienna, which over eleven years had become a garden with botanical rarities in it, was dismantled in 1999, due to renovation work made necessary by the sale of our studio on the outskirts of Vienna and approved by Lois / on the other, this abandonment of the garden refers to something that goes beyond it.

Lois Weinberger
Area external, 1994
color print, ed. 5, 100 x 70 cm

Connections that divide us from nature - the constructions / that language builds up beyond nature's capacity for self – development / must be taken as aesthetic / when the network of applied culture / captures the unifying element / and restores it

The experience of nature to be found in this area has nothing to do with an uplifting flight into the Garden of Eden, it is not an ideal and allegorical landscape as in Classicism and Romanticism, it is not a place of nostalgia and consolation, onto which man can constantly project his own image. Nature in the post-industrial era is a second-degree nature, a nature that comes after culture and after history / the *dopo storia*, as Pasolini calls it in his writings from the 1970s - vacant lots, garbage dumps, etc.

In 1994/95, Lois spends a year in Berlin, where a grant from the Künstlerhaus Bethanien allows him to explore Berlin in the literal sense, that is, to walk around the city. With its many construction sites and torn-up streets, Berlin is the perfect place for his poetic and political investigations, which become more and more intense.

The great photographic works of Marzahn are created here, and what is now a historic photo in front of the Brandenburg Gate, where the "death strip" used to be, covered over some weeks after we took this photo, and where the *Holocaust Monument* we so often hear discussed was built.

In Berlin, he is also visited by Catherine David, who invites him to the dOCUMENTA which I would like to mention briefly: during our first visit to Kassel, Lois sees the abandoned tracks at the Kulturbahnhof and immediately decides to use them for his garden - the preparatory work at his Vienna garden lasts two years, and he adds plants from Southern and Southeastern Europe to those already present. To quote Lois: "Connections that divide us from nature - the constructions / that language builds up beyond nature's capacity for self – development / must be taken as aesthetic / when the network of applied culture / captures the unifying element / and restores it", or, "and yet it must be possible / to dedicate oneself to botany in the sense / that everything that grows from us could be seen as native and familiar."

Here as well, there is a political dimension that refers to the migratory processes of our time, seen in and through the cultural history and migration of plants, including their misuse for political purposes. As for the specific plants that Lois has used in his projects, one should note that these are plants that grow in the rubble of abandoned areas, preferring infertile soil and terrains in constant transformation. They survive in places that are constantly exposed to the comings and goings of people and vehicles.

They are, so to speak, the "underdogs" of the plant world, commonly referred to as "weeds", but upon careful observation, they prove to be highly specialized, and Lois has treated them with a "scrupulous lack of attention".

This "scrupulous lack of attention" is a founding principle of his artistic method -"the fringes of perception as reservoirs for events". It is always a question of taking something that already exists, after observation and careful analysis of the environment, always focused on what is usually ignored. In the same way, for Lois, there has never been an issue about using one medium rather than another: texts, drawings, sculptures, objects, installations, films, and photographs are all put on an equal footing.

Berlin also sees the genesis of the work that he, a few years later, will title *Drift* - the reproduction of completely empty city streets and landscapes, into which terms are inserted. These are initially names of plants unfettered from their botanical meaning, a sort of etymological investigation carried out with the awareness that it will never reach the origin.

Terms are inserted within the network of urban and rural areas, and an open space springs up around them where the reader's various associations are also free to develop. It is the exploration of reality through language. The terms are rooted in the city's structure in an autonomous, precise way, but at the same time, they are related parts of a complex overall situation - the territories, with their nature of things, of thinking, of desiring, of feeling, of speaking, of walking, etc. The city and the country penetrate each other,

Lois Weinberger
Brandenburger Tor, 1994
black and white photographical work, 150 x 125 cm, ed. 5
pp.20-21 *Garden Archive,* 1988 – 1999. 624 slides in plexiglass boxes, lightbox table
285 x 62 x 70 cm
Detail


1990
LIGULARÉ
PAN.
WOLLDISTEL 99


NEO PHOTO 6x6
91
LOIS WEINBERGER 2
1990 A

Lois Weinberger

Garden, 1997, newspaper, plant, plastic container, 53 x 38 x 12 cm © Archive Lois Weinberger

or rather push their way into each other. So the outskirts of the city are its center, the boundaries between center and fringes blend together.

In one of Tokyo's central neighbourhoods is the Watarl-Um Museum of Contemporary Art, which invited Lois to carry out a project there. The curators wanted a garden in the area around the museum, but a preliminary inspection showed that there were no free spaces of ground larger than a square metre. Lois decided to move the garden to the roof of the museum, a building designed by Mario Botta.

The Watarl-Um project went ahead for over a year as a collaborative endeavor: interest in the workshop was so great that for days we had to work with three groups of 20-30 people, as well as 50 children. A small garden was also created with the children at their kindergarten. We found it incredible that some children had an aversion to dirt: they had never touched it before. For over a year Lois received the reports and photos of the new area, so he was able to keep track of its development. The correspondence only apparently served a practical purpose: he was not able to read the mail from Japan and he didn't even have it translated. In keeping with Roland Barthes's reasoning in *Empire of Signs*, Lois didn't use a translation to try to vanquish and overcome distance, he tried to overcome "the possibility of a difference". He was interested in creating an image of Japan of which we ourselves would be the first observers.

The garden still exists and is more or less left to its own devices. New plants have taken root in the surrounding areas, and the "illegally" introduced seeds are scattered over the rooftops of Tokyo by birds and by the wind. "Immigration happens in one way or another / it's a question of making contact with what is foreign."

Now I would like to talk briefly about another project, such as *Garden - a poetic field study* at the University of Social and Economic Science at Innsbruck, a project centered on a building, and an important piece for Lois because it is a permanent installation and we can observe its development for years. One will intentionally start with the inside and not the part visible from the outside, the enclosure, striking as it may be. It is conceived as a frame, both an inclusion and an exclusion, designed for a gap in the space of the city, the gaps that go along with our urban development efforts.

"Gardens of the abandoned variety meet today's urgent needs / the observation of caesuras / connections and their vibrations / seeing the garden as a sign of voluntary renunciation / tranquillity / non- intervention".

We had to stand one year of demonstrations, people were afraid of the wilderness. From wild growing plants – some times later an environmental activist asked us if he could live in the enclosure for a month – he installed his housing with biological toilet, bed, kitchen, etc. One day, the mayor of Innsbruck passed by and he shouted to the activist: "What are you doing here, you are destroying the artwork". Meanwhile, the enclosure changed to an important point in the touristic city of Innsbruck.

Lois writes in the early 1990s:

> "Abandoning a place in favour of the margins / that appear as new planes / where even questions are transcended / if a plant truly grown / in the context of nature / is different from one that is made. There are no solutions in worn out natural processes / except / making human beings disappear - the secret hope of many they call intimates of nature. And I think / that only here is there every kind of unity / even that of being at one with nature / buried / in death. Thus the evocation of nature / of uncontaminated nature / fades away with the closer we try to get to it. What remains for our description / are variations on the indifferent / the distant and the artificial".

Lois Weinberger (1947 - 2020) hs worked on a poetic-political network that draws our attention to marginal zones and questions hierarchies of various types. Lois saw himself as a field worker, embarked in the 1970s on ethno-poetic works that form the basis for his ongoing artistic investigations of natural and man-made spaces. Ruderal plants are initial and orientation point for notes, drawings, photographs, objects, texts, films as well as big projects in public spaces. His contribution has been significant to the recent discussion on art and nature since the early 1990's. www.loisweinberger.net

Katrin Petroschkat
UNUNKRAUT

Ununkraut *is an offline/online artwork and cyber-alchemical research on human-plant relations by Katrin Petroschkat. It focuses so called "weeds" and the human-plant relations that term entails. The work consists of a series of eight photographs, exhibited as an installation with built wooden structures, plant distillations videos, and a mobile app.* Ununkraut *researches human-plant co-making of worlds while challenging modes of imposing order and representation commonly found in the natural sciences.*

text and images by **Katrin Petroschkat**

Ununkraut is an offline/online artwork and cyber-alchemical research into human-plant relations. *Ununkraut* was produced for the exhibition *Networking the Unseen* curated by Gretta Louw at Villa Merkel in Esslingen/Germany in 2017/18 with support by the Villa Merkel Esslingen and Otto-Eckart-Stiftung. The work consists of a series of eight photographs in an installation setup accompanied by a mobile app.

The photographs are hung using shelf-like hyperstructures of different sizes. Shelves with printed information fragments hold a blend of distillations derived from the plants depicted in the wall pieces as well as videos of the distillation process. Accessing the mobile app ununkraut.net using an internet-ready device adds a sound layer to the experience of the installation as well as offering extended paths into the information realm.

The title *Ununkraut* refers to the German word for weeds "Unkraut", playfully doubling the negative prefix "un-" to question and counterbalance the negative connotation. "Unkraut" as well as "weeds" are terms used to describe non-cultivated and unappreciated plants, from a human perspective. But plants have histories and complex behaviours and relationships that are easily overlooked in taxonomical knowledge organization. Even though weeds accompany every plant cultivation effort, many going back to prehistoric times, they expanded immensely with the conquest of the so-called new world from the 15th century on, which catalysed a massive exchange of plants through man-made infrastructures and challenged existing taxonomies, as Pavord has pointed out.[1]

But the relations between humans and plants work in both directions. The stimuli plants react to are at many times not visible to humans; their use of human infrastructure is inadequately understood if imagined as passive and involuntarily, as Pollan describes.[2] The unappreciated growth of weeds that accompanies human history from agricultural development to urbanization is an expression of plant agency, mobility, and the ability to accompany human activities or even search human proximity to thrive.[3] Can human-plant co-making of worlds, which has been described by Livingstone as the development of human senses in reaction to given stimuli by the plants,[4] effectively result in the co-making of shared infrastructures? What are the epistemological and sensual modes in which human-plant relations take place?

For the project *Ununkraut* I was working with weeds in urban contexts. Cities produce a hyperspace of relations and connections but also gaps and liminal in-betweens essential for urban plant histories. The settlings of plants in cities or alongside industrial infrastructures and transportation networks show the mutuality of human-plant-relations. Urbanophil plants or *anthropophyta* are those who accompany the different steps of human activities, also those that are not associated with „greenness" or „nature".

To research this co-making of worlds I documented urban plant gatherings in three steps: I took a photo of the plant community, harvested some to produce distillations, and researched how the plant is being represented online, documenting human-plant relations as a link archive in a mobile app.

In order to allow conceptual space for plant agency and to challenge the methods of visual, physical, and epistemological approaches towards plants, as well as modes of ordering and representation commonly found in the natural sciences, I used the practice of plant gathering as a model for a specific and subjectively motivated epistemological practice.

My assumptions were:
• Every plant situation encountered is an expression of historical and developmental processes.
• My experience of the encounter is formed by visual and olfactory factors as well as my pre-existing knowledge.

Katrin Petroschkat

Ununkraut, mixed media, 2017 © Katrin Petroschkat

• As the observer I am part of a mutual relationship, long developed through evolution, that includes the direction of my attention through plants (as described by Livingston).[5]
• The practice of plant gathering can be a model for subjectively motivated, specific knowledge gathering.

These assumptions were applied to the visual, olfactory, and virtual layer of the work.

In regards to the visual layer, *Ununkraut* shows photography of groups of plants in urban contexts, documenting the individual plants, not as taxonomical representation of a species, but rather a scene of plant encounters as a specific historical moment. Reading the images requires letting the eye discern individual plants in the same way as when one is searching for or gathering wild plants.

The plant distillations offer another realm of possible relation to the plant. The approach via smell or taste is one of heightened emotional impact—smells are known to trigger memories as well as physical reactions of attraction or aversion. The approach to plants via smell or taste is fundamental to human-plant co-evolution and yet subjective, emotional, and situational.

Katrin Petroschkat

Ununkraut, mixed media, 2017 © Katrin Petroschkat

The plant odours presented with the photography are in each case a mélange of the plants depicted, further to the aim of breaking with the form of taxonomical order in favour of a very specific and irreproducible sensual stimulus.

The virtual layer of the work is the mobile app ununkraut.net: a two-dimensionally organized collection that links existing websites to the plant photographs. In the app the user is asked to choose a purposeful relation to the plant („Eat", „Kill", „Fear", „Follow") before being conducted to the external sites with corresponding information. The existing sites show fragmented plant knowledge, but also the distribution of plants online, that relates to plant-human world-makings.

Ununkraut is site specific and time specific. The distillates have a limited storage life of only one year, giving each version of the exhibited work a date of expiry. Even though the work can be repeated as a methodology, the instability of each version is an important aspect of *Ununkraut `s* rejection of encyclopedic enclosure.

Katrin Petroschkat

Ununkraut, mixed media, 2017 © Katrin Petroschkat

Endnotes

[1] Pavord, Anna, *The Naming of Names: The Search for Order in the World of Plant* (New York: Bloomsbury Publishing USA) 2005, p. 411

[2] Pollan, Michael, *The Botany of Desire: A Plant's-eye View of the World* (New York: Random house) 2002, pp. xvii-xx

[3] Di Castri, F.; Hansen, A.J. & Debussche, M., *Biological Invasions in Europe and the Mediterranean Basin* (Heidelberg: Springer) 1990, p. 52.

[4] Livingston, Ira, *Magic Science Religion*. (Leiden: Brill) 2018, p. 93

[5] Ibid, p. 31

Katrin Petroschkat is an artist and performer; after studying cultural sciences at Humboldt Universität in Berlin, she graduated from the Akademie der Bildenden Künste in Munich in 2015 and holds a PhD in Applied Studies of Culture and Art from Kunstuniversität Linz. Alongside numerous public performances, commissions, and exhibitions, her artwork has been shown at Lothringer13 Halle Munich, Design Museum Gent, Statens Museum for Kunst in Copenhagen and Villa Merkel in Esslingen, amongst others.

Alongside multiple studio subsidies and project fundings, Petroschkat was recipient of several prizes and scholarships including from Erwin und Gisela von Steiner-Stiftung, Kunstuniversität Linz, the City of Munich and Otto-Eckart-Stiftung.

The Flowerless Ones: A Vegetal/Human Encounter

Seeded with texts from both fiction and ecological science, a timeframe is constructed in which emergent plant life, in a domestic garden, is placed in counterpoint to the ending of a human life. Thus, this work experiments with a vegetal/human encounter formed using "moments of being" and "sense-data" as an entangled assemblage between a domestic garden and a man experiencing the last weeks of his life. This short text draws on modernist literary characteristics and specific artworks in an attempt to uproot ontological formations and certainties at the cusp of winter into spring and serve as a multi-species vignette on life, death, and notions of care.

text by **Dawn Sanders**

When is a self enough of a self that its boundaries become central to entire institutionalized discourses in medicine, war, and business? Immunity and invulnerability are intersecting concepts, a matter of consequence in a nuclear culture unable to accommodate the experience of death and finitude within the available liberal discourse on the collective and personal individual. Life is a window of vulnerability. It seems a mistake to close it.[1]

Drawing on texts sourced from both fiction and ecological science this work seeks to assemble a timeframe in which nascent plant life, in a domestic garden, is intertwined with the final weeks of a human individual. It is an attempt to re-situate mortality within an entanglement of human-house-garden-plant. Thus, this short essay is positioned in "moments of being"[2] at the cusp of winter becoming spring- a time of vulnerability – for both emergent plants and frail humans. It draws on modernist literary characteristics and uses them in the sense of encounter that Broglio speaks of; " there is no single unitary world, and no unified space or time; instead, time moves differently for each species"[3] in an attempt to "uproot ontological conceptions and with that, to rethink our certainties"[4] in the context of mortality and care.

In her essay 'Time Passes: Virginia Woolf, Post-Impressionism, and Cambridge Time', Ann Banfield describes aspects of Katherine Mansfield's writing as, "merely sense-data which strike no ears"[5] this, to me, epitomises the challenge of folding vegetal lifetimes into the human, for "studying plants is a journey into a different world"[6] and, as such, demands of us new modes of representation, particularly when interpreting a non-vocal presence and creating a sensorial assemblage of life (and death) across different species. I see, in Mansfield's "sense-data" approach - along with Woolf's "moments of being"- possibilities for growing vegetal entanglements across the mortal coil:

> All was meant, of course, to lead up to that last paragraph, when my two flowerless ones turned with that timid gesture, to the sun. 'Perhaps now'. And after that, it seemed to me, they died as truly as Father was dead. [7]

Puig de la Bellacasa, in her book Matters of Care, seeks to extend the temporal and spatial possibilities that care offers to a speculative posthuman embrace: "a world constantly done and undone through encounters that accentuate both the attraction of closeness as well as awareness of alterity".[8] Critics of her work suggest that she does not fully engage with the "deeply situated, embodied, and temporally-unfolding nature of relations of care".[9] In entangling the human-house-garden-plant-relationship through 'moments of being' and 'sense data' the notion of 'care' takes on new possibilities that transcend time and space; a place in which the material world of the garden and the bedroom is intersected by dreams, memories, and observations.

Then

It begins with the author's ecological education: "Ecology is not a science with a simple linear structure: everything affects everything else".[10] Which moment do we choose to represent a life?

> Most natural history museums present us with a collection of mature adult organisms as if the variety of nature could be properly seen in this one selected moment from the life of each species. But there is no such characteristic moment.[11]

Plants, in such historical contexts, are often presented as "sliced lives; inconspicuous and dormant."[12]

Life for many organisms is varied in form (for example the metamorphosis of some invertebrates) and scale (time and space/individuals, populations, communities). Certain stages of life can be more exposed to predation or extremes of temperature, especially when that organism is beginning life or moving towards the end of life. A young seedling plant, for example, can die through countless factors:

> They may have been eaten, washed away or buried by earthworms. [...] Even if a dead body remains, it is often impossible to assign a cause of death. Shrivelled remains could indicate drought, grazed roots, disease or even genetic defect. The causes themselves may be complex.[13]

Charles Darwin was fascinated by the precarious existence of such young plants and created a small experimental theatre on his lawn at Down House to study, at close hand, the lives (and deaths) of seedlings in this micro-wilderness. There is a sense of deep intimacy in his work as he engages intellectually, bodily and emotionally with his experiments[14] and he is present in ways that we can draw on, to form a more entangled representation of mortality across species. In *Nantes Triptych* (1992) Bill Viola invites us to share in a life journey from birth to death. For Viola, birth and death are to be "experienced and inhabited"[15] he suggests that "issues such as birth and death no longer command our attention

Snæbjörnsdóttir/Wilson

Storage Organ #1 (2017) photograph 40 x 40cm (from the project *Beyond Plant Blindness*) © Snæbjörnsdóttir/Wilson

after they have been physically explained".[16] In witnessing this work, the visitor is left with very little notion of life and death beyond the human and thus, we inhabit birth and death solely as an anthropocentric space. It is twenty-eight years since Viola made this piece. During this time, we have seen the emergence of a more multi-specific approach to life, death, and extinction, no less so than in the works of Snæbjörnsdóttir/Wilson. Their work questions human relationships to other species and, in their work, they offer us an opportunity to open a window, as in Haraway's aforementioned metaphor, and recognise vulnerability, not just in the sense of the lost species, but in understanding how extinction and grief can help us to reconsider our more-than-human relationships in the future:

> When the extinction of a species occurs, it is neither enough nor appropriate to close ranks and 'carry on regardless.' We should learn to

Maarten J. M. Christenhusz

Crocus thomassinianus. Kingston, Surrey, U.K. Maarten J. M. Christenhusz (with permission)

grieve and through that process come to an understanding of how it is we are changed — and how it is we should go on.[17]

Now and Then

Dried grasses, half an acorn, two insects and a few stones occupy this place. A beetle caught wandering across a single stem that breaks the space between down below and up there. There are no big events in this small world. There are speculative possibilities: The beetle could move again. Here and there are signs that seeds have been eaten; and death seems to linger in crisped up leaves. Looking in, I can be taken somewhere, and yet nowhere, in this encapsulated place. A wilderness strangely domesticated in its thrown togetherness of garden lives (and afterlives).

Snow. Dark. Awake (all hours): "Death-that ecological force so necessary to life-takes many forms". [18] In the garden: "bindas i det frusna bitterbleka"[19] time is held in storage: corm, bulb, seed. In the bedroom: "time passes not as duree but as a series of still moments"[20]. Moments, in which visionary dreams are described: 'I slept in the garage last night. A goose came. I put my arm around his neck; I didn't want to hurt him. He kept me warm'.

January. Third week. A swathe of lilac emerges in the garden. Not to plant words back into human clock-bound time, but to indicate the arrival of warming soil; the slow return of flowering. They stayed in their flowering, scented state after frail human life ended: "You loved to watch the trees. This year you did not see their spring."[21]

Endnotes

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Vivien Sansour:
The Seeds of Change

Vivien Sansour is the founder of the Palestine Heirloom Seed Library. *Trained in the field of Anthropology, Sansour has worked with farmers worldwide on issues relating to agriculture and independence and has written about and photographed rural life and practices. Her work is concerned with bringing threatened varieties 'back to the dinner table so we can eat our history to become part of our living culture rather than a relic of the past'. In this interview Sansour talks about politics, seeds, identity, and sustainability with artist and curator Noura Al Khasawneh.*

interviewee **Vivien Sansour**
interviewer **Noura Al Khasawneh**

Part of the Fertile Crescent, Palestine has been considered one of the world's centers of diversity, particularly for wheat and barley. This biodiversity, which has kept us alive for millennia, is being threatened by policies that target farmers and force them to give up their heirloom seeds and adopt new varieties. Heirlooms, which have been carefully selected by our ancestors throughout thousands of years of research and imagination, form one of the last strongholds of resistance to the privatization of our life source: the seed. These seeds carry the DNA of our survival against a violent background that is seen across the hills and valleys through settlement and chemical input expansions.

Heirloom seeds also tell us stories, connect us to our ancestral roots, remind us of meals our families once made at special times of the year. The *Palestine Heirloom Seed Library (PHSL)* is an attempt to recover these ancient seeds and their stories and put them back into people's hands. The *PHSL* is an interactive art and agriculture project that aims to provide a conversation for people to exchange seeds and knowledge, and to tell the stories of food and agriculture that may have been buried away and waiting to sprout like a seed. It is also a place where visitors may feel inspired by the seed as a subversive rebel, of and for the people, traveling across borders and checkpoints to defy the violence of the landscape while reclaiming life and presence.

Noura Al Khasawneh: Can you tell us about your cultural background and how you became interested in agriculture and, more specifically, in seeds?

Vivien Sansour: It changes for me. Like plants, we co-evolve with our terrain and where we are, so even my cultural background is in constant co-evolution with whatever I encounter. But, of course, I evolved here in Palestine, which is where I was born and raised. I'm a village person. I grew up in a town that now calls itself a city, but it's really a village. My life was on the mountain. I didn't like going to the city—Bethlehem was a big deal. My classroom and my teachers—other than going to the actual Catholic school where I learned guilt and shame, which is sadly part of my cultural background, and which I try to unlearn—were the soil and the plants. I would come back from school, take off my Catholic uniform,

Vivien Sansour
Vivien Sansour & international guests with farmers in Battir (Image courtesy of Palestine Heirloom Seed Library) © Vivien Sansour

eat lunch and be off. My cue to come home was sunset; this was the clock. I grew up with this soil. I grew up learning through touching and smelling and sometimes tasting, putting things I didn't know in my mouth, just because I was curious—just the way all children should be, I think. And so my cultural background is this mountain.

I could say, well, I'm Palestinian, but I don't care so much about that in the nationalist definition of things. It's the soil that has been my teacher, along with the plants and trees and birds. Sadly, though, like many people around the world, I grew

up thinking that I needed to sever myself from my reality and go live in the city. And I did. But then I found myself constantly dreaming about coming back to the soil, to the plants, and finding my home in nature again.

NAK: And Beit Sahour is where you grew up?

VS: No, Beit Jala. [Laughs.] We are very tribal here; they are the valley and we are the mountains.

NAK: To me, your work seems to be motivated—in broad terms—by two main agendas that are interrelated in many ways. On the one hand, you seem to be interested in the question of how to preserve the biodiversity of plant species, irrespective of political boundaries. For instance, you mentioned an anecdote in which your grandmother told you that the land "belongs to no one." This was in a documentary I watched. From this perspective, land can be seen as a borderless entity in which humans interfere. On the other hand, underlying your work is the idea of national resistance; the very nature of the Palestinian-Israeli conflict is rooted in a dispute over boundary delimitations. From this perspective, land—including, and perhaps especially, agricultural land—is the core point of contention. Can you tell us how the tension between the two agendas plays out in your practice?

VS: It's been a journey. When I first started, I believed—and I'm still committed to this, as an idea—that, as a community, we really can't find liberation as long as we're under the thumb of somebody else for our food. When I came back to Palestine after living in the United States, I couldn't find the foods that I missed. And, more importantly, I also found that we were eating junk here. The West was using us as a trash can, infecting us with fast-food culture, while fast-food chains were closing in the US and a renaissance of organic food and agroecology was taking place there. And after the Oslo agreement, we became an even bigger trash can, because neoliberal policies were being introduced and people who weren't in debt were now going into debt. It became very clear to me that we were no longer eating what we produced. We had become completely dependent on outside entities—be it foreign sources or our oppressor—to eat, literally.

This is also partly why I found refuge in seeds because these heirloom seeds showed me that I didn't have to depend on anybody, which was a revolutionary realization for me because I've always been—even as a young girl—obsessed with having full autonomy over my life, having grown up in a very patriarchal world. It was like the seed was telling me that I could be autonomous and feed myself. And I'd much rather eat whatever I can than live under the thumb of somebody else. So I translated that into what I initially called "agro-resistance," and I was very engaged in how to frame my practice in that, within the context of Palestine.

But I never felt that that was enough because, having lived around the world, I've also met a lot of people who are equally oppressed. And the more I traveled, and the more I met people, the more I understood that this was not solely a Palestinian problem; this is a global problem. The agribusiness companies that Israel prides itself in having started are active in other places—in Honduras, I found Israeli agribusiness companies that inflict a lot of damage on Honduran agrobiodiversity, for instance. So I came to have a better understanding that this can't just be our problem and we can't see Palestine as separate from the global context. In fact, it is naive to think that Palestine—and the Israeli occupation—is separate from these global phenomena.

I understand that I need to work locally and be focused on how to educate ourselves about ourselves. Because the story that we've been fed, whether by economic or political systems, is that we're not worth anything, we don't have anything to offer the world—not only as farmers but as Arabs, as Palestinians—that we should look up to our oppressors and our colonizers. Even here, I've heard people

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Vivien Sansour

Vivien Sansour conducting seed research with a local Palestinian woman (Image courtesy of Palestine Heirloom Seed Library) © Vivien Sansour

say "Oh, look at them. Look, they've built big buildings." So to me, seeds offer us the opportunity to create our own story—not to recreate an old story from the past, but to take some wisdom from that past and understand what we want in a vision for the future. And to understand that we've also been told many lies, which we have to unlearn for us to liberate ourselves from the inside so that we can be liberated on the outside, and that our liberation is truly connected to other people.

How this relates to plants is that we—you and I—are seeds. We are indeed what we eat, in a very literal sense. We are also what we eat in terms of the lies we're told in society. So I guess my answer to your question about the way I relate my work to questions of liberation—as a Palestinian woman, as an indigenous woman, as a woman of color, as a farmer—is that I relate to it as part of human society, which has to work together to create a new story for whom we want to be as a species. Because, right now, we are horrible ancestors, and for us to be able to sleep well at night, and to have a better Palestine and a better world, we have to understand this bigger vision. Otherwise, we're stuck in the minutiae of what we see as reality.

And I think that our commitment to this idea of reality is the problem. Who creates this reality? I know I live under a very brutal system; I don't even have access to an airport. Now the whole world gets to experience a tiny taste of what a system like that in Palestine looks like, in which you're constantly being controlled. But as I grew in this—and the plants have been my teachers in understanding this more and more—I became very free. I can go to the checkpoint, the soldier can put a gun to my head, but I don't feel the fear I used to; I feel inner freedom that the soldier can never feel. And I learned

Vivien Sansour

Vivien Sansour holding Mulukheyeh leaves. Photograph: Samar Hazboun © Vivien Sansour

this from the plants: they don't care who you are, they will grow and they will be generous and they will find a way and they will co-evolve, whether you weed them or not. A bird will eat their seed, poop it out somewhere else, and suddenly you have a tree again. They don't care.

NAK: Battiri aubergines are symbolic of Palestinian culture, and are often seen as "native" to the town of Battir in Palestine; as a result, the fruit has become symbolic of both the land and its culture. Yet the notion of something being "native" to a specific region can be problematic; issues abound when claiming authenticity or ownership over seed varieties. In *The Seeds of Change* project, for example, Maria Thereza Alves asks, "At what moment do seeds become 'native'? And what are the socio-political histories of place that determine the framework of belonging?" Can you tell us more about your own approach to seed collection and classification? Do you believe that questions of seed origin have any bearing on questions of cultural authenticity?

VS: My approach to this is practical. Eggplants are not native to Palestine; we didn't develop eggplants, corn, or tomatoes. This is the beauty of global exchange. The real issue is with the approach of agribusiness. For example, I love Mexican corn. And I brought

some varieties with me to Palestine a few years ago and planted them. But they require a crazy amount of water, so even though I love them, I didn't share them and I didn't grow them again. Because I understood that, for these specific varieties to survive here, I'd have to consume a lot of resources—although there are hundreds of varieties of Mexican corn, and there are varieties that could live with no irrigation. So I chose not to continue with that.

But plants have always been moving. And the only way a plant can travel is as seeds, and that's what's so miraculous about them: they travel. Birds have been shitting seeds all over the world for us. And we've been traveling and exchanging them. And so, for me, culture is a very dynamic thing. So when people make claims about our culture, I ask: What is our culture? Our culture is us. We create this culture. I'm not committed to some static, dogmatic idea of culture. If people tell me that our culture says you cannot live alone as a woman, for example, I'll say, well, fuck your culture. That's not my culture; I am the culture. But, agribusiness, for example, doesn't care about what I just said. Agribusiness doesn't care about soil, about conditions, and has no respect for microclimate. It goes to Palestine, where there's no water. And Israel is a great example of that. Israel doesn't care that this is not the country to grow pineapples or avocados; agribusiness settlements grow so much avocado here, not caring about the resources this consumes.

But whether it's eggplants or *mulukhiyya*, which is jute mallow and a staple dish in Palestine, and which comes from Africa, or okra, which has adapted so well—we have okra here that grows without irrigation—if something does well, then why not? If it does well here without being intrusive or violent toward other things, then why not embrace it? It's through experiments and plant breeding that we have the food we have today. So I'm open to culture being shaped by new generations, as long as it respects nature. And my issue is about whether you have a capitalist approach that doesn't care about where you are. But, otherwise, if plants find a home somewhere, I don't think we should reject that. We actually need more diversity in our agroecosystems.

NAK: So as part of my own practice, I've been looking at the history of museology and the governance structures of museums in Jordan. I began to delve more deeply into the history of the Rockefeller Museum in Jerusalem, formerly known as the Palestine Archaeological Museum when it was opened to the public in 1938. After the first Arab-Israeli War in 1948, it was transferred to the control of an international board of trustees. In 1966, the museum was then nationalized by King Hussein [of Jordan], but seven months later, when the 1967 [Six-Day] War broke out, the museum was taken over by the Israeli state. It was officially renamed the Rockefeller Museum soon after. At the time, it housed an extensive collection of artifacts and excavations that can determine the historical narratives of the region, and which were quickly claimed by Israel as its own—most controversially in the case of the Dead Sea Scrolls. And so I'm interested in the notion of public collections and how we preserve them in contested spaces. In a context in which heritage collections and archives have been looted or appropriated, I wonder whether these questions come up for you in terms of your own collection of seeds. Are you concerned with how the narratives constructed about the seed library might be (re)interpreted or manipulated?

VS: I think about this a lot, actually. Because there's this question of how we treat seeds. So for us, as indigenous folks, maybe we don't have fancy words for these things, but we understand seeds as beings, not as a commodity. And there are lots of companies and government-funded research that are trying to widen the collection of heirloom varieties—not for the sake of conservation and sharing, but for the sake of actually mapping them genetically and selling the gene codes. So for me, I'm always worried—since it's one of the global problems with seeds—that they'll take our indigenous seeds and claim that they discovered them. So now we have them patented. But then farmers have to pay for it. It's like ownership over life, basically—and that also worries me.

So we try to figure out ways to ensure that these seeds remain in people's hands and that they belong to communities and not to companies. In my work—and I do work literally with farmers and plants and seeds, and we grow and harvest and eat stuff—my

interest and motivation have little to do with the seed itself and more to do with the story the seed brings. My contribution is understanding what the seed story is historically and in our community and then figuring out a way to give it a contemporary twist so that it makes meaning for new generations who can then carry the story forward. Because the more you carry the story, the more you preserve the seed and keep it in the hands of the community. It would be hard for a company to claim it discovered something when everybody in your community knows the story.

In this way, stories are really, really important in combating these efforts to minimize us and archive us. And this is another reason why my seed library is a library, rather than a seed bank—with all due appreciation to seed banks, I wanted it to be a space that's open to everybody. People can come share seeds; they can donate seeds. It's not seeds saved in jars for a doomsday. These seeds and this archive live in the soil, and the best way to protect them is to keep them alive in farmer's fields, in the hands of people, and on our kitchen tables—because the more we eat them, the more we care about them.

NAK: In terms of the visibility of the Palestine Seed Library project, I'm interested in how the project takes on different forms depending on where it's shared. On the one hand, it's been presented as part of several exhibitions, and on the other, it mainly unfolds outside of the gallery space, say in gatherings with agriculturalists and farmers. How do you ensure that the library remains accessible to a broad spectrum of people? Who can view it and contribute to it?

VS: That's a great question. So the art world has suddenly become interested in nature and I've started to get calls—but I'll leave it to the art world to answer that part. [Laughs.] For me, however, it was a fantastic opportunity. One of the greatest experiences I've had was putting on a show at the Chicago Biennale, for example. I used it as a way to actually engage different communities in different places in the world. Because if I'm going to put on a show in Chicago, I want to know about Chicago. So I went to Chicago and spent time with people in the prairies. I wanted to learn about plant life there. We spent two weeks in the forest, and we ended up building the show from wood from trees that fell in a big, big storm that happened in northern Michigan.

I keep my practice alive and accessible in trying to keep myself accessible, and I don't do anything unless I'm engaged in the community. So building a show in an exhibition space was awesome—not just because it brings the country to the city, but also because the city was able to offer us resources and time to sit with ourselves. I'm often on the road, busy with the doing of stuff. And the art world is amazing in that it allows us to move into the fantastical world of imagining things that are yet unseen. And that expands the possibility of who accesses this [work].

I love the marriage of imagination and science. And I love that farmers are scientists, basically, because they practice observation and experimentation. This is how we have the wheat we have today. We have the corn we have today through selection because someone was crazy enough to imagine that some wild grass would one day become something that you could make tortillas with. It was a process of daring to imagine. In this way, I find so much freedom in art and in the art world, and I bring it to my farming community, wherever I go. And I always end up finding that farmers are artists and understand the arts—the process of creating art—a lot more than many fancy artists in galleries, because they're always imagining something.

NAK: I'm curious about your perspective on the recent environmental turn in the arts; I think we can broadly agree that it's a good thing, but I'm skeptical of certain approaches. I am especially thinking about major institutions turning to climate change—a little late, and perhaps not necessarily in the best of ways?

VS: It's another form of making daily life a commodity again. I mean, that's a function of a lot of commercial galleries. Last year, for example, I was invited to the closing of the Venice Biennale, which was amazing and a great honor, but I don't know if I would have been invited had I not been working on something nature-related. So I definitely appreciate that the art world has suddenly become interested, but let's not forget that, as someone who is a village person, I have my feet in the soil. For a long time, the art world was also a world that deemed me uncivilized and didn't welcome me in its fancy halls. And so one has to wonder sometimes.

Academia shares this with the art world. Suddenly academia is also interested in farming, but those same academics—for the most part—look down on us as people who don't have degrees, or who don't know how to read and write. And the truth is, I've met farmers who don't know how to read and write who are way more intelligent than people with PhDs, and you can publish that. I'm a very proud Ph.D. dropout, and the reason I dropped out of my program is not that the people weren't lovely, but because I could feel how powerful the institution is in shaping even the way you imagine. That scared me, because I could see myself wanting to fit into certain theoretical frameworks, and I didn't want that.

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So as much as I appreciate a lot of things about academia and the art world, I have to question the sudden interest in the same people they once deemed as mere research subjects. Where is the partnership? And so I've been very selective in terms of which curators I work with and where I exhibit because this is a very important question for me. I've been lucky to have worked with amazing curators from the Venice Biennale and the Delfina Foundation. And I loved that the [biennale] in Chicago was public because I keep my work public by keeping myself public.

NAK: On a local level, then, how does the seed library operate?

VS: [Laughs.] I'm random; I'm not organized. I don't keep records. I share seeds without registering who took what. People take stuff. They grow stuff. I forget who they are. They come back a year later and tell me that they've saved some of my tomatoes, and that's awesome. So I keep myself uncommitted to any kind of control over who takes what. The more people take things, the better. I will confidently say that one of the greatest pleasures I've experienced in this process of working with plants and seeds is the transformation I've seen in people. When I started, a lot of farmers would ask me to tell them what I wanted them to do. And I'd refuse, insisting that we're doing this together. We've become so beaten down by this donor culture and this colonial culture that we've forgotten who we are. But now, we have a community of people who will tell me what they want to do. They feel equal ownership over these seeds, and also of their lives and how they want to shape them. Which has been really awesome.

NAK: So in my own work, I continuously question the impact of colonial interventions in the shaping of cultural institutions—both in terms of the classification of collections and also in how visitors relate to the physical space itself. In many ways, we could say that these processes of classification and categorization are a byproduct of the colonial habit of rationalizing colonized societies in order to render them legible. Given the politics of settler-colonialism enacted by the Israeli occupation in Palestine, do you see similar practices of re-categorization and classification being applied to local seed varieties? How does Israeli intervention in Palestinian territories affect, improve or disrupt the agricultural process?

VS: We've been subject to research as early as 1948. From 1948 onward, Israel has been very serious about these "modernizing Palestinian farming" schemes, which have been done with the US Department of Agriculture. A lot of our native varieties are collections—if you want to call them that—that they made from the late 1940s onward. This means that you can't find some of our native seed varieties here, but you can find them at the US Department of Agriculture and the Israeli [Ministry of Agriculture and Rural Development]. But they don't understand the cultural context of seeds—for them, this seed is just another genetic variety of whatever. This is how

our heirloom watermelon and heirloom tomatoes disappeared—they were replaced by a hybrid variety that was supposed to give you better yields.

Wheat was actually developed in this area, as well as Iraq and Syria, and yet we only grow two heirloom varieties of wheat from hundreds of varieties available. And the one main variety that we grow is called *Ariel*, which is an Israeli variety. Because if you tell people that what they have isn't good enough, they'll buy what you have. And so they convinced us that our wheat wasn't good enough, and we started to grow this wheat that was good for everything: instead of having different varieties of wheat—some of which might be good for one kind of bread, others good for other kinds of bread, others good for animal feed—we have one uniform wheat that does the job.

This has impacted us significantly because it has led to us losing the majority of our seed varieties to the colonial power, which has a collection bigger than any of us have in Palestine. So, as Palestinians, our bioheritage now lives in seed banks in Israel and the United States. This is a major disaster for us. And so the work I do, and the work that other people are doing is starting from scratch and trying to recreate our grandmother's collections, essentially.

NAK: In the Al Jazeera documentary about your work, *The Seed Queen of Palestine*, you bring up the issue of monocropping—specifically the over-planting of tobacco in tracts of soil that were normally used to grow a diverse variety of plant species, such as tomatoes, etc. What's your opinion on the implications of monocropping, in terms of the land itself and its characteristics, and also on a social, political, and economic level?

Monocropping is also a way of controlling the population. Again, we go back to two things: story and imagination. When a farmer is no longer an imaginative producer, they're just a machine.

VS: I'll try to keep this brief, even though this is a big one for me. One, monocropping causes a lot of soil depletion because you grow the same shit over and over again, you lose the nutrients, and you consume it all. For agribusiness, soil is just something that holds the plant and everything else will be brought in as inputs from the outside—versus intercropping and agroecological food production, where you actually have a rotation of crop and you use everything; all your inputs are from the farm itself. So when you do monocropping here, you consume so much from outside of the farm. You have to bring the chemicals that'll make the soil more fertile, pesticides, herbicides. Monocropping also leaves varieties very vulnerable, which means it leaves the farmer and the community very vulnerable, economically and otherwise. They might tell you to grow strawberries, for example, because it's the cash crop. But if the strawberries get a disease and die, the whole crop dies, and the farm is screwed over for the whole season because all they have is strawberry.

Monocropping is also a way of controlling the population. Again, we go back to two things: story and imagination. When a farmer is no longer an imaginative producer, they're just a machine, a worker. It also contributes a great deal to cultural erosion; there are certain varieties—like the heirloom tomato, which we used to make into tomato paste that people saved in jars for the winter—that are gone now. Say, certain grapes are good for raisins here, others good for vinegar or wine. Well, you don't have to worry about all that anymore because now you're only growing grapes for one particular purpose, a specific variety, say, because it's better commercially. But that's also very expensive and leaves the farmer very vulnerable.

And monocropping also leaves small-scale farmers extremely vulnerable because they can't compete. So a person in the West Bank who makes US$300 a month as a salary has to buy things at the same price as an Israeli who makes $3,000 a month. And so after the Paris Protocol—which links our economy to the Israeli economy—three major things that happened that completely destroyed us: One is an increase in the push for monocropping because now you have to appeal to a neoliberal economic system that wants you to produce and export.

Two, because cigarettes have become extremely expensive after Israel began taxing them, tobacco companies found an opportunity to exploit farmers, who barely

Vivien Sansour

Vivien Sansour in her workshop. Photograph: Samar Hazboun © Vivien Sansour

make a living, by renting out their land to produce tobacco. And now you have fields and fields of tobacco where we used to produce sesame and okra and food, but instead, we're growing poison. What that also does is that you lose the culture of eating your own sesame for example—now we import sesame from Turkey. It also depletes the soil. Soil is everything and the soil is being destroyed.

The third thing is the increase in agribusiness settlements, which produce monocrops. And because of the Paris Protocol, for example, a Palestinian farmer's onions won't sell as well as agribusiness settlement onions, which can be produced much more cheaply. And because people are economically struggling, they'll end up buying the agribusiness settlement products. So, we're actually in a prison and we are also the market of our prison guards.

NAK: I'm also fascinated by the *Jaddu'i* watermelon seed story; I read that it took you six years for you to find this specific watermelon seed. You also mentioned that "people described to me how they had hidden in the dense watermelon fields during the war—and later gave birth in those same fields." Storytelling seems to play a significant role in your projects. Could you tell us more about this specific story—which, as I understand, inspired the seed library project—and the role of storytelling and performance in your research and practice?

VS: I was fascinated by this story; I like fantastical things, and people I interviewed would always tell me about this gigantic watermelon: that it was red and or green or

meant to be huge. Old ladies would describe how big it was and how they kept it under beds and ate it in October and November, etc. And I love fairy tales, which always have vegetables and plants in them. And I started to see that a big part of my own culture was disappearing by the disappearance of a crop. This was the initial reason I started the seed library: The story of the watermelon helped me understand how important it was for me to tell myself a different story and for people in my community to tell themselves new stories.

So we're back full circle, at liberation. Liberation is not about being somewhere fancy with lots of open spaces. It's about having freedom in my heart, understanding that who I am cannot be owned by someone just because they imprison me or they deem me like shit. I was taught that I was shit all my life by so many forces, be it the colonial powers that be or global patriarchal culture. I found revolution in the story of this watermelon and I wanted to use it to liberate myself, not knowing that all of us are prisoners to our stories somebody else told us about ourselves.

NAK: What are you currently working on?

VS: Well, I recently did a short film for Storefront for Art and Architecture in New York about the cistern we built. And this was a bit of an experiment for me, in terms of pushing myself to be more present in telling the story; it's a great example of how I want to be bolder in bringing my rural life to the art world. I'm also trying to secure a piece of land, one of the last remaining terraces in Beit Jala. I want to buy it and turn it into a public trust and a safe haven for the birds and the plants. It's been exhausting and there are a lot of challenges to it, but it's important because there's almost no more green space left here.

I'm also writing a lot. I'm trying to write a book, and I write this food column for *Foreword* magazine, which is interesting all on its own in terms of my audience. I also feel like my true place is as a writer; this is where I feel I fully become myself.

Vivien Sansour lives in Palestine. In 2019 , she has undertaken a residency at Delfina Foundation, London, UK, as part of the *Politics of Food* project. Her film *Zaree'a* (2019) was screened at the Victoria and Albert Museum, London, in June. Her show *Marj and Prairie,* which tackles issues of transforming landscapes, was included in the 2019 Chicago Architecture Biennial, USA, from 19 September until 5 January 2020.

Noura Al Khasawneh is the co-founder of Spring Sessions, a roaming learning and residency program, and the director of the MMAG Foundation in Amman. She established the lesser Amman library, a reading room dedicated to supporting regional scholarship and imaginative engagement. In parallel, she is completing her MFA at SAIC in Chicago.

against the nature/culture binary, unsettling cultural and codified beliefs of hetero-normative behaviours as the superior 'natural' mode of being. Ahmed puts forward that

explorations

explorations embodies a simple idea, to reduce our physical and emotional disconnection from Aotearoa New Zealand's natural environment and re-establish native flora's importance and uniqueness. Organic material native to New Zealand was removed from its original site and was subjectively interpreted photographically through observation and experiment. There are three sections within the photobook explorations, each in the form of 'acts', the images made through cameraless physical actions. With awareness of the importance of native plants to New Zealand's ecology, this work aims to regain their visual and individualistic importance. Lying not in the realms of botanical, scientific or accurate illustration it attempts to include the imperfections and frailties of nature and to re-assess our perception of flora, and how it is situated within our contemporary technological culture.

text and images by **Shaun Matthews**

The remote islands of Aotearoa New Zealand are rich in unique flora due to their geographical isolation. Allowed to develop independently for thousands of years with no mammalian predators, the 19th-century onslaught of European colonisation in the form of human, animal, and insect predators from different ecosystems was devastating. Conservation of native wildlife is an important issue in Aotearoa New Zealand, the photobook *explorations* was made as a response in 2012.

Before the invention of mechanical reproduction, the only accurate form of recording and reproducing the natural world were artist's renditions and direct printing from natural objects. Some 3500 years ago plant materials were used in Polynesia, South–East Asia, and southern China to decorate Tapa, barkcloth that accepted the printing of plants. It was 2000 years later that paper began replacing bark cloth as a medium for plant printing in the Islamic world. Dioscorides manuscript, De Materia Medica, written in the 1st century AD was a foundation stone of both botany and pharmacy, containing many illustrations much copied by artists, whose interpretations reduced the accurateness of the original illustrations through the centuries. In 1228 'Bihnam the Christian' made a copy for Kayqubad I the ruler of Anatolia and North Syria, and for the first time that we know of, the artist turned to nature itself and incorporated at least two prints direct from inked leaves. It wasn't until 1508 that the first written description of this process appeared in Leonardo da Vinci's Codice Atlantico.[1] This manuscript enlightened many to the possibilities and beauty of plant pressings, which like photography itself enabled the not so artistic to transcribe nature pictorially and accurately. As William Henry Fox Talbot stated in his address on photography's invention to the Royal Society in London, January 1839, 'natural objects may be made to delineate themselves without the aid of the artists pencil'.[2] The ability to reproduce likenesses had become available to many without drawing or painting skills. The work in *explorations* continues this legacy, the methodology may have dramatically changed but what is utilised is the ability to create without the talent to transcribe accurately what we see through drawing.

This collection of images began as a simple idea. Its concept was an attempt to reduce our physical and emotional disconnection from Aotearoa New Zealand's natural environment and re-establish native flora's importance and uniqueness. Organic material native to Aotearoa New Zealand was removed from

its original site and was subjectively interpreted through observation and experiment rather than theory. With awareness of the importance of plants to Aotearoa New Zealand's ecology, this work aims to regain their visual and individualistic importance. The work lies not in the botanical, scientific, or realms of accurate illustration. It attempts to create extensions of the real, to include the imperfections and frailties of nature, and to re-assess our perception of the flora, and how it is situated within our contemporary technological culture.

There are three sections within the book *explorations*, each in the form of 'acts'. The work is made through cameraless physical actions, each image making a fresh view, creating a new physical presence connected through the subject matter. Different light sources play upon these objects, making each an individual. Reliant on and enhanced by happenstance and accident, these explorations became a personal journey. The unpredictability of production, as in the natural world, becomes integral to the work itself. Light, whether natural sunlight or artificially produced, becomes the intermediary both magical and unpredictable. The work is neither a botanical reference guide nor a general reference book and so neither common names nor nomenclature have been applied.

'act i' opens *explorations*, the simplest of the acts with little human agency. The sun passes overhead as native Aotearoa New Zealand seedlings lay dormant on light-sensitive photographic paper, over time the negative silhouette appears with the qualities of a positive image. The image changes as light, heat, and time affect both the paper and the plant, through wilting and the moving sun. The passage of time is also fundamental as the image is fixed in permanence not by chemistry but by the digital scanner. A sense of movement and change remains as images on the paper seem to hover in space creating a form of 'ethereal corporality'.[3] A direct copy becomes more than that, it becomes a theatrical play of light, and with the passage of time, the seedling's deaths are permanently captured as they dry and wilt. The images in 'act i' recall photograms created at the birth of photography; only the contemporary fixing of the final image with the scanner have changed.

In 'act ii' and 'act iii', cameraless technology in the form of a scanner's artificial light becomes the co-conspirator in *explorations*' deconstruction and manipulation of natural objects. Organic material is centrally placed on the scanner's glass; the objects remain in their natural un-flattened state. The scanner's light source is disrupted using variable heights and angles; its linear passage of light becomes erratic creating unfamiliar representations. It is the errors that can be forced with this technology that serves the work, the subject matter, and the artist so well.

'act ii' sees formally centered single leaves scanned in monotone in their found condition. The aim is not to show perfection as we expect in this digital age, but to show these facsimiles of the real as contemporary re-interpretations of imperfections in nature. These black and white images recall something of the past in their two-dimensional re-enactment of a three-dimensional object. Are they a nostalgic throwback to our earlier history when nature played such an important role within our lives? Individually the leaves seem more powerful than when lost amongst many en masse. They are 'capturing forces outside of normal perception, echoes of our surroundings. (They are a) melancholic substitute for something absent, a desire to fix what is, or will be lost'.[4]

'act iii', the final act within *explorations* sits between the real and imagined a calm but evocative disorder. Too flawed to be idyllic representations, the image's beauty lies in their incompleteness, many reaching beyond the scanner's vision. Indigenous organic matter is technologically defined; re-envisioned and re-appraised by the artist's staging of events, becoming both an 'active participant and spectator'.[5] Each image is part illusion, part chance, and part control, each as valuable as the next in the creation of something new. This work plays on all these factors, both in the pleasure of its production and the openness of the results.

Within *explorations* nature has performed and been transformed beco-

Shaun Matthews

Shaun Matthews

p. 44: *Untitled (Photogram 09)* from 'act i' *explorations*, silver gelatin paper photogram, 2012
© Shaun Matthews
p. 45: *Untitled (Black and white flatbed 08)* from 'act ii' *explorations*, flatbed scanned photographic image, 2012 © Shaun Matthews
p.47: *Untitled (Flatbed 02)* from 'act ii' *explorations*, flatbed scanned photographic image, 2012
© Shaun Matthews
p. 48: *Untitled (Flatbed 01)* from 'act iii' *explorations*, flatbed scanned photographic image, 2012 © Shaun Matthews

ming ‘other’ within contrasting environments, each extending the experimentation. What was there is no more. From the regulated and confined light source of the scanner to the uncontrollable natural rays of the sun, a strange allegiance has been struck. Both light sources have generated a visible presence through reflection, transmission, and omission. The freeform performance of the photogram sits comfortably against the modern science of immediate digital replication. The production of this work has brought me closer to the complexities, beauty and intimacy of our natural environment on the theatrical stages of light-sensitive photographic paper and the glass of the scanner.

Endnotes

[1] Cave, R. *Impressions of Nature: A History of Nature Printing.* London: The British Library, 2010.

[2] Rotzler, W. *Photography as Artistic Experiment.* New York: American Photographic Book Publishing Co, 1976, p. 6.

[3] Marsh, A. *The Darkroom: Photography and the Theatre of Desire.* Victoria, Australia: Mcmillan Art Publishing, 2003, p. 116.

[4] Barnes, M. Shadow *Catchers: Camera-less Photography*. London: Merrell Publishers Limited, 2010, p. 24.

[5] Marsh, A., p. 108.

Shaun Matthews is an exhibiting photographic artist based in Wellington New Zealand whose work has engaged with Aotearoa New Zealand’s native forests since he moved there from the UK in 2002. His primary interests lie in landscape and fauna, engaging with natural environments as essential living and changing sites. http://www.shaunmatthews.com

Anna Ridler: A Contemporary Tulipmania

Anna Ridler is an artist and researcher who is interested in exploring how systems function and are built. She works with new technologies and scientific knowledge, exploring how they are created in order to better understand society and the world. Her recent projects have looked at the commodification of nature, particularly in relation to machine learning.

interviewee **Anna Ridler**
interviewer **Jean Marie Carey**

Anna Ridler is an artist interested in systems of knowledge, with a desire to know and to make this process of knowing available. She works with new technologies, exploring how they are created in order to better understand society and the world. Anna has exhibited at cultural institutions worldwide including the Victoria and Albert Museum, Tate Modern, the Barbican Centre, Centre Pompidou, HeK Basel, The Photographers' Gallery, the ZKM Karlsruhe, and Ars Electronica. She has been listed as one of the nine "pioneering artists" exploring AI's creative potential by Artnet and received an honorary mention in the 2019 Ars Electronica Golden Nica Award for the category AI & Life Art. Anna holds an MA from the Royal College of Art and a BA from Oxford University.

Jean Marie Carey: Studying the iterations of *Mosaic Virus* and the photography-AI multiples of *Myriad Tulips* made me think of the connections between artists, horticulturists, and cryptocurrency speculators. The *tulpenmanie* investors in the Netherlands in the first part of the 17th Century and those experimenting with the Bitcoin market are gamblers playing against the house – a few knew or know when to fold and walk, but most lose all. Artists also must have a certain similar illusion or delusion that their efforts will be able to satisfy their financial ambitions on some level while maintaining creative control.

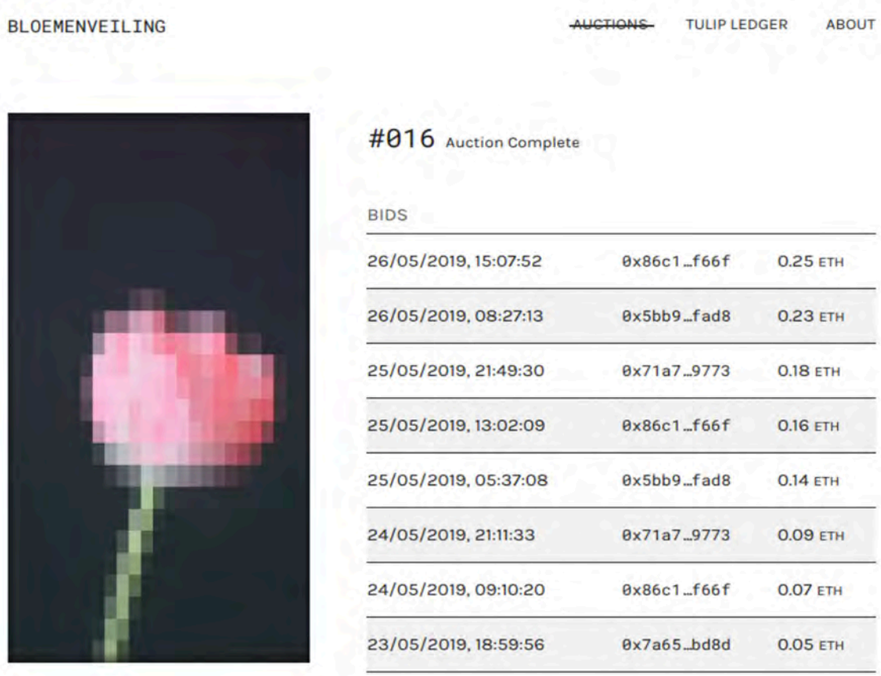
Anna Ridler: The series of works around tulips, particularly *Mosaic Virus* and *Bloemenveiling,* are very much about ideas around the nature of speculation. There is some debate about whether tulipmania was truly a mania (the work by Anne Goulder argues persuasively that it was not) but in cultural consciousness, it is often held up as an example of early speculative behaviour. By linking this moment to the ongoing hype around cryptocurrencies - but also the excessive expectations around artificial intelligence I am able to bring together ideas around capitalism, value, and collapse from different points in history. "Mosaic" is the name of the virus that causes the stripes in a petal which increased their desirability and helped cause the speculative prices during the time. Broken, or striped, tulips were some of the most expensive. In the video work, generated using a Generative Adversarial Network (a form of machine learning), the stripes on the petals of the tulip depend on the value of bitcoin, changing over time to show how the market fluctuates, making this connection explicit.

The disease, discovered in the 1920s, is caused by aphids who infect the bulb, causing it to 'break' from a single colour and develop the distinctive stripes. Once a bulb has become infected, all of its offshoots will also have the virus and be able to produce striped flowers; however, it is also possible for bulbs that were not infected one year to then gain the virus and produce striped flowers the next year. This made the process of producing a striped tulip seemingly alchemic and mysterious. At the height of tulipmania, people would try to force stripes by splicing together a red tulip bulb and a white tulip bulb, or by painting stripes on the earth. There was no connection or knowledge of how the virus affected the tulip bulb, the thing that was generating wealth. To me, this correlates to the rush towards blockchain and its associated technologies a few years ago. There was a huge surge of interest in 2017 after Bitcoin's surge in value from around one thousand dollars to nearly twenty thousand over the course of a few months, but much of this interest came from investors who did not understand the technology, but just saw the movement in the stock market. This rapid change in valuation was not because of investors caring about decentralisation, or smart contracts, but because they are just looking for another way to make money.

Anna Ridler

Mosaic Virus (2019); 3 screen GAN generated video installation; 2019; image courtesy of the artist © Anna Ridler

And blockchain is now, increasingly, becoming part of the art market ecosystems. For *Bloemenveiling* I wanted to push this association further by creating a technological marketplace for artificial tulips, in order to echo the auctions that sprung up in taverns throughout Holland at the height of tulipmania. A model can generate endless tulips but within the art market (which as you rightly point out is its own type of bubble, like blockchain, like tulipmania, like AI) work is only 'valuable' once it is scarce - I could produce infinite tulips, but the ones that are valuable are the ones that are verified, editioned and authenticated. In the piece, short GAN videos of tulips were sold at an auction using Ethereum on the blockchain. Echoing the auctions that sprung up throughout taverns in 17th century Holland at the height of Tulipmania, the piece interrogates the way technology drives human desire and economic dynamics by creating artificial scarcity as bots also compete against the viewer to win the video. The smart contracts that enable the sale and define the work sold contain code to make the video work mirror how real tulips bulbs behave: it shows the video, or blooms, for a week (approximately the amount of time a cut tulip will last for). In the same way that tulips at the height of the mania were not bought or sold as objects but as paper contracts without the knowledge of what would bloom, purchasers in this marketplace do not exactly know what the video work would be



until the contract is unlocked. After a week, the tulip is 'blighted', and the moving image piece can no longer be viewed by its owner. In this way, the decay and impermanence of the natural world is reintroduced into the digital world. This project also links to another bloemenveiling (which literally means 'flower market' in Dutch), Aalsmeer, which formed an important component of the research. Described as "the largest flower market in the world" on their website, Aalsmeer reflects the way that nature has been so commodified in recent times. Flowers come from all over the world - Ecuador, Colombia, Ethiopia, Kenya - and approximately 20 million are traded daily in a space that is occasionally oddly reminiscent of a stock market trading floor, dealt like they are any other commodities. It is a dirty, commercial business with all sorts of issues around labour, pesticides and even water extraction, that are all obscured when they are bought. Tulips, no longer the symbol of wealth that they were in the seventeenth century, can be bought for a few pounds because of these systems that are in place and can be found for sale in supermarkets and petrol stations; bred to be hardy and last long on shop floors. Its excess removes its value.

JMC: Heretofore, botanic specimen collection, like art dealing, has had few hard and fast legal or ethical rules. The ongoing discussion over repatriating artefacts such as the Benin Bronzes and the work of Bénédicte Savoy of the Humboldt forum casting the public eye on cultural objects, what do you think about what we might call "displaced plants," which often become innocent victims of their relocation? I'm thinking of kudzu which was introduced from Japan to and has taken over swamplands, in the American South, or the yellow gorse brought to New Zealand by Scottish settlers which has damaged the island's own flora, but you have likely run across other examples in your investigation of the Netherlands.

AR: My research was very much focussed on the tulip, so I did not get to research other displaced plants whilst I was in the Netherlands. This flower, however, was not native to the country and was introduced to Europe from Turkey in the mid-sixteenth century (which also experienced its own tulipmania). The appearance of tulips that are associated with each region, visually, are quite different - the Dutch tulips open and blousy blooms, whereas the Turkish tulips are tighter, each cultivated and engineered to reflect the preferences of the culture.

JMC: Mushrooms are fungi and not flowers but they are functionally similar to the tulips which appear in your oeuvre in that they are seemingly fragile and immobile, and grown and harvested for profit.

AR: Mushrooms I think are a nice counterpoint to the tulip - there are similarities both how they are portrayed as tropes in seventeenth-century engravings to warn against the dangers of the stock market (tulips as a symbol of speculation, mushrooms to represent the large number of companies that 'sprung up' in the wake of other speculative bubbles) - and also more broadly in the popular imagination. Mushrooms at the period had connotations of rot which links to the ideas around decay that were embedded in the Vanitas paintings that were a huge visual inspiration for *the Mosaic Virus*. These paintings, which featured flowers (often tulips) and fruit, were meant to illustrate that beauty and treasure are only fleeting and would only last a short while before spoiling and falling away. However, the way that they behave is extremely different - whereas tulip bulbs take a long time to grow from seed (sometimes up to five years) and require specific conditions in which to flourish, mushrooms can spread huge amounts of spores quickly and can grow in almost under almost any circumstances.

JMC: I know you spent a long time in the Netherlands, examining flower growth and production from bulb to market as shot original photosets. How did you factor that very subjective experience and the unpredictability of botanic-affection variables – such as weather, parasites, genetic mutations, or dominants – the set of rules for data manipulations to build out your visual model?

AR: A large part of my practice when working with machine learning is making a dataset. Increasingly the idea of the dataset has become inseparable from machine learning and artificial intelligence for its crucial role in its functionality: what is contained in a dataset - images, words, numbers - becomes the knowledge that an algorithm has to create its world. Datasets need to be extremely large in order for the algorithms to have enough information to make inferences; they also need to be cleaned and standardised for them to be usable.

For my work with tulips, I had to create my own dataset. While I was based in Utrecht I took 10,000 photographs of the flowers over the course of three months (and the reason I stopped at 10,000 was that tulip season ended, so while this is a very digital piece, it is driven by the rhythms of nature). It forced me to examine each image and inverts the usual process of creating the type of dataset that is usually

used in machine learning, put together by Mechanical Turks, who label and categorize images scraped from the internet. The process becomes almost like craft - repetitive, time-consuming but necessary in order to produce something beautiful. Each flower will have slight variations. There will be no perfect ideal one. The differences between each are noticed as you are looking for this, rather than similarities, which is what will produce interesting results. And there is a skill to it. If it is too big, if there are too many images, the results will be too good and the quirks and oddities that make it an interesting medium to explore will disappear. If it is too small it will not have enough information and become flummoxed, either producing nothing or one or two variations from the training set again and again. Working in this way, machine learning becomes a process. I would build models, look at the results and then adjust and change what I was photographing, seeking out certain types or colours of tulips in order for the eventual output to be balanced and interesting.

Also necessary in order for the dataset to work in the way that I wanted it was to invent categories and add labels to each of the photographs - what colour for example, what type of tulip, how striped it was, whether it was a bud or dying - in order for the algorithm to understand what is in each image. This project, linking back to how botanical taxonomy has always been a way of collapsing and ordering the world, also emphasises ideas around objectivity and subjectivity in science. I created an idiosyncratic system, one that was entirely constructed by me, and this humanness was something that I wanted to emphasize. In the installation version of the dataset, *Myriad (Tulips),* (the 'real' dataset, the dataset that is used by the algorithm, is a numpy array constructed of 0s and 1s), thousands of handwritten photos are hung in a grid. It is easy to forget in the digital age that information is physical; by placing things back into the real world people can start to comprehend aspects about the data that they did not before. Attention is drawn to the act of categorisation by handwriting each of the labels onto the photographs. These labels show the shifting of these categories even as I wrote them, with words crossed out as I changed my mind - it is hard to decide when a flower is on a boundary, whether it is pale pink or white, red or orange - adjusting according to the time of day, mood, what I had seen before.

But despite all of this apparent control - the labelling, the careful placement of the tulip in the centre of each image, the hours I would spend checking everything - I never could be certain exactly what the model would produce. I could guess, but I would never know. And in this way, it does feel a bit like gardening, or perhaps growing a plant: you have an idea of what it will look like after it germinates and grows, you allowing something (water, light) to work on it, but the outcome, the actual flower or plant will always be individual, unique and something that can never really be anticipated.

JMC: Looking again at your photographs of flowers and their subsequent second life in the formalised artworks gives this new media gave me an underpinning in archeology about older forms of taxonomic organisation, beginning with observation, moving to accompaniment with identification, and culminating in thoughtful reflection. How do you feel about the role of the tulips, and plants in general, as possessing planned and reliable effects in the projection of autonomous agents, such as artists and agencies, in the places where we experience art? In the realm of the type of coding you do, do plants in any way challenge the process of digitization? Or do "intelligent machines" play a role in creating a sort of "language" for plant communication that, until recently, would only have been granted to humans and perhaps animals, who, while they cannot speak, possess the clearly visible self-activity? Before the humanization of society through the Enlightenment – for example in the work of Novalis and Romantic painters such as Caspar David Friedrich who elevated

Anna Ridler

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Process shot of creating *Myriad* and *Mosaic Virus (tulips)*; 2018; image courtesy of artist © Anna Ridler

Anna Ridler and Caroline Sinders

Detail of dataset of Cypress Trees; C-type digital prints; 2020; courtesy of artist© Anna Ridler

the plant-scape to a respectable form of art – plants were considered to possess souls and sentiency. How does the invisible machinery of programming language bring plants back into this type of consideration (if you think it does)? Or does the extraction of organic dimensionality expel the conceptualized spirit, and create a wholly new type of artefact?

AR: This brings up real questions as to what intelligence is. In some sense, plants use the same basic mechanisms that our nervous systems do, they react to stimulus - pain, light - and can send signals to other parts of itself. Does this constitute consciousness or intelligence? It is very different, in terms of complexity and reason-

ing from our brains, but then, there are brains that exist amongst animals that are radically different from our own and what we are used to. Working with machine learning, and by extension artificial intelligence, brings this question to the fore - will we be able to recognise a consciousness that is different from our own? Deep Learning, a branch of machine learning, is the use of neural nets, a class of functions that is constructed from a sequence of linear or nonlinear operations and is loosely inspired by the physiology of the human brain (although many biologists dispute this approximation). Generative Adversarial Networks (GANS), the type of networks I most commonly use in my work, fall into this category. Artificial Intelligence, as Alan Turing defines it, is getting a computer to think like a human - but this has not happened yet. These systems are not intelligent if we mean intelligence to be intelligence like ours.

When a GAN or other system is constructing an image of a tulip say, it is not trying to reproduce what we think of as a tulip. Any knowledge of tulip photographs has been distilled into a set of synaptic weights that a human would never be able to understand. It blindly generates from these weights - an abstraction of the 2D visual form of the tulip. However, this is not to say that I think of working in this way as being merely algorithmic, a known input and a desired output: there is too much mystery for it to be just that. It is usually impossible to understand why exactly these systems act in the way that they do. One of the major objections that scientists have to deep neural networks is that despite their impressive results, they are black boxes where it is not clear how any one component of the systems contributes to the overall results. Indeed it is not clear if the goals of interpretability and explainability and high performance can ever be reconciled. For example, when I was initially creating the tulip dataset, I was photographing a balance of all of the different colours of tulips. However, the images that were being produced by the model after it was fed all of this information were overwhelmingly red. No one knows why, but that type of architecture will always want to produce very bright colours (one of the reasons that a GAN-aesthetic can seem quite garish). There are still so many things that we do not understand.

JMC: On the other hand, in Alex Garland's *Annihilation* (2018), the flora defies any type of scientific model or analysis. The only member of the team of women scientists who successfully copes with the leaves and blossoms that begin to subsume her own genetic make-up does so by yielding. There's an early scene in Annihilation in which biologist Lena (Natalie Portman) examines a cluster of kaleidoscopically mutated flowers. "They're growing from the same branch structure, so it has to be the same species", she murmurs. "You'd sure as hell call it a pathology if you saw this in a human". Yet when the physicist Jose (Tessa Thompson) sprouts leaves and twigs from her arms and wanders into the forest to become a tree herself, the scene is tranquil and moving. Are there aspects of botany that cannot be quantified by formulas or taxonomic classification?

AR: From a formal, scientific view, it is clear that there are still many things that slip through the current systems of classifying things in both botany and also the wider natural world, particularly around algorithmic classification. As mentioned before, algorithms are only as good as the data they have been trained on. This means that they work on species that are known. However, there is a huge number of living organisms - plants, animals, etc. - that have yet to be formally described by science which makes it difficult for them to be detected or classified by current systems. The taxonomy of living things, which describes relationships between organisms, has been created and refined overtime is based on grouping distinct species. This usually correlates well with their visual appearance but not always and there are

cases where things that are somewhat far apart on the tree of life can look similar, which could 'confuse" an algorithm into thinking that they are more closely related than they are. I think, perhaps, there is a tendency to think that algorithmic or computational classification is better or more accurate than that of humans but there are still gaps where it will fail. Algorithms, for example, find it difficult to differentiate between crows or ravens, but this is something that humans can easily infer.

Classification, even within scientific processes, is not infallible. Although it is a human tendency to divide things into discrete categories, this does not necessarily mean that it is possible to do so in an accurate manner - different people privilege different things. This is why I am also drawn, perhaps, to more idiosyncratic or non-utilitarian systems of categorisation, which reflect the subjectivity and preferences of the person who created them - from John Wilikin's 17th-century classification scheme of the world (which had 40 categories including God, diseases, and stone) through to the Borges response to it (a fictional ancient list that instructs how to classify animals into fourteen broad categories: animals that are the property of the emperor, animals that look like flies from a distance, mermaids, animals are tame, and those simply not listed). It draws attention to and ridicules the arbitrariness and cultural specificity of any attempt to categorize the world, and the difficulty of trying to do so. Everything, ultimately, is subjective.

JMC: Botany and women are having an insurgent moment in film, and I wanted to know if you see a connection between this trend, your work, and the vector of disaster capitalism that has been so catastrophic for the health and wellbeing of women. In both Sofia Coppola's remake of *The Beguiled* (2017) and Paul Thomas Anderson's *Phantom Thread* (2017), compelling women characters harness their botanical knowledge to protect, avenge, or injure. Killer plants offer a vision of how masculine aggression can be countered with weaponized domesticity. This makes them the perfect foil for the cliché of the docile feminine which *All Her Beautiful Green Remains In Tears* interrogates.

Could you explain a little bit about your 2018 collaboration with Amy Cutler *All Her Beautiful Green Remains In Tears*? What surprises did the "consciousness" of the neural network informed by romance novels produce? Was the coherence seamless or jarring, or more like the sporadic profundity of the Oracle from *Battlestar Galactica*? What would the impressions of a viewer who knew nothing either about the Disney source material or the programming language of the new narrator gather from this project?

AR: *All Her Beautiful Green Remains In Tears,* a film created by Amy Cutler in which archival nature documentary footage that was mediated through a number of different machine learning tools, is a way of exploring and subverting genre, language, and categories. She constructed the film from repurposed footage from Walt Disney's 1951 nature documentary series *Nature's Half Acre*, with its analogies to post-war suburbia: squeezing the wilderness into the shape of the domestic. It is also, in a way, informed by the content of 14 million romance novels, which also rely on the same tropes and symbols of traditional gender roles and societal conformity. This linking of nature to romance is not new - even the phrase 'the birds and the bees' brings together these two ideas together, sanitising and making both seem more palatable - but by joining these two genres as source material, the film hoped to emphasise this hegemony and also, at the same time, through the process, break it.

I worked with the machine learning systems. Stills from the footage were first fed into a machine learning model trained on closed captioning, which described what was in the image. These initial results reflect the type of programmes that tend to have closed captioning and nature was often coded back into the domestic - cat-

erpillars become cakes, mountains become mountains on a tv screen - because of the probable lack of natural scenes in the original training data. These captions were then used as prompts on a separate network that had been trained on the romance novels, generating a separate different response that seems more emotional and fantastical. Reams of scripts were produced, up to half a page per still, and a large part of the project involved Amy distilling this down into the narrative that then drives the film. The script was read out in the final soundtrack by a separate neural net, trained on my own voice to create synthetic utterances. Even here there is both a collapse and solidifying of language and meaning: the 'tears' of the title was ambiguous when written down and could have been either tears as in rupture or tears as in crying, similarly 'remains' could have either been a noun or a verb.

Because the eventual output was removed from the original image, surprises that occurred through this process: "the colour of roses [that] clung to my skin', 'a view of a pink lighting hanging from a tree'. The shape of the film changed throughout the process - it was not pre-formed but responded to the interesting and unexpected. The unusual and chance phrases or images which surface inevitably lead in particular directions; this way of working balances creative decisions with unexpected associations and movements in the narrative. Some things had to be cut: most footage with insects as there was little recognition in either of the models (the closest it came was to describe something as "a cake in the shape of an insect" rather than an insect itself). It becomes a process – looping between humans and the machine - to construct a story and narrative – suggesting but not choosing. If there is no knowledge of how the film was made some of the questions that we were each interested in exploring - what happens when stock footage of nature is recut and reprocessed through these very failable systems, what messages does it carry, what gets lost - might not be as clear, but others, such around the romantic anthropomorphism of nature, still remain.

The unusual and chance phrases or images which surface inevitably lead in particular directions; this way of working balances creative decisions with unexpected associations and movements in the narrative.

JMC: A system structured around machine learning to produce artwork offers a controlled microcosm of the world we now live in, where algorithms predict our behaviour, tracking everything from search words to our physical movements. Do you find that one interpretation of your work could be that, just as outside it, human behaviour has a profound effect on an environment that we share with other living organisms?

AR: Building these models in the way that I choose to do - from the dataset through to the algorithms - allows me to create my own world, but also the choice of what to do with that world. I try to use technologies that might have been designed for specific commercial reasons to do something very different. Something I am very conscious of is that although this is a constructed, digital world that exists on a hard drive, it does mean that the creation of it did not impact the real, physical one. There is always an interplay. The model is physical and exists in the real world. I am also highly conscious that by choosing to use this technology - from the artificial intelligence that created the moving image pieces that has the potential to generate infinite flowers to the enormous distributed network that sits behind Ethereum is used - that these materials use an incredible amount of energy. To make *Bloemenveiling,* for example, I used a few supercomputers worth of computational power to build something about as fast as a cell phone from the '90s. I've spent months running something for Mosaic Virus that can now create perfect simulacra of nature, whilst all the time using up the natural resources in order to create it. I physically feel a change in temperature in my studio when I make a model because of the amount of energy that is being used by the GPU. AI systems are part of nearly every aspect of an individuals' life, in visible and invisible ways. With the creation of new tools, it's never been easier to make products or even art with AI. We're now entering a period similar to fast fashion, where the use of ML feels almost disposable, without the consideration of consequence of use. This is why it's so important to understand the environmental impact of technology and AI and their links to capitalism. And to reiterate the parallel between botany and machine learning: in the former, the urge to understand and bring back ultimately has led to the destruction of the object in question; I worry this will also happen with this technology, the power, and resources that it uses might lead to unknown, unintended consequences.

JMC: Do you have any unrealized projects – dream projects that have been too big or too small to yet be realized? What are you currently working on?

AR: My current research, due to be shown in Ars Electronica in 2021, is very much around machine learning's impacts and ecological footprint. As part of this commission, which I am collaborating with Caroline Sinders on, we will be exploring deforestation and the politics of climate change, memory, and loss. We are in a climate crisis that is entwined with a series of other crises. I want to pull out the expectations, histories, traces, and contexts that AI has within this - for example, there has long been a collaboration between big tech, specifically machine learning, and big oil (some of the earliest test cases for deep learning have been in the oil industries; there is an ongoing debate amongst technology companies as to how involved they should be in fossil fuels). By bringing back this history out, I want to emphasise the socio-technical powers that AI has emerged from.

A large part of the project will be to build a dataset of a specific type of tree, the Bald Cypress, often considered to be a symbol of the swamps in the American South, which would then be used to create a machine learning generated moving image piece. Bald Cypresses are trees that can live thousands of years (the oldest in North Carolina is believed to be over 2,600 years old) but are currently considered 'threatened'. There will be something quite nice about the difficulty of doing this for these types of tree which is at risk, recording it as much as we can - this can play into a wider conversation about what ends up in datasets are things that are easy to find, and how this becomes the norm. As artists, we both measure and take stock of how much work, research, ephemera goes into our practice, and we've tried to make those processes readable to others. In this case, we keep returning to the 'cost' of tech-based art- the cost in terms of labor, black boxes, and environmental impact. Can AI be sustainable, and how? It has the potential to do a great amount of good but also great harm in society- we hope to make visible these hidden costs in our work and a better way of working found.

Anna Ridler is an artist and researcher who lives and works in London. She is interested in systems of knowledge, with a desire to know and to make this process of knowing available. She works with new technologies, exploring how they are created in order to better understand society and the world. Her process often involves working with collections of information or data, particularly self-generated data sets, to create new and unusual narratives in a variety of mediums and how new technologies, such as machine learning, can be used to translate them to an audience. Ridler holds an MA from the Royal College of Art and a BA from Oxford University. Her work has been exhibited widely at cultural institutions worldwide including the Victoria and Albert Museum, the Barbican Centre, Centre Pompidou, HeK Basel, The Photographers' Gallery, the ZKM Karlsruhe, and Ars Electronica.

Jean Marie Carey has a PhD in art history and Germanistik and is a current U.S.-Norway Fulbright postdoctoral fellow as well as a research appointee through the Marie Sklodowska Curie Actions at the Universitetet i Stavanger Arkeologisk Museum in Stavanger, Norway. Carey studies conceptualisations of interspecies utopias as they are visualised in prehistoric art and the work of Franz Marc.

Charles Jones
Bean Longpod,
c.1895 -1910, © Sean Sexton, Photo copyright Dulwich Picture Gallery

Unearthed: Photography's Roots

Unearthed: Photography's Roots at *Dulwich Picture Gallery in London is the first exhibition to trace the history of photography as told through depictions of nature, revealing how the subject led to key advancements in the medium, from its very beginnings in 1840 to present day.* Unearthed: Photography's Roots *is the first major photography show at Dulwich Picture Gallery, bringing together over 100 works by 35 leading international photographers, many never seen before. In this interview, curator Alexander Moore talks about the rationale behind the selection of works and the narrtative strands that make this exhibition so compelling.*

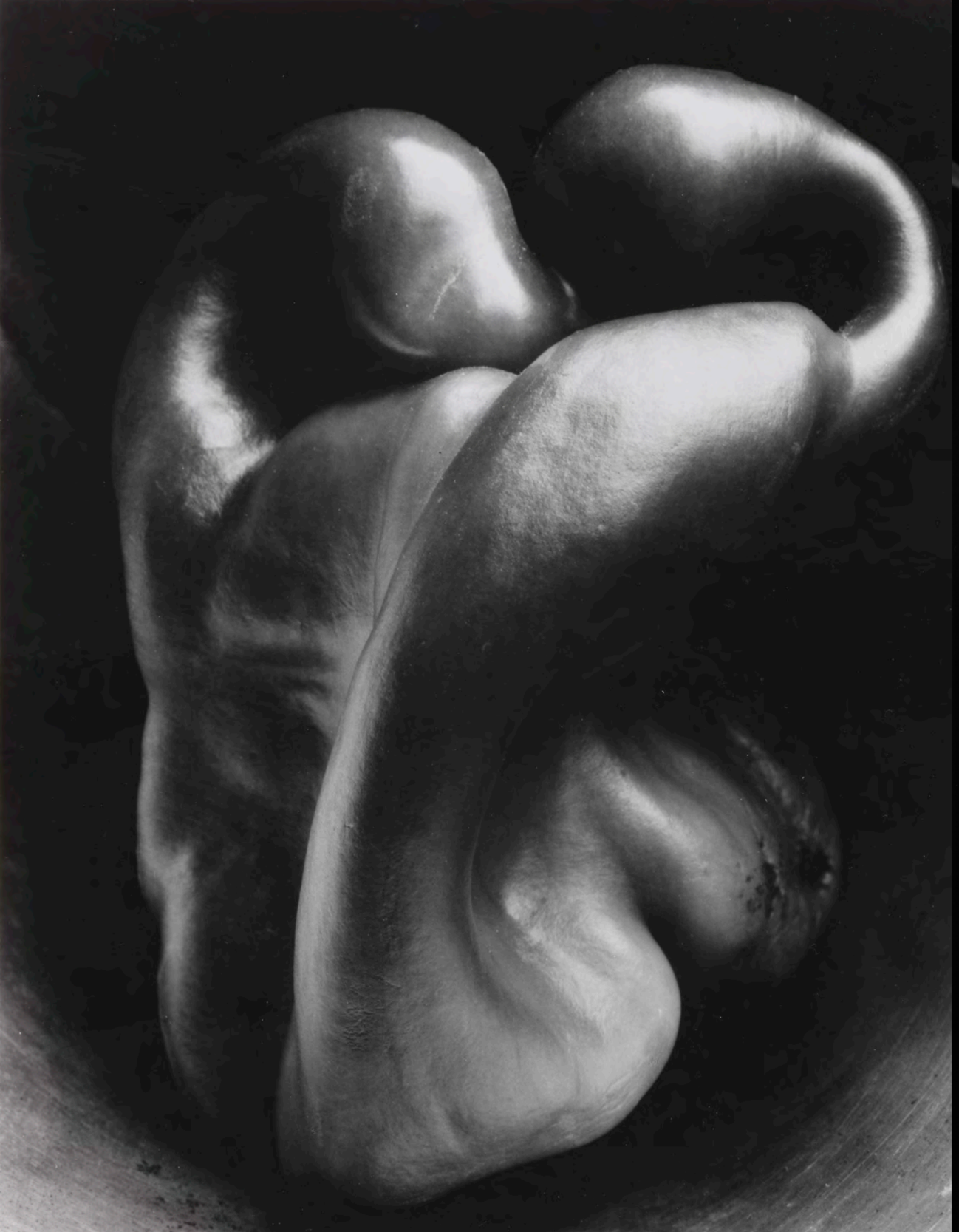
interviewee **Alexander Moore**
interviewer **Giovanni Aloi**

Presenting just one of the many possible histories of photography, *Unearthed: Photography's Roots* follows the lasting legacy of the great pioneers who made some of the world's first photographs of nature, examining key moments in the medium's history and the influences of sociological change, artistic movements and technological developments, including Pictorialism through to Modernism, experiments with colour and contemporary photography and new technologies.

Arranged chronologically and with a focus on botany and science throughout, the exhibition highlight the innovations of some of the medium's key figures, including William Henry Fox Talbot (1800-1877), Imogen Cunningham (1883-1976) and Robert Mapplethorpe (1946-1989) as well as several overlooked photographers including Japanese artist, Kazumasa Ogawa (1860-1929) and the English gardener, Charles Jones (1866-1959). It is the first show to publicly exhibit work by Jones, whose striking modernist photographs of plants remained unknown until 20 years after his death, when they were discovered in a trunk at Bermondsey Market in 1981.

The exhibition also foregrounds the artists who produced unprecedented photographic art in the twentieth century. The medium allowed for quick documentation of nature's infinite specimens, making it an important tool for scientists and botanists such as the German photographer and teacher Karl Blossfeldt (1865-1932) who captured close-up views of plant specimens in order to study and share an understanding of nature's 'architecture'. A selection of Blossfeldt's 'study aids' is displayed alongside work by the proud gardener Charles Jones, who used a glass plate camera to keep a meticulously illustrated record of his finest crops. Seen together for the first time, the two artists are examined for their pragmatic approach that set them apart from the romanticised style of their time.

A central focus for the show and a truly rare opportunity for visitors is a display of 11 works by the inventor and pioneer, Kazumasa Ogawa, whose effectively coloured photographs were created 30 years before colour film was invented. Ogawa combined printmaking and traditions in Japan to create truly original and pioneering photographs. By developing up to 16 different colour plates per image



from expertly hand coloured prints, he made Japan the world's leading producer of coloured photographs, the display of which is hoped to be a revelation for many.

Unearthed: Photography's Roots highlights how nature photography has remained consistently radical, inventive and influential over the past two centuries with the final rooms in the exhibition dedicated to more recent advancements in the medium. A selection of work by the renowned symbolist photographers Imogen Cunningham and Robert Mapplethorpe highlight the coded language of nature in photography. Both artists used nature to tackle the oppression experienced in their lives by channelling the strength and the sexuality of the natural subjects they photographed. This powerful symbolism, in works such as Mapplethorpe's *Tulips* (1984) and Cunningham's *Agave Design I* (1920s), allowed both artists to express themselves at a time when homosexuality was criminalised and women artists fought for recognition.

Giovanni Aloi: *Unearthed: Photography's Roots* traces the rich history of the medium through depictions of nature, with over 100 works by 41 leading international artists. The exhibition reveals the fascinating technical processes and narratives behind these images, showcasing innovations in photography. How did the idea for this exhibition emerge?

Alexander Moore: One of Dulwich Picture Gallery's current main objectives is around diversifying the gallery's audience. We are very lucky to have a dedicated following consisting mainly of historic painting enthusiasts and followers of Modern art. However, we truly believe that there is something at the gallery for everyone, no matter what excites you. One way in which we are expressing this is through programming which creates dialogues between our collection and other artistic mediums, in this case, photography. Though it is relevant to say that painting has inspired artistic developments in photography across the board, I feel that the most poignant example of this relationship between genres and time periods comes in the form of still life.

GA: What criteria guided the selection process?

AM: As we are not a gallery dedicated to photography, it was important from the outset to see this as an introduction to the medium for our audiences. Though the subject matter is narrow, the ground covered is enormous, and the exhibition manages to take the visitor through many of the key moments in photographic history – touching base with a great number of names who make up the great cannon of photography. The selection does not only look at those artist's contributions to the still life genre, and to nature photography, but also their impact on the culture of photography as a whole. This includes some lesser known, but important figures such as Kazumasa Ogawa – a great pioneer of coloured photography and ambassador for modern Japanese culture. As it is important to have some restrictions when curating a project like this, I decided that the selection would focus only on photographers who have taken nature out of its natural context, therefore excluding any photographs made 'en plein air'. This allowed me to study more carefully the self-reflective and sometimes intense relationship that the studio photographer has with their inanimate subject.

GA: Can you tell us about the organization of the exhibition and its main themes?

AM: Principally, the exhibition is a timeline. We begin by examining the story of photography's invention as told through the legacy of the great inventor and botanist William Henry Fox Talbot. In this room of Victorian pioneers, we also look at some of the earliest attempts at 'photographic art' and the pre-photographic medium's which inspired them. In the following section, the exhibition covers the tension between science and art which is unique to photography. This includes photographers Karl

p.52
Edward Weston

Pepper No. 30, 1937. The Kodak Collection at the National Media Museum, Bradford. Picture credit: National Science & Media Museum/ Science & Society Picture Library © Center for Creative Photography, Arizona Board of Regents

p.53
Imogen Cunningham

*Agave Design I,*1920s © The Imogen Cunningham Trust.

p.55
Kazumasa Ogawa

Chrysanthemum from 'Some Japanese Flowers', ca. 1894. Photo copyright Dulwich Picture Gallery.

Charles Jones
Broccoli Leamington, c.1895-1910 © Sean Sexton, Photo copyright Dulwich Picture Gallery

Blossfeldt and Charles Jones, who both used photography as a practical tool for taxonomy, inadvertently creating some of the first truly Modernist photographs. We then look at the introduction of hand-coloured photography and the photographer's desire to capture nature's true likeness before such possibilities existed. This links nicely with Ori Gersht's video installation in the gallery's mausoleum which was inspired by the impossible painted bouquets of Jan Brueghel the Elder. The following room celebrates the rise of 'straight photography' under the leadership of Edward Weston and examines the departure from Pictorialism and soft, painterly imagery. Finally, we present, and debate, photography as contemporary art. Looking at how new technologies are shifting the playing field, and how today's artists have been inspired by the complex relationship between delicate, yet enduring nature, and our rapidly developing society.

GA: The exhibition begins with a couple of stunning still-life paintings by Dutch Golden Age artist Jan van Huysum. What do these canvases underpin in the conceptual framework of an exhibition dedicated to photography and plants?

AM: Painting still provides much of the language and context for understanding still-life photography. Early pioneers like Roger Fenton could not have known where to begin in constructing a successful still-life photograph if it wasn't for painters like van Huysum. In the exhibition, the inclusion of this painting, and the painting by Brueghel, attempt to make that connection clear. Though photography has developed firmly into its own world, it would be a shame not to celebrate its connection with painting. The past two centuries gave us the photographic image, but the road to photographic art began several centuries before.

GA: You have gathered together the most beautiful selection of photograms made by photography pioneer Henry Fox Talbot. I have been fascinated by the idea that plants share an intimate link with the essence of the photographic medium. Their photosynthetic quality, the flatness of the leaves—the affinity is striking. Is this an idea that guided the selection of the included prints?

AM: I think it is easier to understand Talbot's use of the term 'nature's pencil' when we remember that the first of these camera-less photograms were made outside. What Talbot had invented was a way for nature to create an impression of itself, a self-portrait if you like. I do enjoy the perhaps somewhat romantic notion that photographs are not made by us, they are made by nature, and we have simply found a way to look upon their beauty for longer. There is no such thing as forever in analogue photography, we can slow time down dramatically through the captured image, but it will eventually fade and be reclaimed by light – by the very process which causes yet another subject to grow. I believe that there is a kind of poetry in this process that has been a gravitational pull for the most enlightened photographers.

GA: I was particularly pleased to see that Anna Atkins's *Photographs of British Algae: Cyanotype Impressions* is included in the exhibition. She has an incredibly creative personality and is credited with having produced the first photographic book in the world. How is this book displayed considering the limitations imposed by the format and its fragility?

AM: There are twelve copies (each one is unique) of *Photographs of British Algae,* which I am aware of. Each of these are generally divided up into 2 - 4 individually bound volumes. We are lucky enough to have a complete edition on loan to the gallery, which is presented as 4 books, each open on a different image. As a group, these reflect a good range in Atkin's work. We also have on loan 3 individual loose sheets which have

Richard Learoyd

Large Poppies, 2019 © the Artist. Image courtesy of Michael Hoppen Gallery

been left unbound and are therefore displayed on the wall. This is incredibly rare, generally Atkin's cyanotypes can only be viewed in book form. The cyanotype is not the most fragile of Victorian processes. In fact, recent research has shown that although they do fade when exposed to light, the signature electric blue colour actually regenerates of the print is then left in darkness for a 'cooling off period'.

GA: As you know, like many other female artists, Atkins has been seriously side-lined in the history of photography. It is only recently that her work has acquired more visibility. How important was it for the curatorial process to recover and reinstate the unsung protagonists of photography's history from around the world?

AM: I think it likely that we have only scratched the surface in terms of proper attribution and due credit in the history of photography. Just recently I was studying an album of landscape photographs presumed to be by the famous meteorologist James Glaisher. Of course, now that we know that his wife Cecilia was an avid photographer – might we need to look at these again? One of the most exciting stories in the exhibition is that of the gardener Charles Jones, whose breathtaking still-life photographs made around 1900 were not discovered until 20 years after his death. I had always thought that it was one of photography's hero's Edward Weston that discovered the true beauty in modern still-life photography. This is untrue, it was a gardener from Sussex...

GA: You have also included some photograms by printmaker Cecilia Glaisher. What is special about her portrayal of plants through the photographic medium?

AM: Unfortunately, Cecilia Glaisher's extraordinary fern photographs are a reminder to entrepreneurs everywhere that timing is everything. The Victorian 'fern craze' did not reach such dizzying heights as 17th-century 'tulip mania', but certainly with the right approach, there were opportunities for great commercial success. Glaisher saw this and set about creating her mouth-watering portfolio of Britain's finest ferns. However, the project became too large, too expensive, and took far too long. It is for these reasons that *British Ferns: Represented in a Series of Photographs from Nature by Mrs. Glaisher* was never published. I do hope that one day it will be and that as a result Glaisher is given the credit which her contemporary Anna Atkins has received. Until then, just a handful of lucky people will be able to enjoy the wonderous patterns and details in her enormous (by Victorian standards) albumen prints.

GA: I was also particularly pleased to see the work of Kazumasa Ogawa in the exhibition. Ogawa was an experimental photographer and printer in Meiji era Japan. He went far beyond the kind of purely commercial type of photographic production that characterized the work of many of his contemporaries by envisioning a thoroughly modern representation of the natural world that surrounded him. His photographic book titled *Some Japanese Flowers* features hand-colored photographs of flowers that by far predate the colorful experimentations of western pop art. It's as if he deliberately sought to transfigure the flowers through an oversaturated coloration rather than do justice to their natural chromatic range. Are these prints owned by Dulwich Picture Gallery? Do we know how these entered the collection?

AM: The coloured works by Ogawa in the exhibition are on loan from various private collections. Ogawa's flower depictions are certainly colourful for a reason, for they had a diplomatic mission. His coloured photographs of Japanese culture were some of the first to be seen by a Western audience – the great majority of which would never see Japan with their own eyes. As part of the first generation of Meiji era industrialists, Ogawa had a responsibility and an opportunity to attract tourism and trade outside of the country's previously closed borders. Really, the reference point for the colour palette in these works is a retrospective one – looking back at the great history of Japanese woodblock printing and introducing a new realism into this realm, as opposed to trying to replicate the colours in nature so accurately. After all, the idea that colour photography would ever exist was nothing more than a hypothetical concept when these works were made. However, I do

John Moffat

Still Life with Anatomised Flowers Under a Bell Jar, Stereocard, c. 1862

think that Ogawa was also trying to capture what it feels like to see these flowers, bathed in sunlight, reflecting a whole spectrum of colours. Despite his ability to include up to 25 different hues in these prints, he would still have needed to make a choice regarding which of these colours most effectively communicated the feeling of seeing the flowers.

GA: Which, would you say, is the most unusual piece in the exhibition?

AM: In the second room of the exhibition there is a small, quite easy to overlook, stereoscopic image of 'anatomised flowers' in a bell jar. Seeing this work for the first time I could not fathom exactly what I was looking at. As a 3D image, the work appears like nature's ghost – an arrangement of semi-transparent leaves and stems reaching out at you. When I discovered the piece it had no attribution, which only made it more alluring. I've since credited the watercolourist and engraver John Moffat with its creation. After some further research, I learned that 'Phantom Bouquets' were a popular pastime with Victorians, and in fact a number of them appeared in both The Great Exhibition of 1851 and The International Exhibition of 1862. They are quite easy to make if you have the patience and a well-ventilated kitchen! The process involves boiling leaves in sodium bicarbonate before painstakingly brushing away the vegetal matter and finally bleaching the remaining vein structure. I would argue that seeing these natural sculptures in stereoscopic format is a different experience entirely, far more satisfying than seeing them 'in the flesh'. The medium transforms the skeletal leaves into an immersive, anatomical experience. When you visit, remember to pick up a pair of stereo viewers from the gallery shop!

Alexander Moore graduated with a photography degree from Staffordshire University in 2011. After a short career as an award-winning published photographer, Alexander joined Huxley-Parlour – one of London's leading photography dealerships – where he helped establish a programme celebrating international contemporary photographers and wrote the exhibition catalogue *Steve McCurry: Afghanistan* (2014). In 2015 he left Huxley-Parlour to work for the fashion photographer Mario Testino, where he was responsible for launching exhibitions in Berlin, Dubai, New York, Amsterdam, Lima and Copenhagen. He joined Dulwich Picture Gallery as Head of Exhibitions in 2018. In eight years, Alexander has worked on forty exhibitions across twelve venues. *Unearthed: Photography's Roots,* will be the first public exhibition to be curated by him.

Bahia Shehab:
The Chronicles of Flowers

The Chronicles of Flowers *is a personal document of Bahia Shehab's long-lasting relationship with flowers. In the spring of 2011, when Shehab broke her left knee, her mother came from Beirut to nurse her in Cairo. Every morning, she created a flower arrangement from the garden next to Shehab's bed. This process triggered a state of obsessive flower documentation for the artist that lasted for several years.*

text and images by **Bahia Shehab**

The Chronicles of Flowers is an ongoing art project initiated in 2017. It is based on a personal narrative that starts in the early 1980's civil war in Beirut and ends in 2017 post-revolution Cairo. It attempts to highlight what would seem like small personal stories that revolve around flowers, but that, in reality, are a reflection of a life lived between wars and revolutions.

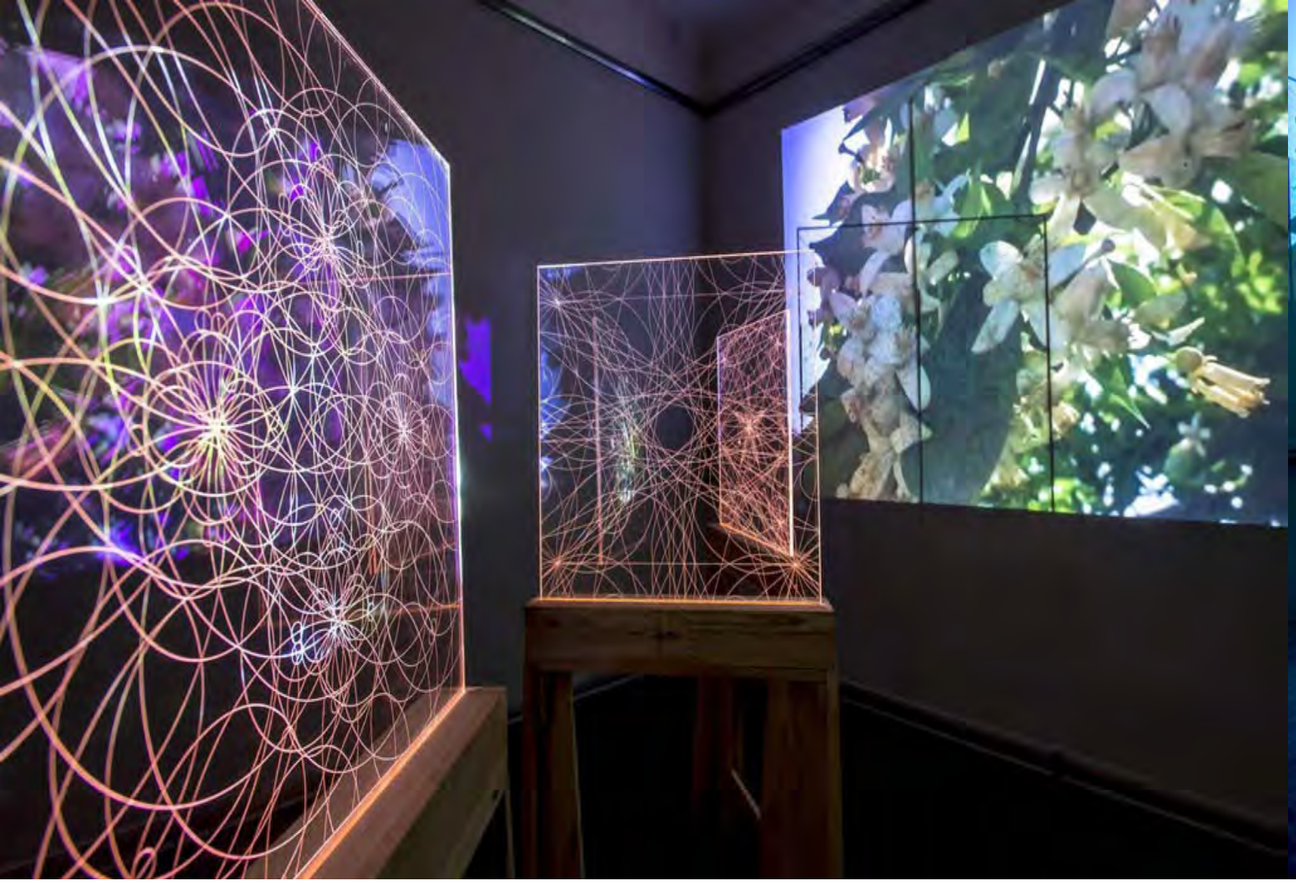
In the spring of 2011, I broke my left knee. My mother flew in from Beirut to nurse me in Cairo. Every morning she would create a small flower arrangement that she would pick from the garden and leave in a cup next to my bed. During my two months bed rest I started photographing these flowers. That process of pausing to look triggered a state of obsessive flower documentation that lasted for several years. This project is in part, a very personal documentation of my long relationship with flowers. I realized that throughout my childhood, teenage and womanhood, flowers, just like the different women in my life, have played a very important role in my understanding of who I am. I grew up in a family that values flowers and their meaning. Flowers decorate nargilas and necklines, walking sticks and bedsides, balconies, and living rooms. They are distilled or cooked in sweets and special seasonal dishes. They are dried to be consumed in teas during the cold winters. Throughout my life, flowers have marked my relationship to my surroundings. They became the screen through which I perceived the world. That idea of screens reminded me of the ancient mashrabiyyas (screens) that used to grace the facades of buildings in the Arab and Islamic world and how their design was also inspired by geometry and nature. The masharabiyya allowed the person inhibiting the house to see and not be seen. It shielded the residents from the inquisitive eyes of voyeurs on the street while giving them the chance to be voyeurs themselves and peek at whomever they pleased. It allowed the air and sun in while creating playful shadows that travelled around the room to indicate the time of day. And I thought, if I were to turn my own flowers into masharbiyyas what would they look like?

Bahia Shehab

The Chronicles of Flowers, exhibition, Istanbul, Turkey, May, 9, 2017 - June, 17, 2017 © Bahia Shehab

The book I created is a visual documentation of the flowers that started in 2011 and continued for 6 years. During these years I took hundreds of photos of flowers but had to select a limited number to include in the book. I selected the 77 flowers that had a story for me to include in the book. The flowers documented are wild or grown flowers and fruit and vegetable flowers. They are food for the body and the soul. They tell the stories of nature and culture. How people grow and consume their food, and how it shapes their relationship to their land and each other. Using flowers and my personal narrative as tools, I tried to tell the story of small cultural habits that are not necessarily documented by academic books or in novels. My book has no sequence of events, each flower is a memory that took place either in Lebanon or in Egypt.

After the photo selection of flowers, an abstraction process started for each flower to turn it into a pure geometric form. The outcome became a book with the taxonomy of each of these 77 flowers in addition to the picture I took of



Bahia Shehab

The Chronicles of Flowers, exhibition, Istanbul, Turkey, May, 9, 2017 - June, 17, 2017 © Bahia Shehab

it, the abstracted geometric studies, and a memory.

For the exhibition, I created three engraved and lit acrylic mashrabiyyas, each of them with a flower to represent the lineage of women in my family. I chose the orange blossom for my mother, the Indian jasmine for myself, and the Poinciana for my daughters. I then created three short videos to be projected in the room on these lit masharbiyyas and I added scents of jasmine and orange blossom to the room. The outcome became a multi-sensory experience that transmits emotions and a small snapshot of our link to each other and to nature.

Flowers are an indication of a season, a phase in our life that comes and goes. They are ephemeral, they bring joy and they leave without asking questions or demanding answers. They come back, every spring and every summer to remind us of promises we made to our loved ones, our sick ones, the ones who have left, and the ones who stayed. The flowers are my memories of my family, my neighbors, my friends, and my countries.

To me, every flower has a memory. In the same way that looking through a mashrabiyya shapes our perception of the world, my flower memories are reminders of the love that my grandmother has handed down to my mother and that which my mother has handed down to me and the same that I have handed down to my daughters and the one that they will hand down to theirs. Love, just

Bahia Shehab

The Chronicles of Flowers, exhibition, Istanbul, Turkey, May, 9, 2017 - June, 17, 2017 © Bahia Shehab

like our genes and other tangible belongings, is handed down from one generation to the other, and just like flowers, it might disappear in seasons, but if we are patient enough to go through another winter, it reappears in spring to remind us that it is still there.

Bahia Shehab is a multidisciplinary artist, designer and art historian. She is Professor of design and founder of the graphic design program at The American University in Cairo. Her work has been exhibited in museums, galleries and streets in over 26 cities around the world. She has received a number of international recognitions and awards, which include the BBC 100 Women list, a TED Senior fellowship, a Bellagio fellowship, and a Prince Claus Award. She is the first Arab woman to receive the UNESCO-Sharjah Prize for Arab Culture. Bahia holds a PhD from Leiden University in The Netherlands and is the founding director of *Type Lab@AUC*. Her publications include *You Can Crush the Flowers: A Visual Memoir of the Egyptian Revolution* (2021), *At The Corner of a Dream* (2019), *A Thousand Times NO: The Visual History of Lam-Alif* (2010) and the co-authored book *A History of Arab Graphic Design* (2020).

Raksha Patel:
Air Heads

This series of works explore ideas of renewal and decay. We are presented with oval shaped paintings; works that mirror the size of our faces, whilst challenging the traditions of portraiture. Heads are replaced with a variety of leaves, each bearing antromorphic qualities. These images have been inspired through looking at historic ceiling paintings that draw our attention to activity taking place in the heavens, however in this series grandeur is brought back to Earth with a bump. The paintings depict the ordinariness of our everyday; species of plant have been re-titled, using names that we are familiar with. Collectively they question notions of contemporary culture, consumerism and ideas of climate change.

text and images by **Raksha Patel**

Time. There is never enough of it. We all think about time, find ways to short-cut it, strategies to gain it, attempt to buy ourselves more in a bid to defy it. Like the white rabbit in Alice, we can find ourselves in a complex warren of tangible and intangible spaces that challenge us and in turn slow us down.

This series of paintings make notes of time. Fleeting moments are painted in high definition-technicolor, nature magnified, making what is humanly impossible to see by the naked eye, possible. These glorified fragments of trees capture moments frozen in time, a still, life that has stopped momentarily, like the pause button on a film allowing us to glimpse the flurry of leaves that rush by us in a whirlwind.

Stop, look and see... at what is being said...

and pause to reflect upon oval-shaped paintings that mirror the size of our faces, that reveal what we might not want to see in ourselves. We see the intricately painted, colourful details of leaves that fold, curl, and shy away from us. Paradoxically they stand proud, with wisdom coursing through their tiny veins, knowledge accrued over a season. What have these leaves experienced? Was it the warmth of the rising sun? Or the stories that they have heard spoken by parakeets? Leaves know more than we do.

Myrtle! The starry-eyed flower of love...

This leaf is not Myrtle, but what's in a name anyway? Smothered in age-defying anti-wrinkle cream Myrtle proudly glistens in the imperial evening light, the purplish hue surrounding her frail grey ghostly body. She tippi-toes across wispy flames, passing by our faces as we think about what we might eat for dinner. Who was Myrtle? Did she know who she was herself? The light imbues the extremities of this leaf; whilst its centrality appears chocolaty solid and seemingly permanent like an evergreen. The season trundles past as the evenings draw in close, limiting the light that we have at this time.

Those Gemini twins Edward and Edgar should wait for us, they move way too

Raksha Patel
Edward and Edgar,
Acrylic on canvas, 2014

p. 66
Ya-Te-Veo, Acrylic on canvas, 2015

p.67
The Party Pooper,
Acrylic on canvas, 2015

fast. Rustling through the sky as they move, babbling and chattering to each other in their crinkly language that is so hard to decipher. Have plants always spoken a different language to us? What are they saying (or praying) as they twist and vine their way up to the heavens? The twins are unruly, like two loose cannons, they do as they please, letting the flow of the wind guide their skeletal bodies as they ecologically travel the skies. We will never know what conversations they had, but at a guess, I reckon that they argued about the truth of blue skies and the fact that sometimes, unbeknown to plants, it is tinged with a sulphuric yellow. You can never hide a painful smile.

Plants and flowers grow everywhere we only need to look. We open our eyes to see the sprawling mass of glass and concrete structures pervading the small green spaces of the city, filling up every patch of the picnic area. Yet plants and flowers don't complain, they establish their roots making these giant monstrosities their homes. Perhaps we too should live more like plants do, move towards the light, rise, and just get on with things.

That said, I am not sure that we should liken *all* plant nature to the way that we live as human beings. Definitely, not in the case of Ya-Te-Veo, the carnivorous plant that consumes the flesh of man or whoever has had the misfortune to cross its path. This plant has love. It also loves to eat, and its desire is abundant, just like living in a world where the feeling of satisfaction is discouraged, and we are enticed to devour more and more. The warm glow of the palette in this painting reflects upon desire, as well as a fire that continues to burn with fuel that is added to it. The two leaves are entwined at the hips in an embrace. Caught in a web, their love becomes an obsession; they consume each other's identities whilst becoming fictions of their true selves.

The anthropomorphic quality of these paintings encourages us to draw parallels between the human body and plants. They have been inspired by historic ceiling paintings that draw our attention to activity taking place in the heavens, bringing grandeur back to Earth with a bump. They question the traditions of portraiture by replacing heads with leaves. Exploring notions of time, decay and renewal may appear melancholic, removing our importance as humans, separating us from the world of plants. However, the paintings also are a celebration of the free spirit found in nature. The leaves have been painted in a manner that isn't prettified in order to satisfy us aesthetically, but for us to question our place in the environment taking us out of pots of thinking that we might be rooted in.

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Selected exhibitions include: *Stellatus Re-Visited,* Site Gallery (2019) *The Summer Exhibition,* The Royal Academy of Arts (2019) *Florilegium,* The Royal College of Physicians (2018) *Uproot,* The South London Botanical Institute (2018) *Inside Job*, Tate Modern (2018) *Painting Now,* Studio One Gallery, London (2017) *Lives, Loves and Loss,* Traces at National Trust, Fenton House (2016) *The Trouble with Painting Today*, Pump House Gallery (2015) *Forget-Me-Knot*, Pitzhanger Manor Gallery (2013), *We were Trying to Make Sense*, 1 Shantiroad, Bangalore (2013) *Jerwood Drawing Prize*, Jerwood Gallery (2011) *The Mausoleum of Lost Objects*, inIVA - Rivington Space (2008) *The Redemptive Beauty of Life After Death,* The Bonnington Gallery (2007) *Visions in the Nunnery*, The Nunnery Gallery (2006) and *Creative Connections*, Whitechapel Gallery (2005). She works as an artist-educator/lecturer at Tate Modern and Camberwell College of Arts.

Time-based trees: A sequel to animated aesthetics

*In Cyprian Gaillard's (*1980) 3D film* Nightlife *(2015) trees play the leading role. Especially in the context of video art, trees are not sculptures, because they grow and are no immobilized dead artefacts. In this paper I argue regarding the agency of the trees, that they perform an animated aesthetics. Anticipating the popularity of trees in Western philosophy the Hollywood Junipers' dancing undermines that tradition. Instead of being displayed as entities representing hierarchic structures with a crown, a trunk, and roots, the delicate waving of the twisted shoots with their needle-like leaves tells a different story.*

words by **Martin Bartelmus**
images by **Cyprian Gaillard**

In Cyprian Gaillard's 3D film *Nightlife* (2015) plants play the leading role. This video work's outstanding characteristic is the combination of 3D visuality like cutting edge imaging techniques and drones as well as auditory echo and reverberation effects. Filmed over the course of two years in Cleveland, Los Angeles and Berlin, the film was shown at Gaillard's exhibition *Where Nature Runs Riot.* The title refers to the artists interest in the obstinacy of objects and nonhuman entities, in the destruction and deconstruction of architecture and the re-conquest of cultural habitats by nonhuman agents like plants. The Film consists of four parts. This essay focuses the second part. In the second Part an extraordinary tree is the significant agent. Therefore, follows a short summary of the three remaining parts.

In the first part of the time-based media art piece August Rodin's sculpture *Thinker* at the Cleveland Museum in the United States is the center of attention. The sculpture was damaged in the 1970s by the leftist underground organization The Weatherman as a protest against the Vietnam war.[1] The camera shows a close up of the destroyed sculpture. By retreating, the camera slowly gives a full view on the statue. The third part shows a firework over Berlin's *Olympiastadion* as a fascinating and colorful outburst. Those fireworks belong to the festival *Pyronale* where the fireworks industry shows their new products. An absurd ecological and economical symbol for the capitalist society burning down and celebrating their new "developments". But this happens in the Nazi-architecture of the *Olympiastadion* "designed by Werner March for Adolf Hitler's 1936 XIth Olympic Games."[2] The last part stars an oak tree, which was given Jesse Owans by the German Olympic Committee for wining at the Olympic Games mentioned above. "As a *natural monument* to resilience"[3] trees seem to be a special interest in Gaillard's work. Hence, in many artworks, trees become the leading agents of subverting politics and ideology, economic and social contradictions.

The second part on which this essay is focused, shows the Hollywood Juniper in urban and industrial sites in Los Angeles. A little over two minutes into the film, the camera moves up to give view to two trees flanking a barred gate. The trees sway in the wind and seem to protect what is behind the gate. The viewer sees them in a close up, as if the film meant to introduce them. After three and a half minutes, an abandoned tree is filmed in front of a small wall with barbed wire on top. After six minutes, we see trees swaying wildly against a fence in a close up supported by a stroboscopic effect and booming music. The

Cyprien Gaillard

Nightlife, 2015, digital 3D motion picture, 14', color, sound. Film still. Courtesy of the artist and Sprüth Magers, Berlin

second of the work's three parts in particular makes visible an "animated aesthetic": trees swaying in the wind. Those trees, stranded in Los Angeles between asphalt and concrete, are hypnotically attractive and deconstruct the scopic regime of an anthropocentric aesthetic based on ideas of noble simplicity and quiet grandeur, of the sublime and the beautiful, even to the point where viewers have to wear specific glasses which transform the seen image into a human three-dimensional experience.

Gaillard's film neither tells a linear story, nor does it show sculptural entities. On the contrary, with the help of the trees, the film undermines, the narrative paradigm of time, motion and space through technical effects of slow-motion, sound and the plasticity the three-dimensional perspective provides. Gaillard's film shows trees outside of their natural setting of a forest or a jungle. Neither are they trees culturally domesticated in a park or a garden. They are different, special, their beauty a matter outside of a Western framework of aesthetics, because the trees produce meaning without language, without a subject as a spectator who correlates with the tree mediated through the video by seeing the video. The time-based media artwork seems to eclipse the human gaze. Therefore, Gaillard uses the mediality to distort concepts of "Playing with Plants", as Courtney Ryan identifies in plant-related art.[4] Those trees literally do not appear to interact.

This essay aims at an interpretation of the technical or machinic mediality and the aesthetic obstinacy of the trees. The analysis does not neglect the human interaction and the human part on making the video artwork, but it rather focuses on the "animated aesthetics" which is produced by nonhuman agencies: AA, to shorten the phrase, describes the aesthetic experience evoked by nonhuman agents, which is not only related to the life of human beings and their perception and understanding of beauty and the sublime, but also understood as a production of meaning without language by just alluring and alluding to any other entity, organic or nonorganic.[5]

Three steps structure the essay: The first contextualizes the trees as subjects, agents and performers. What – or who – are those trees in the video? What kind of semantic field of knowledge do they represent, what do they undermine by their presence? The second arranges the term "animated aesthetics" within a broader theoretical framework. Referring to Karen Barad's materialistic implications and Félix Guattaris term of the machinic, the essay tackles the conflict between technology and nature, to bring together time-based video art, the organic world (trees), and the phenomenological factor (perceiving those trees through a technical medium). The third asks, what are those trees doing? Are they dancing? What is the performativity within the medium? If understood as performers rather than as sculptures, those trees show themselves as active authors, active agents producing movement images, images of affect, time and space. Last but not least, through investigating those trees, the concept of 'animated aesthetics' shifts towards the idea of a time-based mediality of 'becoming tree-ish,' which implies a political perspective on aesthetics.

Who are you, tree? – Situated knowledges

Naturally, those trees are not random but specific trees, which have and produce meaning. Their semantic value includes a form of situated knowledge,[6] which combines a genuine history of the tree itself with the life of humans. The trees in the video are known as Hollywood Juniper and are common in California, but not endemic. They had to be brought to the US and cultivated there. First mentioned by the Swedish botanist and zoologist Carl Linnaeus in 1767 as *Juniperus chinesis*, Hollywood Juniper originates from China, Japan and East Asia. It is often used for its ornamental appearance in gardening. In their new habitat of California, however, they become something else – something indeed quite other. The Hollywood Juniper undermines the "obsession with charismatic Megaflora", which Megan De Roover analyzes in her essay on trees in theatre and performance.[7] Gaillard's trees and their history, both individual and botanical, undermines the human fascination for big and old trees. They also trigger the aesthetic seduction of exotic trees, which is inscribed in the Hollywood Juniper. As "immigrants" and "restless third-class citizens, animated dancing underdog entities",[8] Natalia Valencia calls their agency "a form of shamanic expression of resistance". These trees are not only foreign, they also "exist as neglected living creatures – stranded between highways or forgotten amidst parking lots."[9] Originally imported to stage an exotic environment for the 1932's Olympic Games in Los Angeles, the Hollywood Juniper has lost its initial use and was left alone for its own sake.

Their ornamental use as a gardening plant is discarded. Hollywood Junipers are displaced and with that displacement, the trees' specific history and meaning as well their power to articulate an aesthetic performance are shifted. Now, they seem to be a-historic, or rather, they do not have a history which would be worth writing as a biography in the common Western meaning, because they have lost their 'native occupation' as ornament and garden plant. In a sense, they do not own their own story anymore. But Gaillard's 3D film brings those "immigrants" into existence once more, while posing/posting them in front of our gaze. The mediality of the film, the specific setting and the technological re-presentation of the trees in 3D deterritorializes them from their "stranded" position into the "white cube" of a museum, where now they are taking place in virtual form.

Reacting to Marder's question, "How do plants make sense of the places they inhabit?",[10] "animated aesthetics" tries to give an answer regarding the media-technological or machinic milieu in which the trees are situated. Not only do the Hollywood Junipers embody the ecological discourse of interspecies relations and ecosystems, but they also allure an exclusive aesthetic agency. The situated knowledge which Valencia refers to is nomadic knowledge – the trees are referred to as "immigrants". Even if their movability is limited, they seem to express a political presence as entities which do not belong where they are. Those trees are not para-

Cyprien Gaillard

Nightlife, 2015, digitaler 3D-Film, 14', Farbe, Ton. Installationsansicht, NUMBER ELEVEN: CYPRIEN GAILLARD, JSC Düsseldorf.
Foto: Simon Vogel, Köln. Courtesy of the artist and JULIA STOSCHEK FOUNDATION © Cyprien Gaillard

sites. They just seem to be out of place. As "nomadic" entities in Deleuze's and Guattari's sense, those plants do not move by themselves, but through the movement-image. The movement is the outside of the tree and embodied in the waving of the trees' branches and it becomes visible through the wind and the eye of the camera. The movement becomes signified. As Deleuze writes with reference to Bergson: "The *movement-image* and *flowing-matter* are strictly the same thing."[11] The swaying and the technologically produced images thereof arise in parallel. Deleuze continues: "The material universe, the plane of immanence, is the *machine assemblage of movement images*."[12] Translated is the term "agencement machinique", which is not only a Deleuzian term, but especially and foremost a term used and composed by Félix Guattari.[13]

The mediality of the film is the plane of immanence to the performance of the trees. Within the film the dance is an expression ruled by the cinematic and machinic grammar. Those trees become a medial unconsciousness to act out con

scious relations of significants. The images now acquire transformative power: the movement-image of what is to be seen on the screen becomes a time-image of what is to be understood through the screen and vice versa. Most importantly, the trees perform a transversal gesture by posing through time and space as they "[s]ilently, [...] extend themselves in space, exposing their vegetal bodies in utter vulnerability to being chopped off or plucked, harvested or trimmed."[14] As virtual entities they cannot be chopped off in a material sense. Their materiality within the 3D film is enraptured. Their movement is a different movement, which performs its agency through and with the machinic agency of the film. The 3D-technology as well as those reverberation sound effects generate an environment for the Hollywood Juniper in which it has a *poise* (a gracefulness) and a *pose* (implying an artistic, aesthetic, athletic, or spiritual intention of the position).

As if those Hollywood Junipers were the last of their species, they exist in a virtuality of the machinic, as a vivid desire between movement- and time-images to live freely, to grow, to be part of social interaction and to be beautiful.

The materiality of the film is virtual wood which, however, does not add up to woods, because there are not enough trees in the urban jungle. Still, those trees are daughters of the forests which are being destroyed: they indicate the destruction of the Amazonian forest because they are immigrants of the ecological crisis.[15] They produce an aesthetic memory of trees. As if those Hollywood Junipers were the last of their species, they exist in a virtuality of the machinic, as a vivid desire between movement- and time-images to live freely, to grow, to be part of social interaction and to be beautiful.

The trees "have the same political agency as do humans",[16] as Valencia, following Eduardo Viveiros de Castro, conceptualizes the existential status of those trees within "a multi-natural world".[17] The "poetic"[18] dimension of the Hollywood Juniper regarding its status as an immigrant makes it appear as "territorially and psychologically displaced persona in an adopted land."[19] In the context of what Guattari calls a "desiring machine"[20] the trees become acting subjects as they desire to life poetically and politically recognized. Even more, as Valencia connects the poetic dimension with the political, the aesthetic dimension of the film becomes ethical. Poetics and politics as well as ethics and aesthetics are the prime coordinates of what nonhuman agents add to life itself. Through and with the time-based medial setting, the trees are reconnected to the capitalist matrix of production. The ecological and historical dimensions of the Hollywood Juniper are joined by an economical dimension. The migration of the Hollywood Juniper, its non-profit agency – it is not part of an aesthetical gardening project, but just a living entity on the sideroad – undermines capitalist aesthetic, in which everyone and everything has a purpose. However, in a Marxist sense, the highly artificial production of three-dimensional trees for the white cube of the museum also echoes the plant's purpose as beautiful garden ornament.

In that case, they produce a new form of gardening, because they follow the rule for all living: "To live is to radiate; it is to organize the milieu from and around a center of reference, which cannot itself be referred to without losing its original meaning."[21] What Canguilhem describes is a transversal process of living which resonates with the term "animated aesthetics". First, Hollywood Junipers transform highways and parking lots into gardens. This is not only a "shamanic" or "poetic" process but first and foremost a machinic transversal performance of living beings. Second, the radiation of those Hollywood Juniper trees within the 3D film in a white cube produces an "animated aesthetics" which undermines not only the political "desiring machine" of immigrant plants, but also the philosophical significance of the tree itself in Western philosophy. Instead of being displayed as entities representing hierarchic structures with a crown, a trunk, and roots, the delicate waving of the twisted shoots with their needle-like leaves tells a different story. The situated knowledge of those trees is not that of the tree as "the image of the world": as the "'arborescent model' of thought".[22, 23] Western thought is literary rooted in the tree, as a living entity as well as a metaphor.[24] Gaillard's film aims at deconstructing the Western preference for arboral metaphors, from romantic imaginations of the forest to deforestation to importing trees to stage exotism. Furthermore, this preference in the tree as master metaphor belongs to Western culture. As Deleuze and Guattari claim: "The East presents a different figure",[25] therefore the Eastern Culture of the nomad, the steppes, give an alternative to the hierarchical master metaphor of the tree.[26]

But, as Deleuze and Guattari write: "America is a special case."[27] Therefore

American trees are a “special” case, especially if they deconstruct the American dream. The film does not lignify the Hollywood Juniper, because it lets the leaves dance. Those leaves are not leaves in the sense of the pages of a book. They are needles, but not lignified. Their “animated aesthetics” lies in their rhizomatic materiality and their transversal gesture or posture as a dancing motion which produces their virtual existence as a 3D image in the white cube as well as the spatial materiality of the echo sound of the installation, which fills the room the film is presented in. The Hollywood Juniper becomes a desiring machine of living spatially in a time-based framework and a desiring machine for the viewer herself.

Neither animism nor vitalism – a materialistic approach to trees

“Animated aesthetics” is what can be called an attempt at reinterpreting the term “aesthetics” as well as a form of vividness within art as a relation between nonhuman and human entities. The aesthetic experience of beauty and the sublime e.g. in this theoretical framework is not understood as correlated to a human subject but as “seduction” between two or more entities.[28] Aesthetics become a practice which is not dependent on the gaze of the subject but emerging through and with the intra-action of objects and entities.

“Animated” in particular refers to animals as animated artistic agents. In focusing plants as artistic agents, however, as in Gaillard’s 3D film, the term shifts from *anima* to also include *φύσις* (physis). The term “animated” is opened up to other entities and agencies not only mobile vivid actors like humans and animals. To deal with the mediality and technicality of time-based media art which is not represented yet in the term “animated aesthetics”, Félix Guattari’s conception of the machine seems to fit between the ontological force of Deleuze’s (and Guattari’s) becoming and Barad’s concept of intra-relation, as well as Object Oriented Ontology by Graham Harman.[29] Additionally, Guattari’s work is appropriate for addressing the genre of technological artistic articulation because of his interest in the media-technological embeddedness of the subject and the subjectifying agency of such arrangements. Gaillard’s trees do not try to eliminate subjectivity as well as they do not vanish life and perception from *anima* and *ασθησις* (aisthesis*)*. To reconfigure subjectivity in between media-technological settings and with nonhuman agencies “animated aesthetics” thinks objects like trees in their relation to mediality and materiality. Therefore, trees like in Gaillard’s film perform their own aesthetic experience without human subjectivity creating a tree-ish subjectivity. As DeRoover mentions, on the one hand trees had to lose their status as mere objects and become things.[30] On the other hand to experience such an aesthetic surplus one has to become tree-ish.

To reconfigure subjectivity in between media-technological settings and with nonhuman agencies “animated aesthetics” thinks objects like trees in their relation to mediality and materiality. Therefore, trees like in Gaillard’s film perform their own aesthetic experience without human subjectivity creating a tree-ish subjectivity.

Guattaris term “machinic” designates not only the technological matrix in which all living entities are situated but also the capitalistic structure of production. Desiring machines, as Guattari puts it, “produce articulations”,[31] which de- and re-territorialize the subject. Time-based media as technological genre produce the possibility of a machinic articulation of non-human entities such as trees, who are not likely to speak in any way that we can understand.[32]

Therefore, “animated” means not only “vivid” but also refers to a process of vividisation, which is performed through media, organic and inorganic agents. “Animated,” as past participle, oscillates between *mattering*, as Karen Barad puts it“,[…] the (contingent and temporary) becoming-determinate (and becoming-indeterminate) of matter and meaning, without fixity, without closure[]”[33] and Deleuze/Guattari’s *becoming*.[34] “Mattering” refers not only to “matter”, but is a key term implying the activity of constructing, constituting, hence forming the world we live in. It is not only humans that matter, meaning they shape the world. Other entities do so, as well.[35] “Becoming”, in turn, can be understood as a form of subjectification, as mattering of the agents themselves as subjects.

Cyprien Gaillard

Nightlife, 2015, digital 3D motion picture, 14', color, sound. Film still. Courtesy of the artist and Sprüth Magers, Berlin

As Deleuze and Guattari outline becoming-animal, becoming-woman, becoming-child, becoming-molecular, the intra-relation between medium and tree presents a becoming-plant with its own mattering. “Aesthetics“ becomes deterritorialized and reterritorialized by the effects of mattering when it is animated. The intra-action of humans, technics, animals and plants produces an “animated aesthetics” which includes the performance of mattering and becoming within a machinic production of wishes and desire. “To machine” is to matter or to become through and with media and technology. The tree in Gaillard’s 3D film “machines” as an agent (both theatrical and as an actant), while performing an aesthetics of mattering and becoming. He sends tree-particles through and with the machinic configuration of a 3D film. The tree becomes machinic or medial, and the film becomes tree-ish, it grows leaves and a bark, which is made of sound: the reverberation (re-)produces the tree’s bark and vice versa. This does not mean that the film itself is “animated” in a naïve sense of animism or vitalism. The tree which is shown and seen through medial or technological configuration is not a subject of vitalized nature in any simplistic sense,[36] but it is the process of subjectivation of a plant within a machinic relation in which plants, animals and humans are involved with each other. Matters (and also bodies) and media are intra-twined. In fact, the link between the term “animated” and a special form of “vitalism” lies in Guattari’s critique of George Canguilhem. Canguilhem – in the tradition of Henri Bergson and Karl Marx – claims that vitalism implies a separation between life and the machinic.[37] Bergson’s vitalism understands the machinic as producer of life.[38]

Guattari’s vocabulary of the machinic focusses texture, or the microstructure of life. The transversal connection of the machinic hereby resonates with Barad’s idea of intra-relation and intra-action. What she conceptualizes, regarding Derrida’s deconstructive thought, as “cutting-together-apart”[39] can also be understood in Guattari’s term of “go-right-through”.[40] Further, Barad’s “technologies of embodiment”[41] and Guattari’s machinic seem to work well together. Barad’s insight

that relations and relata do not precede each other finds its counterpart in Guattari's understanding of the reciprocal configuration of machine and technology. Technology and the machine do not precede each other, either.[42] But something appears odd in all this: the problem of time. As Michael Marder explains, plant communication is spatial: "[...] the plants, like all living bodies, articulate themselves spatially: in a body language free from gestures, ‚they can express themselves only by their postures [il ne s'experiment que par leurs poses].'"[43] Therefore, trees in some ways undermine the texture of time-based media itself. Deleuze develops a strong vocabulary for talking about the different images a film produces. In such Deleuzian terms, between the movement-image and the time-image, trees seem to perform a transversal action: Becoming and mattering begin to merge into an "animated aesthetics" working with poses and postures. The "spatial materiality" of the trees, which is transversal to the temporal mediality of the 3D film, produces gestures within a body language.

Trees are not sculptures – the space-image

What is the specific mode of agency of those trees? As the film "reconfigure[s] two time-based mediums, music and film, into sculpture",[44] those filmed trees reject the urge of making a plant become a sculpture. Trees are not sculptures, for they grow and are no immobilized dead artefacts. They live and desire. Hollywood Junipers are mostly dioecious, they are distinctly female or male. They have a will to reproduce and do not depend on human beings. Even if they appear as artistic material, they do not passively act in the conventional sense of artistic production, which distinguishes a producing subject and a produced object. Those trees are agents, performers within a machinic setting. Filmed with cameras and shown as filmed entities in 3D, they in turn produce the three-dimensional effect as well as the technology. What Valencia calls "animated dancing" and "a form of shamanic expression of resistance",[45] is not only the effect of the situated knowledge those trees have to but also an effect of the technological or machinic mode of presentation. 3D-image, reverberation and echo sounds enable an "animated aesthetics" which is "shamanic". This "shamanic" or even psychedelic "assemblage[...] of enunciation"[46] builds the "mode of signification and semiotization"[47] in which trees can articulate themselves through swaying and dancing. The non-vocal, not language-based performance of the trees give meaning to life itself. It is not dependent on a human gaze or a human subject, but lies within the assemblage of mediality and materiality, the film and the tree. Only from the museal perspective do those movements and movement-images become images of dance, aesthetic images, which relate to the sculptural paradigm. But in regard to the machinic, time-based medial "assemblage of enunciation" the Hollywood junipers become subjects, producing not only movement-images, but time-images.[48] What is "shamanic" about the three-dimensional image in Gaillard's film are the tree performers as well as the transformation of movement-image into time-image to resolve into a space-image or spatial image. This spatialization of the image is linked to the tree's specific performance, as an expression which does not "resort [...] to vocalization."[49]

The spatial image of an "animated aesthetics" is machinic to the point where technological effects resonate with the posture and gestures of the trees.

The spatial image of an "animated aesthetics" is machinic to the point where technological effects resonate with the posture and gestures of the trees. The spatial image becomes visible not only virtually, but as an actual hypnotic dance. As regards this dance the trees are anything but sculptures. They are not made of artificial material and do not follow an artistic function in their form. They are not plastic signifiers of artistic expression. If they were sculptures, they would be lignified with incipient growth. On the contrary, the Hollywood Junipers are swaying in the wind, dancing and radiating vividly into time and space, virtually and actually. They inhabit the image and the space, the white cube, into which they are transferred through the transversal machinic mediality of the film itself. Their dance is a "line of flight".[50] That line of flight not only deterritorializes the image but becomes the direction of a situated knowledge.[51] The tree is not a representation and signifier of knowledge as understood in Western philosophy. It is not understood as de Saussure's "arbre", which becomes Lacan's famous "barre" either. Within the desiring machine the tree produces a transversal line of flight, which exceeds the mentioned signification process altogether. The organic materiality of the plant resonates with the virtuality of the time-based medium. The Hollywood Juniper's dance makes the tree a time-based tree. The performance within the space-image produces a becoming-tree.

Becoming tree – re-thinking Deleuze/Guattari's nomadism

Gaillard's film shows a special form of "animated aesthetics" which can be described as a form of "becoming-tree-ish". In object-oriented-ontology-terms becoming tree-ish becomes a beautiful alluring and alluding dance of nonhuman entities.[52] There is no need for human subjectivity to understand the beauty, because the dance lets the viewer become tree-ish.

To add further critical potential to a new aesthetic reading of those trees, it seems important to understand their motion politically as a physical responseability[53] but also as an aesthetic form of alluring and alluding.[54] These trees are not only time-based sculptures, not only political actors, but also philosophers of a new ethics of gestures, motions and aesthetics. Their dance merges a form of mattering, othering and becoming into one hypnotic and aesthetic tree-ish style, which characterizes the overall aesthetic of the video. But what is that dance? Is it motion? A gesture? Just a forced swaying in the wind? The intra-relation, in Barad's term, between wind and tree – or more specifically between the thermodynamic flowing of gases named gusts, squalls, breezes, gales or storms and the surface-structure of the leaves and needles which make up the plane of the tree – transitions into a poetic movement. It is not only that keeping the mediality of the video in mind, it is a matter of the movement-image or the time-image, as well as of what is indicated by the term of the space-image, which produces the dance, but it is the specific materiality of both the wind and the tree which brings that gesture and motion into a politically, ethically, and aesthetically relevant existence. Within the machinic environment – the style of time-based media art – the tree is an agent *par excellence* in the "mediocene":

> in the mediocene the media have coupled everything together to the point where there is no environment left, to the point where the system is everywhere. This means, paradoxically, that we have lost the medium in the mediocene.[55]

When it is understood as a machinic environment in the terms of Guattari, the tree becomes the medium of the mediocene. Within the time-based medium the tree as a living body is framed within a "machinic assemblage of bodies".[56] The tree and its time-based medial setting act out the intra-relation of "the mediocene where everything comes together and in which the sharp distinction between organism and medium no longer makes sense".[57]

Making room for the space-image and an "animated aesthetics", the video is not an image of a dancing tree, but a tree that sends out tree-particles for other entities to become tree-ish themselves and with that becoming-tree, they become political, ethical and aesthetical. The tree becomes medium, and the time-based medium becomes tree.[58] The movement, the dance enables a *„zone of indiscernibility*".[59] This becoming-tree exceeds the becoming-animal: it is political because it refers to an economic, ecological and immigrational sphere.[60] Those Hollywood Juniper's becoming is "becoming the age of minorities", as Deleuze and Guattari write. Minority is defined by its "nondenumerability".[61] They are no longer a quantity of trees used to build up an exotic environment for the 1932's Olympic Games in Los Angeles. Every tree becomes a quantum and hence a subject und agent

of an economic and ecological (his-)story, which is shared with human beings. Furthermore, the tree as a quantum, as a singular entitity opens up the possibility to become tree-ish, to participate in the aesthetic experience of a tree as an object of its own without human correlation. The tree is no longer a hierarchical metaphor, but a dancing rhizome of intra-relation between politically, ethically and ecologically relevant knots. The video is not only the medium of those intra-relational rhizomatic dance-moves, it is also the place of vocalization. The video is ethical because it asks: Why are those trees in an environment far away from their ecological being? Why do they grow there? The becoming-tree protects itself from becoming a war machine. Its static appearance may look like passive submission, but as a growing being the Hollywood Juniper fights back, but not as a conquering war machine. It enacts a special form of nomadic subjectivity: a vegetal nomadism. And it is aesthetically fragile, because the becoming-tree questions the performance and the machinic environment of the time-based media image.

The nomadic within the mediocene consists, as the film shows, in its global capacity to be shown and to be seen. The trees' dance travels transversally through time and space. The tree has not only been sent,[62] it sends its becoming-tree and, if shown on air, is a messenger of an "animated aesthetics". As the film shows, those Hollywood Junipers live in an inhospitable environment of concrete and asphalt, an anthropocentric desert of urbanism, which evokes the metaphor "desert" in the sense of a "Univocal being".[63]

> In a desert, nomads are 'in a *local absolute*' (382) (another instantiation of *complexio oppositorum*), at home in a homeless world, the world where homelessness is the rule rather than an exception both for humans and for innumerable nonhuman forms of life earmarked for extinction.[64]

Can those trees be nomadic and at the same time the space-image of an "anti-nomad" agenda in the sense of constituting a transversal dance, a line of flight, that allows a critical re-thinking of Deleuze and Guattari? The trees were somehow brought to where they now live as shamanic immigrants. They had nomadic helping hands in the form of the imperialistic and economical-capitalist process of globalization.[65] But now those trees seem to be rooted down. Being filmed dancing and swaying in the wind, those trees begin to move, not only through the movement-image and the time-image, but through the space-image: It is an aesthetic "care for places"[66] which seems to be inscribed into the time-based medium. The nomadic is here not only an unsatisfying appetite to roam the earth and space, but the dance of becoming a tree performing its desiring-machine without the interference of a war machine as a conquering tool of time and space.

It is easy to claim that becoming a tree would not be in the interest of Deleuze and Guattari as they vehemently fought the tree as an image of Western philosophy and tried to replace it with rhizomatic ontology and epistemology. And yet Gaillard's film opens up the possibility of becoming a Hollywood Juniper, an immigrant to the "desiring machine" of Western capitalist culture. As a nomadic subject itself the Hollywood Juniper travels, not as a nomadic war machine, but as a line of flight for the desiring machine. The "animated aesthetics" of those trees allows us to understand and to learn from non-human beings through the aesthetic capability of human eyes to dance tree-ishly in the wind.[67]

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Becoming Plant:
A Supplement to Roger Caillois's compendium of 'le fantastique naturel'

The French sociologist and Surrealist renegade Roger Caillois is known for his writings on mimicry. Caillois defines mimicry as a "dangerous luxury of nature", thus setting himself apart from Darwinian evolutionary theory and siding with a Bataillian transgressive understanding of expenditure. In his invoking of insect life forms and their behaviours and transformations, Caillois sought to challenge and re-write biological received wisdom. This essay examines an example from the insect and plant domain, the dongchong xiaocao, *which would have intrigued Caillois and it uses this surmise to re-assess Caillois' contribution to contemporary thought.*

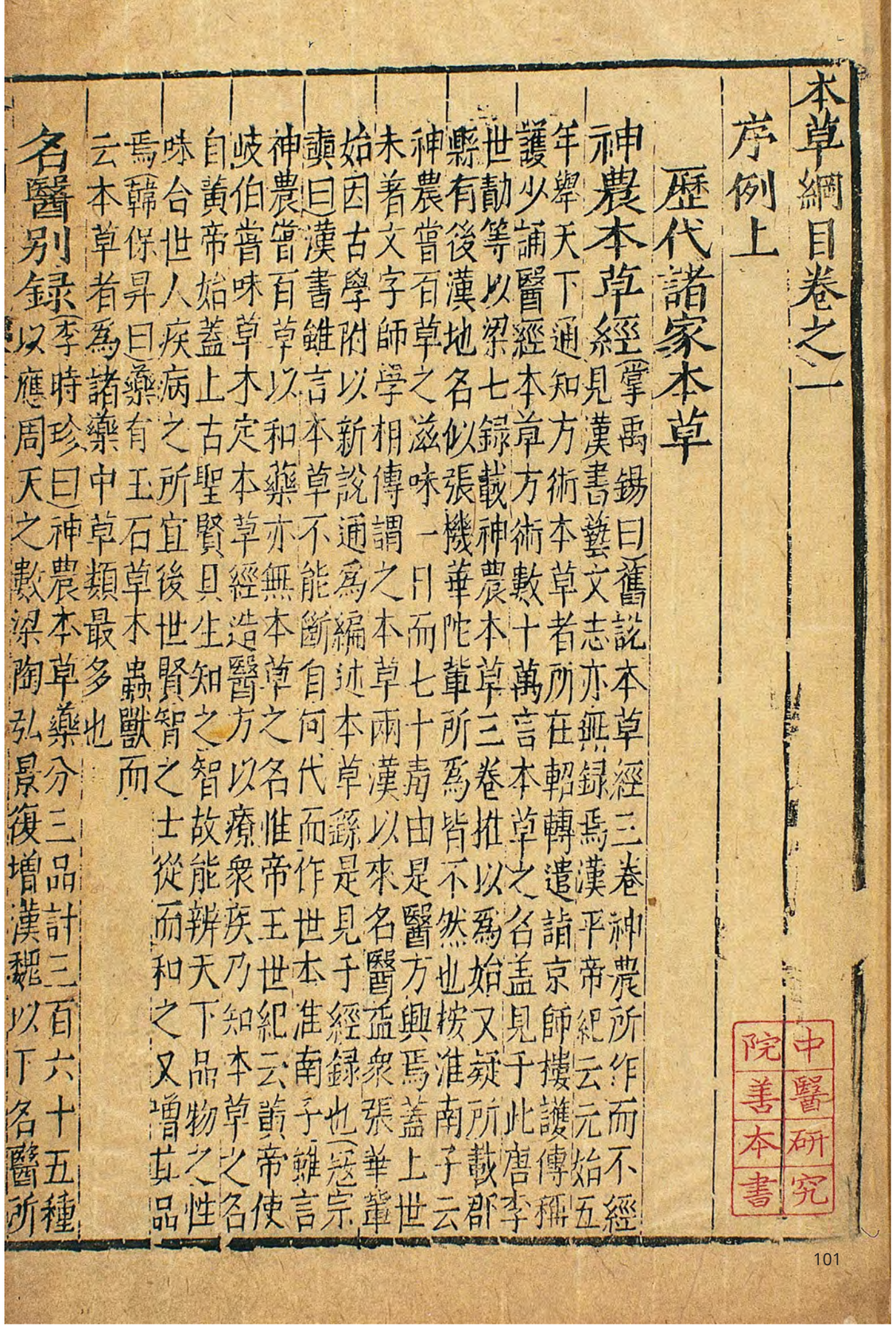
text by **Junko Theresa Mikuriya**

The French sociologist and Surrealist renegade Roger Caillois is known for his writings on mimicry. Caillois defines mimicry as a "dangerous luxury of nature", thus setting himself apart from Darwinian evolutionary theory and siding with a Bataillian transgressive understanding of expenditure. In his invoking of insect life forms and their behaviours and transformations, Caillois sought to challenge and re-write biological received wisdom. This essay examines an example from the insect and plant domain, which would have intrigued Caillois and it uses this surmise to re-assess Caillois' contribution to contemporary thought.

Upon entering a Chinese herbal medicine store, one may come across decorative gift boxes filled with gnarly tubers called *dongchong xiaocao*. A highly prized herbal medicine, *chongcao* resembles an American ginseng root with a darkened plant stem bursting forth from its head. As recorded in Zhao Xuemin's *Bencao Gangmu Shiyi* (*A Supplement to the Compendium of Materia Medica*) published in 1871, *dongchong xiaocao* possesses the same properties as the precious velvet antler and ginseng, its gentle medicinal qualities suitable for use by both the elderly and the young. *Dongchong xiaocao* protects the lungs, nourishes the kidneys and dissolves phlegm. It is known to be an effective tonic, improving stamina and energy.

Dongchong xiacao literally translates as "winter worm, summer grass". In the winter, it lives underground as an insect larva and in the summer it sprouts into a plant. As an animal it is worthless; it only acquires currency when it blossoms into a plant, transmuting into a prized object that is much sought after by harvesters.

Dongchong xiaocao's strangeness as a hybrid insect vegetal being does not derive from a resemblance or similitude to something *other*, as in the case of the *fulgora laternaria,* the lantern fly with a crocodile's face, described by Caillois in "Le Fantastique naturel", as one of these "nightmarish creatures that contradict reality more than they emerge from it".[1] Nor can one attribute its monstrous qualities to the mechanism of mimicry. The winter worm does not look like a plant, it gradually becomes one as the seasons change. And it is through this transmutation that it acquires medicinal properties.



First edition of the Bencao Gangmu; Chinese, 1590. Credit: Wellcome Collection. CC BY

In its transgression of boundaries between plant and insect, *dongchong xiaocao* seems to be a specimen that comes straight out of Borges' fictional Chinese encyclopaedia. Straddling both the insect and the plant kingdoms, the *chongcao* embodies the notion of *fantastique naturel* (natural fantastic) as defined by Caillois in his writings on nature and biology and in his attempts to construct a diagonal science, which in many ways, can be considered as reclaiming a classical taxonomy governed by analogy and similitude, in contemporary thought.

This essay thus examines how the *dongchong xiaocao* is an affront to the classificatory systems of botany and biology, as well as being a potent allegory for a challenge to conventional and rationalist scientific paradigms. Extending the literature on Caillois and the "dangerous luxury of nature" by drawing on *dongchong xiaocao* and other medical treatises, this essay seeks to consider the imaginative power of the unclassifiable *chongcao* both historically and in relation to contemporary philosophy. Through an examination of the suggestive and allegorical force of the *chongcao* and a re-appraisal of Caillois, this essay explores notions such as corporeality, boundary, threshold, becoming, form, annihilation, decay, finitude, contagion - themes which return with great force in contemporary thought.

In the history of Chinese medicine, the *Bencao Gangmu* (*Compendium of Materia Medica*) is considered to be one of the most authoritative and comprehensive compendium of Chinese medical and pharmaceutical knowledge. First published in 1598, the naturalist and physician Li Shizhen's (1518-1593) magnum opus is an encyclopaedia of pharmaceutical natural history, presenting a taxonomy of vegetal, human, animal, mineral and man-made matter. Described as "the single most impressive work on medical-pharmaceutical natural history of China's imperial age"[2] and a "pandectal treatise on mineralogy, metallurgy, mycology, botany, zoology, physiology and other sciences in its own right,"[3] the *Bencao Gangmu* has influenced subsequent studies on *materia medica* not only within China but across East Asia including Japan, where it was fundamental to the founding of early modern Japanese *honzōgaku* (nature studies).[4]

There is a long history of *bencao* literature, starting with the *Shen Nong Ben Cao Jing* (*The Divine Husbandman's Classic of Materia Medica*) which possibly dates from the first century C.E., the 53-volume *Xinxiu Bencao* (*Revised Materia Medica*) compiled in 659, *Kai Bao Bencao* dating from 973 C.E., the *Bencao Pin Hui Jing Yao* (*Essentials of Materia Medica Distinctions*) from 1505, to name but a few. The term *bencao* is composed of two characters, in which *ben* refers to "root", "basis" or "foundation" and *cao*, "grass" or "plant". We can thus translate the phrase *bencao* as "the foundation of plants", or as Joseph Needham suggests, if we apply a grammatical inversion taking the character *cao* as an adjective, then the term becomes "'the herbal foundation', or the 'botanical basis (of pharmacy)', or 'the vegetable origin (of the art of healing)'."[5] Li Shizhen was well aware of the vast corpus of the *bencao* genre and devoted a substantial amount of prefatory material to discussions of earlier *bencao*, including the *Zheng Lei Bencao* dating back to the Song dynasty. In the compilation of the *Bencao Gangmu*, Li consulted a total of 932 works and divided these sources into three different groups: *materia medica*, medical texts and non-medical works; the latter would include philosophical and historical writings, dictionaries, encyclopaedias, travel accounts, *zhiguai* or "tales of the strange" and *pulu* or "treatises and lists" dedicated to animals and plants.[6]

What distinguishes Li's work from previous literature is the way in which he proposed a systematic classification of all things in nature. As he states,

> In the writing of old, gems, minerals, waters, and earths were all inextricably confused. Insects were not distinguished from fishes, nor fishes from shellfishes. Indeed some insects were placed in the section on trees, and some trees were placed in that on herbs. But now every group has its own Section. (The sequence is as follows:) at the head come waters and fires, then come earths; for water and fire existed before the myriad (inanimate and animate) things, and earth is the mother of all the myriad things. Next come metals and minerals, arising naturally out of earth, and then in order herbs, cereals, (edible) vegetable plants, fruit-bearing trees, and all the woody trees. These are arranged following their sizes in an ascending order, starting with the smallest and ending with the largest. A Section on objects that can be worn by human beings follows (this is logical since most of them come from the plant world). Then the tale continues with insects, fishes, shellfishes, birds and beasts, with mankind bringing up the rear. Such is (the ladder of beings), from the lowliest to the highest.[7]

As Paul Unshuld points out, one cannot underestimate the complexity of Li's project; the information collected by Li and his team was eclectic and varied, dating from different periods, drawing upon classical texts, early literature as well contemporary knowledge. Furthermore, due to the vast geographical expanse of the Chinese empire and the diverse range of folkloric therapeutic treatments, there was no uniform nosography, thus the same illness may be called different names: "This is why the terminology of traditional Chinese healing, especially in materia medica and recipe literature, comprises a much larger number of terms denoting disease, malady and illness than does any European language."[8] Whereas many of the earlier *bencao* projects were funded by the imperial courts, Li's forty year endeavour was an independent enterprise.[9]

There are 1895 drug entries in the 52 chapters (*juan*) of the *Bencao Gangmu*, including 275 minerals, 446 animals and 1094 plants.[10] Li organised this vast corpus of information into sixteen major parts (*gang*), starting from the most base elements - water, fire and earth and culminating in what he considered to be the most noble, which is human.[11] Each part is then divided into different categories. Preceding these sixteen major groups are several chapters dedicated to prefatory materials such as bibliographic sources, what to avoid during pregnancy, things to avoid when taking drugs, incompatibility of certain food and drugs, table of contents of previous *bencao* texts, and a comprehensive list of 100 most common ailments and their remedies.

The sixteen major groups (*gang*) vary in terms of the numbers of chapters (*juan*). There are single chapters on "Waters (*shui*)", "Fires (*huo*)" and "Earths (*tu*)", followed by "Metal and stone (*jinshi*)", "Herbs (*cao*)", "Grains (*gu*)", "Vegetables (*cai*)", "Fruits (*guo*)", "Woods (*mu*)", "Clothing and Tools (*fuqi*)", "Bugs (*chong*)", "Scaly (*lin*)", "Armored (*jie*)", "Birds (*qin*)", "Beasts (*shou*)", and "People (*ren*)". The largest amount of data that Li collected is under "Herbs (*cao*)", which comprises of ten chapters and 611 drug entries; these are then subdivided into the following categories: "Mountain", "Fragrant", "Marshy", "Toxic", "Creeping", "Aquatic", "Rocky Mosses", "Miscellaneous", and "With a Name but No Use". Fantastical creatures such as the dragon (*long*) are grouped together with lizards under the category of "Dragons", which can be found in one of the two volumes dedicated to all things "Scaly (*lin*)". The category of monsters (*guai*) is included under "Beasts (*shou*)". Thirty-seven entries are listed under "People (*jen*)", including people of different ethnic groups and mummies. In the four chapters dedicated to "Bugs (*chong*)", there are 106 entries, which are then subdivided based on the criteria of genesis: "Egg-Born", "Change-Born" and "Moisture-Born".[12]

Li did not solely rely on textual analysis for the compilation of his *Bencao*. He devoted many years travelling to different regions of China in order to gain a better understanding of the environment where the original source materials for the drugs are grown and the process of extracting the substances. There are numerous passages where he mentions dissecting a specimen or consuming certain drugs to check their efficacy.[13] One of Li's innovation was to standardize the different names known for each substance or specimen, since names varied historically and geographically. Thus for each entry, the historical name or standard term (*zhengming*) of a species would come first, followed by alternative names. The drug entry would also include citations from a wide range of textual sources, a discussion of taste and properties of the substance, directions for preparation, main indications, corrections of mistakes (from predecessors or earlier literature), and prescriptions. Nappi writes,

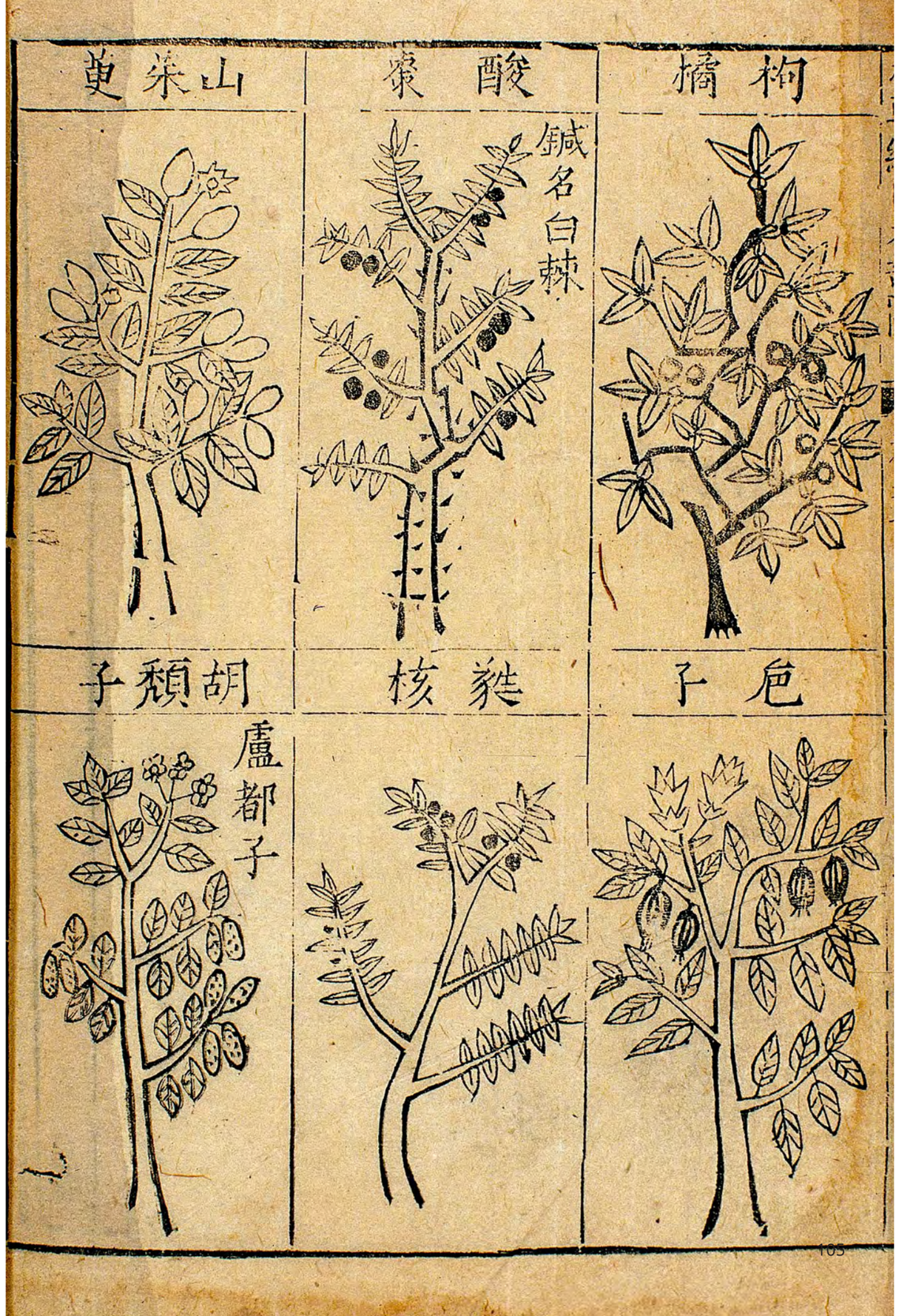
In Li's conception, the peony used in medicine, the peony of Tang poetry, and the peony described in dictionaries and classical texts ought to be understood together. Li was one of several late Ming scholars who used this body of natural history scholarship to probe questions of paramount importance to understanding the universe and their place within it: What are 'things' (*wu*), and what relation do they have with people (*ren*)? How ought the objects in the natural world be classified? And most strikingly, how ought one make sense of the transformations and metamorphoses of plants and animals in all of their dizzying variety?[14]

It is curious that given the depth and comprehensiveness of the *Bencao Gangmu*, there was no mention of the *dongchong xiacao*.[15] One had to wait for more than 200 years, before the plant-animal hybrid would make its first official appearance in Chinese medicine, as an entry in the *Bencao Gangmu Shiyi* (published in 1871) by the Qing dynasty physician and naturalist Zhao Xuemin.[16] As indicated by the use of the word "shiyi" in its title, Zhao presented his text as a supplement or corrections of omissions to Li's *Bencao Gangmu*. Whereas other authors published abridged versions of Li's multi-volume work, Zhao was the only one who added new items and made changes to inaccuracies that he found in Li's text.[17] Zhao started work on his book around 1760 and continued to revise and expand upon it until 1803. The book was published posthumously in 1871.[18] In Zhao's preface, he writes,

> Someone said: 'What is the point of wasting time trying to do something beyond the Pên Tshao Kang Mu?'
>
> I replied: 'Ofcourse, you are right. But with the passage of time, species and categories become more numerous. Even ordinary folks are curious about extraordinary things, so surely (the naturalist should) collect (and describe) them in all their utmost complexity... [and he gave examples]. These then are new sorts and varieties - if I do not describe them, whoever will get to know them?[19]

As Carla Nappi points out, many of the new specimens included in Zhao's text were discoveries resulting from territorial expansion, imperial conquests and foreign encounters under the Qing dynasty government.[20] Such items included tobacco, opium and the *dongchong xiaocao*. Zhao included 716 specimens of plants, insects and animals that were not recorded in the *Bencao Gangmu* and provided further information on 161 entries in Li's text. According to Nappi, the hybrid plant-insect was first mentioned in Chinese in the *Szechuan tongzhi* (*Sichuan provincial gazetteer*) of 1731, but it had already appeared in French in a paper presented by the entomologist René Antoine Ferchault de Réaumur, in the *Mémoires de l'Académie des Sciences* of 1726.[21] Entitled "Remarques sur la plante appelée à la Chine Hia Tsao Tom Tchom ou Plante Ver", the article describes the *dongchong xiaocao* as a valued object that can only be found in the royal palace of Peking. Considered to be rare and foreign in China, the drug comes from Tibet and the frontiers of Szechuan. Réaumur mentions the Jesuit priest Father Parrenin who brought back 300 plant-worms to Europe.

One is struck by Réaumur's report, especially in his observation of the *Hia Tsao Tom Tchom* and his method of deduction. The use of the phrases, "Rien n'est plus ordinaire", "journellement" shows his attempt to dismiss anything that may appear strange or out of the ordinary in this specimen from the Far East. According to Réaumur's analysis, a caterpillar or worm must have attached itself to the plant's root. He explains that this is a common phenomenon with certain caterpillars that hide underground before metamorphosing into a butterfly since many species live underground until time for their transformation. However, he remarks that there is a certain peculiarity with this



Bencao Gangmu
Ming materia medica, Trifoliate orange, etc.
Credit: Wellcome Collection. CC BY

into the worm, since the worm having so perfectly attached its tail to the root of the plant, looks as if it is an extension of the plant's root. He adds that if one pays attention and inspects the specimen closely, it is easy to detect where the plant ends and where the animal begins, "où finit la plante et où commence l'animal" since the fibrous matter looks different.[22] Réaumur deduces that the caterpillar must have broken into the plant's root, inserted its tail into the root via an adhesive substance and when it changes into a butterfly, it leaves its skin behind, covering the root. The entomologist explains that this is a phenomenon that we experience almost everyday, when we find skins left behind by insects such as the spider or the mayfly, "Rien n'est plus ordinaire que de trouver des dépouilles qui ont exactement la figure de l'insecte qu'ils ont couvert".[23]

In Zhao's *Bencao Gangmu Shiyi*, the entry on the *xiacao dongchong* is listed in Chapter (*juan*) Five, under the category of herbs (*cao bu*).[24] Following the tradition of the *Bencao Gangmu*, Zhao begins the entry with the geographical location in which the specimen can be found. We are told that the *xiacao dongchong* comes from the Jiangyou district of Szechuan; in the summer it is a plant and in the winter it is an insect.[25]Measuring three inches long, this superior drug is similar to the ginseng. In the winter, it lives underground; it is hairy and moves like an old silkworm. The hair grows out of the soil in the summer and the entire body becomes a plant. If it is not harvested in the summer, it will transform itself back into an insect in the winter. Zhao writes that according to the *Szechuan Chronicles*, *dongchong xiacao* is mild and when taken as a tonic, it replenishes one's essence. He then repeats the description of the plant-insect and its seasonal transformations before presenting testimonials by different people on its curative properties as a medicine. We are told that Mr Kong's brother, suffering from chills even in the middle of a hot summer, recovered from a three year illness by consuming a stew made of meat, vegetables and the *dongchong* xiacao, thus proving the efficacy of the drug in preserving the *ch'i* of the lungs. Other passages in the entry are devoted to the discovery of the *chongcao* in various geographic locations such as Mongolia and the snowy mountains. Zhao explains,

> The insect looks like a caterpillar and has a slight yellow colour; as a plant it is narrow like loquat leaves, in the summer, the insect's head is buried underground and its tail becomes a plant. Hidden amongst the creeping vines, one doesn't know that it is an insect. With the arrival of winter and the wilting of the plants, it starts wriggling out of the ground as its tail carries the grass along. It is very nutritious and can be stewed with duck.[26]

There are travel accounts, including one told by Mr. Zhung, who mentions that his father took up the post of marshal in Lijiang, Yunnan province, where the drug can be found. The plant is an insect in the winter and as soon as spring arrives, the insect sheds its skin and flies away. The locals know that it is important to harvest the drug at the right seasonal time, or else it will lose its curative efficacy.

What interests us here is the manner in which the entry ends. Following an explanation of the properties of the drug and its taste, we find a passage on transformation that draws upon yin yang theory. It is curious that the rest of Zhao's text rarely mentions yin yang theory or the Five Phases concepts. These are considered to be the founding principles of traditional Chinese medicine and are usually prevalent in medical and pharmaceutical texts. As Unshuld notes, "Chao [Zhao] did not argue in terms either of the yinyang theories or of the Five Phases theories."[27] Therefore, one can see this entry as a peculiarity. Zhao explains that the interaction of *yin* and *yang* brings forth the transformation of things. According to the law of nature, *yang* produces movement and *yin* represents stillness. Within *yang* there's *yin*, and within *yin* there's *yang*. Thus *yin* and *yang* are mutually dependant upon each other. Zhao then launches into a lively description of the metamorphosis of beasts, plants and minerals. He does not choose exotic specimens but *animals*, plants and objects that one would encounter everyday in a rural environment, such as butterflies, barley, pine, field mice, eagles and pigeons.

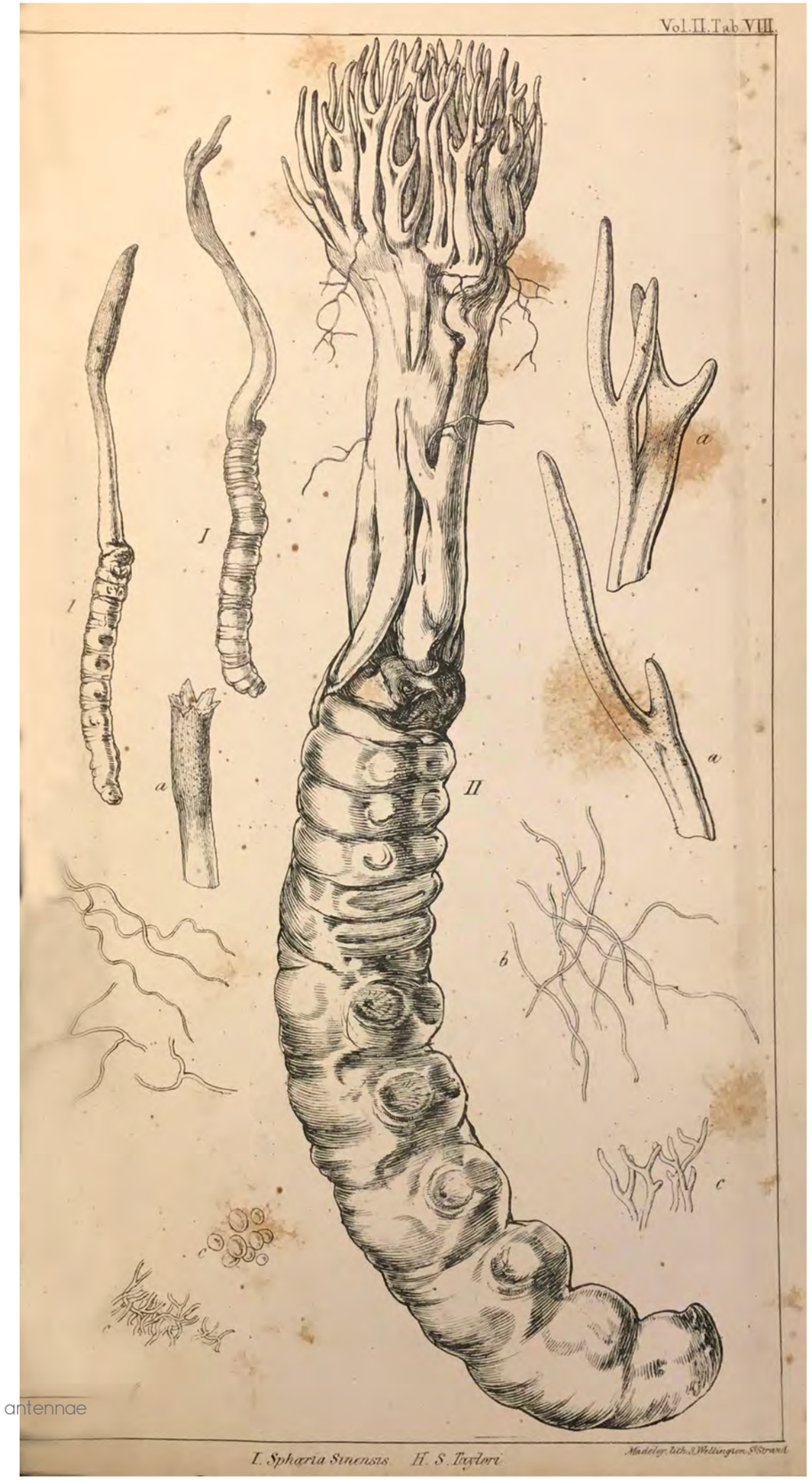
What is interesting here is the various types of transformations that he evokes, including those that transcend what one would consider to be rigid boundaries dividing the organic and the inorganic, the living and the inanimate. He also plots out movements that move to and fro, that can cross over these thresholds and back. Such changes and transformations are explained through the dynamic interaction of *yin* and *yang*, co-existing, mutually dependent and constantly dominating each other. When the field mouse turns into the quail and changes back into the field mouse or the pigeon turns into an eagle and changes back to its original form, *yang* influences are riding on top of *yang ch'i*. When an inanimate object turns into a living creature, *yin* influences are riding on top of *yang*. When a living being becomes inanimate and fails to return to its original form, then *yang* is overpowered by *yin*. When the transformation of forms is permanent and cannot be reverted, such as the stone turning into cinnabar or the broken pine transforming into a rock, this means that *yin* influences are riding on *yin ch'i*. Since the *xiaocao dongchong* is born out of both *yin ch'i* and *yang ch'i*, those who take this medicine will benefit from both types of *ch'i*.

The image of the old barley grain transforming into a butterfly and the transitions from the animate to the inanimate mentioned by Zhao echo a passage in the *Meng Chai Pi Than* (*Essays from the Meng Hall*) by the 12th century writer Chêng Ching-Wang. Cheng, referring to the Taoist sage Chuang Tzu (also known as Chuang Cho), writes:

> Chuang Cho said. 'All things arise from germs and go back to germs.' This is also recorded in the Lieh Tzu book, which has a more complete state ment. When I lived in the mountains and quietly observed the trans formations of things, I saw many examples of it. The outstanding ones are that earthworms turn into lilies, and that wheat, when it has rotted, turns into moths. From the ordinary principles of things, we cannot analyse these phenomena. (One would suppose that) whenever such a transformation occurs, there must be some perception which brings about an inclination for it.
>
> Now the change from the earthworm into the lily is a change from a thing which possesses perception into a thing which has none. But the change from wheat grains into moths is just the opposite. When the earthworm winds itself in the earth into a ball during the stage when it is intending to change, the shape of the lily (bulb) is already formed. Wheat (grains) are changed into moths in one night; they appear like flying dust.[28]

Joseph Needham, who cites the above passage in *Science and Civilisation in China,* speculates in a footnote whether Chêng had made an error and was in fact describing the *dongchong xiaocao*. Needham writes: "One wonders whether the basis for this mistaken idea could not have been the very interesting *hsia tschao tung chhung*, an insect larva which is parasitised by a fungus, and out of which, therefore, in the dried specimens (some of which I have), a stalk is seen growing. This double (plant-animal) drug is mentioned, not in the *Pên Tshao Kang Mu*, but in the *Pên Tshao Kang Mu Shih I* [...]."[29] I suggest that Zhao may have been alluding to Cheng's text, albeit in an oblique manner, when he composed the entry on the *dongchong xiacao*.

Although there is no indication that Roger Caillois had read Zhao Xuemin's *Bencao Gangmu Shiyi*, he was introduced to Li Shizhen's *Bencao Gangmu* via the French sinologist F. de Mély's translation of the *Pen ts'ao kang mou* (1896). In *Pierres* (1966) composed of a series of prose-poems, Caillois draws upon the *Bencao Gangmu* for his discussion of "Des pierres de la Chine". The specimens that he chooses to present to the reader border on the fantastic; this includes stones that can reproduce, the *hiong-hoang* capable of changing the sex of a foetus from female to male, the flying stone *che yen*, and a cave with stones that contain images of dragons and fish.



An illustration of the I. Spharia Sinensis or the Hia Tsao Tom Tchom. Rev. M. J. Berkeley, "On some Entomogenous Sphaerie," The London Journal of Botany, vol 2. (1843): Table VIII. © British Library Board (General Reference Collection P.P.2158. Vol. 2 (1843), Table VIII)

In an interview with Jean-José Marchand, Caillois declares,

> Il y aura toujours une matière. Je suis profondément matérialiste et même dans le récit ou la confession que j'ai... dans lequel je me suis déguisé en Chinois, dans *Pierres*, j'imagine même une sorte de mystique matérialiste, qui serait une espèce de contemplation de l'objet de l'émotion. C'est peut-être pour cela que je me suis tellement intéressé aux pierres, parce que les pierres représentent cette absence de péripéties où je vois la rançon de la vie.[30]

"Déguisé en chinois", Caillois is referring to his admiration for and emulation of the Song dynasty painter, poet and calligrapher Mi Fu (1051-1107), who was renowned for his love of rocks and ink stones. Caillois ponders upon how the Taoists are able to enter the world of certain stones, merging with the inert material in their spiritual journey to attain immortality, such as Mi Fu's ramble inside a stone. He writes, "De cette pratique, je ne veux retenir que la contemplation intense et prolongée d'une pierre, monde en réduction où l'âme éblouie pénètre et goûte une jubilation exaltante."[31]

In a later work entitled *The Writing of Stones*, a monograph accompanied by photographs of Caillois' extensive collection of stones, Caillois explains,

> In some Eastern traditions insight may be obtained from the strange shape or pattern in a gnarled root, a rock, a veined or perforated stone. Such objects may resemble a mountain, a chasm, a cave. They reduce space, they condense time. They are the object of prolonged reverie, meditation, and self-hypnosis, a path to ecstasy and a means of communication with the Real World. The sage contemplates them, ventures into them, and is lost. Legend has it that he never returns to the world of mankind: he has entered the realm of the Immortals, and become an Immortal himself.[32]

Whether it is through the exploration of mimicry, the study of masks and camouflage in humans and animals, or the fictional account of the parasitic inhabiting of a species in another, Caillois has always been interested in the crossings of thresholds and boundaries that separate the self and the other. The dissolution of the boundaries of the self and its environment recalls an earlier essay entitled "Mimétisme et psychasthénie légendaire", published in the Surrealist journal *Minotaure* in 1935, which Claudine Frank describes as an "assault on the Cartesian subject".[33] In this article, Caillois argues against the accepted evolutionary theory of mimicry as a defense mechanism, citing the case of the Phylliidae, a family of leaf insects who are so successful in their camouflage, mimicking their habitat that the species end up eating each other in an act of cannibalism. Disregarding the biological hierarchy which separates humans from animals and plants, Caillois considers mimicry to be a "disorder of spatial perception",[34] in which the desire for the organism to "*become assimilated into the environment*"[35] drives it into a state of *legendary psychasthenia*, a clinical condition that he defines as the process of "*depersonalisation through assimilation into space*".[36]

Thirty five years later, Caillois reprises his investigation into the phenomenon of depersonalisation in a short story entitled "Récit du délogé" ("The Evicted Man's Story"). The story opens with the narrator who declares, «Je ne m'étais jamais réellement imaginé qu'on pût se trouver dépersonnalisé".[37] A man in his fifties, he undergoes an experience of depersonalisation and transforms into a mollusc. In the merging of human and clam, there is never a moment of rupture between these two states of being, for the man still feels like himself, "Je continuai néamoins à me sentir 'moi'."[38] Succumbing to the parasitic organism lodged in his lower abdomen that takes him as its host, he grows fond of the mollusc while he gradually becomes it. Boundaries that serve to confine individuals, bodies and species disintegrate as the man can no longer differentiate between his human state and his diffused condition, "mon état humain et mon état diffus".[39] At the end, as he lies in the sea, he ponders whether he would still retain his ability to think and reason, "Je m'approche de la dernière étape. Raisonnerai-je encore

quand je ne me distinguerai plus de l'eau marine, des lents coraux et du frémissement des molles anémones?"[40]

In this paper I have shown that in Caillois' documented interest of the *Bencao Gangmu* in the shape of the famous example of the stone that he was merely drawing upon a deeper reservoir of research and scholarship into nature's operations and from his specific perspective the challenges which certain phenomena (such as psychasthenia, mimicry, becoming, camouflage, usurpation, parasitism), and especially their exegesis could present to the modern rationalist hegemony. A deeper awareness of material included in the *Bencao Gangmu* lends some retrospective understanding of Caillois' interest in the ancient text and provides if not direct links to specific Caillois texts other than the stone one, then at least deepens our sense of his imaginative conceptual attraction to its many permutations.

This essay has been in the end the story of a missed encounter between Caillois and a supplement to the *Bencao Gangmu* because Caillois could only read the French translation of the *Bencao Gangmu*, whereas if he had been able to read the *Bencao Gangmu Shiyi*, he would have encountered the specimen that perfectly embodies one of his lifelong fascinations. In this way Caillois is a thinker whose radical rethinking of relations between interior and exterior, host and guest, body and habitat, continue to provide imaginative and conceptual resources for a thinking of the present and some of the most pressing problems and problematics of our time.

Endnotes

[1] Roger Caillois, "The Natural Fantastic," trans. Claudine Frank and Camille Naish, in *The Edge of Surrealism: A Roger Caillois Reader*, ed. Claudine Frank (Durham: Duke University Press, 2003), 350.
[2] Paul Unshuld, "Introduction," in *Dictionary of the Ben cao gang mu*: *Chinese Historical Illness Terminology*, vol. 1, eds. Zhibing Zang, Paul U. Unshuld (Oakland: University of California Press, 2014), 10.
[3] Joseph Needham, *Science and Civilisation in China: Biology and Biological Technology,* vol. 6, part 1, (Cambridge: Cambridge University Press, 1986), 312.
[4] For a study on the history of Japanese *materia medica* and the influence of the *Bencao Gangmu*, see Federico Marcon, *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan* (Chicago: University of Chicago Press, 2015), 33.
[5] Needham, *Science and Civilisation*, vol. 6, part 1, 223.
[6] Carla Nappi, *The Monkey and the Inkpot*: *Natural History and Its Transformations in Early Modern China* (Cambridge, MA: Harvard University Press, 2009), 25.
[7] Li Shizhen, *Bencao Gangmu*, cited by Needham, *Science and Technology*, vol. 6, part 1, 315.
[8] Paul U. Unshuld, "Introduction," in *Dictionary of the Ben cao gang mu*, 12.
[9] According to Joseph Needham, Li Shizhen was "the greatest naturalist in Chinese history, and worthy of comparison with the best of the scientific men contemporary with him in Renaissance Europe. His scholarly approach to the wealth of previous literature makes him also the greatest Chinese historian of science before modern times, for his works are an unparalleled source of information on the development of biological and chemical knowledge in East Asia." Needham, *Science and Civilisation*, vol. 6, part 1, 308-9.
[10] Marcon, *Knowledge of Nature*, 33.
[11] See Nappi, *Monkey and the Inkpot*, 10.
[12]For a comprehensive listing of the chapters and entries, see Paul U. Unshuld, *Medicine in China: A History of Pharmaceutics* (Berkeley: University of California Press, 1986), 148-151. See also Nappi, "Appendix B", in *Monkey and the Inkpot*, 155-158 and Marcon, *Knowledge of Nature*, 35-7.
[13] See Nappi, Chapter 2 in *Monkey and the Inkpot*, 33-49. In this chapter entitled "Generation: Anatomy of a Naturalist", Nappi discusses the role that empirical knowledge, first hand experience and observation played in Li Shizhen's investigation into nature.
[14] Nappi, *Monkey and the Inkpot*, 32.
[15] It is interesting to note that within the popular imagination of Asian and especially Chinese speaking communities, the *chongcao* is associated with the *Bencao Gangmu*. For example, it is sold to the consumers as a special ingredient in one flavour of the popular Brand's Essence of Chicken, a nutritional tonic drink in Southeast Asia. Based on a secret recipe by the royal chef Henderson William Brand for King George IV of England, and developed by the former for mass consumption after his retirement, Brand's Essence of Chicken became popular in Asia in the 1920's and the first factory was set up in Malaysia. Whereas in the UK, this tonic seems to have fallen into oblivion, the drink is very popular in Asia with many different blends launched throughout the years, which incorporates Chinese medicine or delicacies that are deemed to be nutritious and beneficial for health, such as Brand's Bird's Nest, Essence of Chicken with American Ginseng, Essence of Chicken with Tangkwei (for women) and Essence of Chicken with Cordyceps (*dongchong xiaocao*) which is aimed for the busy adults and senior market. There is even a Brand's museum in Taiwan and a Brand's Brain Research Centre in Singapore. When the Essence of Chicken with Cordyceps was first launched, the TV commercial emphasized the "authenticity" of *dongchong xiaocao*'s health benefits by presenting it as an entry in the *Bencao Gangmu.*
[16] See Nappi, *Monkey and the Inkpot* 142. Needham describes Zhao as "the best all-round Chinese naturalist of the 18th century". Needham, *Science and Civilisation*, vol. 6, 325.
[17] Unshuld, *Medicine in China: A History of Pharmaceutics*, 164.
[18] See Needham, vol. 6, 325.
[19] Translated and cit. by Joseph Needham, *Science and Civilisation*, vol. 6, 326.
[20] Nappi, *Monkey and the Inkpot* 141. See also Needham, *Science and Civilisation*, vol. 6, 326-7.
[21] See Nappi, *Monkey and the Inkpot*, 142 and note 12, 201-2.
[22] René Antoine Ferchault de Réaumur, «Remarques sur la plante appelée à la Chine Hia Tsao Tom Tchom ou Plante Ver», in *Histoire de L'Académie Royale des Sciences: Avec les Mémoires de Mathématiques & de Physique pour la même Année* (Paris: Chez Durand, 1726), 304. https://gallica.bnf.fr
[23] Réaumur, «Remarques sur la plante», 304. https://gallica.bnf.fr
[24] One wonders why it wasn't listed under bugs (*chong bu*) ? Is it because the fully grown specimen resembles more plant than animal?
[25] Note that *chong* can also be translated as bug and worm. *Cao* is also translated as grass
[26] The translation is mine. Zhao Xuemin, *Bencao Gangmu Shiyi* (Shanghai: Shang wu yin shu guan, 1955), vol.1, 156-7.
[27] Unshuld, *Medicine in China: A History of Pharmaceutics*, 167.
[28] Needham, *Science and Civilisation in China: History of Scientific Thought* (London: Cambridge University Press, 1956), vol. 2, 421.
[29] See Footnote c. Needham, *Science and Civilisation in China,* vol. 2, 421. Note that there is a slight difference in the romanisation of Chinese words. Needham's *Pên Tshao Kang Mu Shih I* is the same as *Bencao Gangmu Shiyi.*
[30] Henry Bouillier, «Roger Caillois et la Chine», in *Roger Caillois: la pensée aventurée*, ed. Laurent Jenny (Paris: Belin, 1992), 119.
[31] "I only want to retain from this practice the intense and prolonged contemplation of the stone, the world in miniature where the dazzled soul penetrates and tastes an exalting jubilation." The translation is mine. Roger Caillois, *Pierres* (Paris: Gallimard,1966), 86.
[32] Roger Caillois, *The Writing of Stones*, trans. Barbara Bray (Charlottesville: University Press of Virginia, 1985), 12.
[33] Claudine Frank, "Introduction to Mimicry and Legendary Psychasthenia", in *The Edge of Surrealism: A Roger Caillois Reader*, ed. Claudine Frank (Durham: Duke University Press, 2003), 89.
[34] Caillois, "Mimicry and Legendary Psychasthenia", trans. Claudine Frank and Camille Naish, *The Edge of Surrealism*, 99.
[35] Caillois, "Mimicry and Legendary Psychasthenia", 98.
[36] Caillois, "Mimicry and Legendary Psychasthenia", 100.
[37] "I never really imagined one could find oneself depersonnalised". The translation is mine. Roger Caillois, «Récit du délogé» in *Cases d'un échiquier* (Paris: Gallimard, 1970), 308.
[38] Caillois, «Récit du délogé «, 308.
[39] Caillois, «Récit du délogé «, 310.
[40] "I am approaching the last stage. Will I still be able to reason when I can no longer distinguish between the sea water, the slow corals and the quivering of the soft sea anemones?" The translation is mine. Caillois, «Récit du délogé «, 331.

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Maria Fernanda Cardoso
While I Live I Will Grow, 2018 , 7 Queensland bottle trees (Brachychiton rupestris) and white sandstone blocks Commissioned by the City of Sydney. Location: 126 Portman Street, Sydney, Australia 33°54'31.4"S 151°12'21.4"E Photo credit: Damien Shaw © Maria

Earth Voice: plant blindness, magic, and art

Colombian-born Australian artist Maria Fernanda Cardoso works with vegetal elements. One of her public art installations draws upon 19th-century traditions of scientific observation, whilst also engaging with the conatus and agency of the bottle tree. This paper proposes that Cardoso's 'magical' planting of bottle trees creates a circle of discourse regarding pre-human earth life, whilst gesturing towards speculations on post-human earth life. If we could hear the voices of the bottle trees, would they be a mournful weeping for lost habitats, or instead could they be an incantation for unknown futures? This research draws upon the dual cultures of both the artist and the bottle tree, to present a new way of listening to the earth.

text by **Prudence Gibson**
images by **Maria Fernanda Cardoso**

The Queensland bottle tree is a rotund character in the world of trees. Its belly is swollen, its branch foliage frizzes out like a dress-up hair-wig. These preceding sentences anthropomorphise the tree, presenting it as having human-like qualities. This process demands a subject (the writer) and an object (the tree). Many of us who write about non-human species, during the Anthropocene epoch of time where humans have effected extreme change across the earth, make concerted efforts to avoid the oppositional relations between subject and object, to escape a minimising or confining of any given thing. Anthropomorphising trees fall into that opposition. The avoidance of reductive subject/object critique has been adopted by multi-species scholars, artists, and writers, in order to better present or express the biotic world in terms of its multitudes and conatus.[1]

However, the problem for humanities scholars is that this process of anthrodecentrism risks a disavowing of our fundamental humanness. It is an impossible task to escape being human whilst undertaking the task of writing (the pharmakon), a singularly human activity.[2] It is also arguably a philosophical dead-end because human tendencies towards metaphorical thinking in the humanities have virtues, such as making issues clearer by referring to related examples that may be easier to digest or understand. Is it, then, an ill-conceived will to write the nonhuman species, as a human, in a way that endeavours to escape humanness? For me, this question introduces ontological issues of how humans perceive themselves and how humans perceive plants or nature more broadly.[3] Importantly it introduces the concept that multi-species scholars are concerned not just with how humans perceive (and misperceive) plants, but how humans identify themselves based on how plants may or may not perceive humans.[4]

My efforts, in light of these conundra, are to push against hierarchies of conventional food-chain perceptions of plant life, that is, plants languishing at the bottom of a hierarchy of importance, or tyrannies of anthropocentrism, where humans cannot imagine an ontology where humans are not the centre of perception. However, I am careful not to push too hard, to break with experimentation or curiosity nor to slip into sanctimony, and not too far as to cascade into failed attempts to present non-human species via mere copying or ventriloquy. Instead, I aim to create space to contemplate the performativity of plant life, for themselves rather than for humans.

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Maria Fernanda Cardoso

This discourse in environmental aesthetics, to push against contested hierarchies of other-than-human species, may require the forgetting or un-learning of our literary knowledge systems that rely too heavily on imaginative metaphor, representation, and mimicry. It is impossible to escape the matter of being human or the method of language we use to represent human experiences. However, efforts to avoid anthropocentrism and anthropomorphism are worth enacting and there are opportunities to develop new lexicons that cross over between the disciplines of science and art. One of the ways in which we can do this is to experiment with concepts such as magic because there is a constancy of change and transformation. Visual art and writing can be perceived as processes of alchemical-change or restorative-magic.

In this text, I use an art-writing approach, with references to magic and communication, to frame a discussion of a particular vegetal artwork by Maria Fernanda Cardoso, Where I live I will grow 2018. This discussion sits within a wider framework of a study on artists who engage with plants to more deeply connect with ecologies and environments. The resurgence of artists who are connecting intimately with biotic life, especially plant life, aims to re-present or express versions of nature.[5] This kind of art+plants work is often a melding of art, plants, and technology or robotics, such as artists Kris Verdonk (Belgium), George Gaessert (US), Dan Harvey (UK) to name a few. The result is a field of art and narrative that is informed by plant life, inspired by plant behaviour, and consumed with a desire for humans to approach plant life in a closer and more intimate fashion, presenting new versions of nature.

When I refer to 'versions of nature', I refer to how humans experience natural life in an epoch of climate change, where habitats have been lost, species are endangered, if not extinct, and weather, flood, and fire behaviours and frequencies have become perversely unseasonal.[6] Many contemporary Australian experiences of nature are urban-based, and consequently, sensorial relations with nature develop via cultivated garden aesthetics, with only intermittent forays into the distributed bush over the mountain range or the impenetrable scrub beyond the city limits. This alters the way humans relate to trees and their immediate ecosystems. However, some artists are bound by their urban living conditions and still observe and care for vegetal life in their precincts. One such artist is Maria Fernanda Cardoso.

Critical plant studies – the art of Cardoso

The ecological artwork of Australia-based and Colombia-raised artist Maria Fernando Cardoso is known for its connection with vegetal and insect life. Her work has been critiqued for its positive engagement with the independence and conatus of nonhuman life. Her recent public commissions, such as While I live I will (insert year) grow at Green Square, attest to an artist who is profoundly aware of the complex minutiae of non-human life and its cacophony of sounds and performativities (being the constantly changing and emerging active behaviours and cognition of plants). Cardoso's work helps us to better understand how vegetal life can be incorporated into an artwork to maximise both the artwork's agency and the plant life's interactive and performative modality. By the interactive and performative functions of plants, I refer to the life of plants as having cognition capacities such as behaviour, learning, memory, decision-making, perception, and behaviour.[7]

Critical Plant Studies is a disciplinary field that marks the cross over between plant science, philosophy, and the humanities. It is characterised by a theoretical approach that acknowledges all species in an equal register. All elements, forces, extrusions, activities, emissions, and growths of a given tree are the sum of its parts but the relationality of each and all parts also continues in endless progressions. The multiple attributes of a tree, in this case, a series of bottle trees as part of an artwork, become entangled with cultural life. This Critical Plant Studies entanglement is the expression or re-presentation of the multiplicities of the biotic. Cardoso is a major international artist represented in US and Latin American collections, along with the Tate Gallery London, and has been commissioned by Museum of Modern Art New York. Having grown up in Bogota, she now lives in Sydney in a coastal suburb.[8] Her garden heaves with plant life. The sound of bottle-tree leaves rustling in the breeze outside her garden studio, the magic of collecting leaves from her lemon verbena tree to make tea, and the thrum of creative endeavour all exist on an equal register, cannot be reduced and are reciprocally related when viewed through a Critical Plant Studies lens.

While I Live I Will Grow is a living artwork that was installed in 2018 at Green Square, in Sydney's inner west suburb of Zetland, as part of the Green Square Public Art Strategy. It was curated by Carolina Ponce De Leon and developed on the site of the former South Sydney Hospital, a site that was originally wetlands. For the work, several Queensland bottle trees (Brachychiton Rupestris) have been planted adjacent to a children's playground. Looping in front of and amongst the trees is a sculpture of sandstone blocks arranged in pairs, precariously placed in perilous positions that might at any moment topple over (though they have been engineered and bolted to the ground so they will never fall). The effect is a shape like the cutaway of a nautilus seashell.

Maria Fernanda Cardoso

While I Live I Will Grow, 2018 , 7 Queensland bottle trees (Brachychiton rupestris) and white sandstone blocks Commissioned by the City of Sydney. Location: 126 Portman Street, Sydney, Australia 33°54'31.4"S 151°12'21.4"E Photo credit: Damien Shaw © Maria Fernanda Cardoso

To be specific, the form of the sandstone blocks might be described as a conic spiral in terms of the way the spiral form is not flat but becomes higher as it progresses. However, Cardoso plays with this concept, by increasing the length of the top sandstone form of each pair and then reducing the length back down whilst increasing the height of the upper sandstone pair as the spiral continues inwards. The sandstone spiral sits on white gravel that looks cream-coloured compared to the whiteness of the sandstone blocks.

The sculpture's conic spiral form represents growth cycles within nature. Plants, animals, sea creatures, and insects regularly present as fractal forms - each part can be seen as an example or copy of the whole. Within the framework of a fractal theory, Cardoso's installation of stones are individual precarious forms, within an overall seashell spiral shape. The main bottle tree is planted in the centre of the spiral so that its canopy and branches reach out from this central position. A focal point, it also grounds the formation, pinning it into the earth. However, there are several other bottletrees planted in an arrangement of forms around the spiral that

suggest care and a bordering of the site.

Some of the original studio maquettes that Cardoso made, in preparation for her sculptural installation, only show the central bottle tree, the spiral, and the scape of humans moving amongst the spiral, the pillar, and the tree. However, on the Green Square site, the additional six trees planted in a wave around the spiral also help to locate the spiral installation upon the specific area, mimicking the curved line of the form of the whole. Flanked by two storey buildings on two sides, a low-rise building on the third side (though a little distantly), and then the road on the fourth side, the work is a sanctuary. It is a place to sit, or perch and to find some shade while watching children play. Cardoso's preparation included not just maquettes of the installation elements but also a small model of the surrounding buildings. This model-based approach to her work, and its architectural associations, makes sense in light of the fact that both her parents were architects.

The towering square column, that sits to the side of the spiral shape, has been inscribed with the words While I live I will grow. This phrase refers to two things. First, it is a reference to an Anthony Hordern and Sons department store coat of arms motto 'While I live I'll grow'. The coat of arms was created in the shape of a budding tree. Hordern and Sons was once the largest department store in Sydney, its motto well known amongst Sydney-siders. Anthony Hordern originally set up his drapery shop in 1823, a free immigrant from England. Cardoso found a lead relief of the motto in an antique shop when she first arrived in Australia, keeping it as a memento for her entire life in Sydney.[9]

The second meaning the phrase references is in relation to Cardoso's personal interest in cycles of life and death and her own struggles with life-threatening illness. As a survivor of ill-health, she is profoundly aware of her work and her family as living and dynamic energies but also as a legacy. All life ends but the memorials, tributes, rituals, and inheritances or legacies are a critical element of life-death-life cycles. For Cardoso, it is a joy to watch and witness the plants in her garden grow. This includes a bottle tree that she planted as a sapling about seven years ago, which now soars up from her tiered garden.

The spiral shape is also a presage of prosperity and life for the growth of Green Square as a community, and the personal growth of the local community's individuals, families, and children. The bottle trees are a variation on the original Hordern and Sons image of an oak tree. Unlike the oak tree, bottle trees are bulbous and drought-reactive, storing water in their flexible trunks. Their shape, in other words, is less stylised than the oak tree which is conventional in its stately trunk and perfectly rounded canopy.

Plant Blindness and art as a cure

A 2018 article on plant blindness by Cothran referred to the increasingly low statistics of scientists who are conventional observational botanists or who can name plants and understand the typologies of botany.[10] There is a deeper problem that sits in discomfort at the crossover of plants and art. That is the problem of wider plant blindness whereby humans fail to see, name, or appreciate plants in their immediate environment.[11] Plant blindness has the consequential cultural effect of minimising human conservation of plants; and compromises the way we write stories or make art about our plants.[12] The associated problem is the lack of observational skills amongst humans, which in turn results in a loss of empathy for plant life.

In addition to the problems of no longer being able to identify or empathise with plant life, there is also a dearth of botany courses at most Australian and international universities. It may be possible to major in botany or to study environmental botany, but the pure tertiary degrees are disappearing. The result is that there is less interest in the specifics of vegetal life, including the activities within the plant, as well as a broad community knowledge about the behaviours and cognitions of plants. In fact, this lack of interest in plant life across universities is matched by a minimising or deaccessioning of botanical collections.

Douglas Belkin noted in 2018 that "In the past 30 years, the New York Botani-

cal Garden alone has absorbed collections from 15 colleges and universities that no longer have space, budget or interest in maintaining it. Barbara M. Thiers, who directs the herbarium at the New York Botanical Garden, estimates about a quarter of the world's 3,200 herbaria are at risk because of physical threats such as hurricanes or administrative apathy".[13] Who is filling this gap of nature observation? What kind of mediations can restore interest, focus, and knowledge around plants and trees?

Cardoso is dedicated to paying close attention to nature, whether it is in her commissioned work, her major biennale installations, or her own garden in Sydney. She draws attention to two elements of nature in While I live I will grow, as she has observed it. The bottle tree has a curious ability to store water in its trunk, bulging after rain. Water management was part of the City of Sydney brief that the artist followed. In an epoch within Australia of monumental drought conditions, worse than previously known, water is a serious issue. Many Australian regional areas have extreme water restrictions, not enough water for stock to drink or in some cases even human washing and drinking. Water must be bought in, by people who are least able to afford it. In the wider era of climate change, the issue of water shortage and new methods of storage will become increasingly important and both the City of Sydney and the artist are aware of this problem and hoped to highlight it in this work.

The second element in nature that she observes with fine artistic detail is the stone in the installation. Sandstone is an iconic material for Sydney-siders. My own home is built from 1840's Sydney sandstone that has been chipped with tiny marks (which is a particular aesthetic of convict-era sandstone). The sandstone used for the Cardoso work was sourced from the foreshores in the Sydney centre, where a major development was being built into a site at Darling Harbour and digging was undertaken to prepare for the foundations, meaning there was left-over stone. These beautiful and heavy stones were transported from their city centre harbour foreshore birthplace (not unlike original convict immigrants in the late 18th century) to a new location and rejuvenated into Cardoso's work.

The spirit of magic, and the real.

Cardoso's work has been political, in terms of raising awareness for the violence and corruption of her homeland of Colombia or the political and social weaponry of Columbian food sources via the history of corn in Colombia, to take just two examples of her early work. Her art also has, and always has had, a spiritual dimension. This is an important point because Cardoso is an observational nature artist, at heart. During her early years, she spent much time with her father exploring the environs of Bogota.

And so, there is evidence of magic in her art. Magic is a metaphorical device but it is grounded in the everyday experience of multiples species, multiple entities, a fluidity between life and death, and transparency between consciousness and a sleeping or dreamlike state.[14] As a result, there is a materiality to the gestures and forces of magic. Whilst magic or witchcraft are forces directed from the human, they are also disciplines that encourage alchemy and the power of potions, spells or arrangements of things to interact or interrupt human experience.[15] Latin America is broadly known for its curiosity and interest in a reality that generates a transformation from the everyday into a spiritual realm (magic realism). Such authors as Gabriel Garcia Marquez have infiltrated western art and literature as a genius thinker who uses fantasy and the supernatural. These historical elements bubble beneath the surface of the culture.

In visual art, magic realism has a slightly different approach to the real, whereby the mundane everyday elements of life are connected with mystery and allure. It emerged from a period of German art post-expressionism of the 1930s.[16] Magic realism provides a critical approach to thinking about Cardoso's work because of this movement's capacity to destabilise and to mobilise narrative and art strategies so that the voice of the artist or writer is a little uncertain, meaning it has an otherworldly character. Invention, a distortion of habitual reason, and disconnection/reconnection are characteristics of the literary arm of Magical realism, such as novels like 100 Years of Solitude. These characteristics are equally evidenced in the artwork of Cardoso.[17] This is because she re-presents the bottle tree to her viewers by connecting them with the endless spiral that in turn connects us with every element of the natural world that we see but do not know or do not understand because of its vastness. Cardoso's entire ouvre is embedded in the cross-over between close observations of detailed elements of everyday life, particularly biological life, and a mysterious referencing of other-worldliness.

The shaman and the bottle tree

A scholar whose work sits at the centre of magic and the vegetal world, and whose voice is a critical contribution to the area of Plant Studies is Monica Gagliano.[18] Gagliano's work is relevant to Maria Fernanda Cardoso's background in the Latin Americas and her visual art concerns with arboriculture: growing trees. Where Cardoso's experiences of Colombia and its magical worlds of fantasy and hyper-realisms were most likely connected to civil unrest and a history of political turmoil, Gagliano's early experiences were in neighbouring country, Peru, where she undertook a personal journey. Gagliano and Cardoso have in common the ability and desire to closely observe nature, particularly plants and trees.

Where artist Cardoso closely observed plant life as a young girl with her father on trips around Bogota, magnifying glass in her hand, Gagliano had a different but connected experience. Gagliano is a highly respected contributor to the field of Critical Plant Studies, having published the results of her plant experiments in major peer-reviewed science journals. Gagliano also has an ability to gather together artists, writers, indigenous leaders, academic scholars, and fellow plant behaviourists and environmental ecologists, to debate and progress discussion regarding the impact changes in plant science have on our understanding of the relevance of plant life. This is often mediated by art and narrative, such as Cardoso's work with trees, inscriptions, markings, and a suggestion of the 'voices' of trees and plants.

Gagliano, then, is well known for her plant science experiments and communication of results but there is another side to her work and life that connects to magic realism and the capacity of art to communicate good plant science. In her formative research years, she travelled to Peru, which shares a border with Cardoso's birthplace Colombia. Gagliano dreamt of her visit to Peru, before she embarked on her encounter with a shaman in the Peruvian Amazon mountains. She undertook the dieta which she suspected would guide her vision as an academic, scholar and scientist. The dieta is the process of encountering a plant by ingesting or bathing in a concoction made from its bark, or leaves. She described her experience as follows: "the dieta, a time during which I was to ingest the plant regularly while in isolation, observing total sexual abstinence and an uninspiring diet of unseasoned vegetables and rice. So, I drank the concoction made from her bark that night – and the following night too – as Socoba (a tropical rainforest tree also known as bellascocaspi or Himatanthus sucuuba) swiftly aligned with my present and quietly befriended my past".[19]

The aim of Gagliano's encounter with the Bellascocaspi was to better understand how to co-exist and co-survive with plants. This was a magical encounter where she was given the opportunity to slow her thinking to plant temporality and to quiet the inner voices of her human life, to allow space for the voices of nature, particularly the vegetal life to be heard. Cardoso, too, created her work Where we Live, we will grow to slow the steady progress of human damage to the environment, by over-developing and... Cardoso's early work focused on bringing nature back into the studio and back into her home. More recently she has been commissioned to bring nature back to outdoor, urban locations that have lost their connection with the natural world. She created a 'stage' not unlike a mise en scene which framed a scene and drew attention to the action, in this case, nature's action of growing and expanding as time marches on. Children now jump from sandstone to sandstone, in a spiral motion, which brings life back to an urban jungle.

Thus, the enchantment and entanglements of art can be interpreted as following the same transformative procedures and processes as many shamanistic rites.[20] Art is an entangled web of objects, forces, and human/nonhuman encounters. There is a long history of thinking of the artist as shaman and associated negative interpretations of that figure.[21] Stengers writes and has spoken in Brazil about the artist's and scholar's capacity to 'perform science'.[22] Artists and writers who dance together with plant life and plant knowledge are participating in that plant performativity.

Communication

Cardoso's artistic practice translates the key elements of nature's cycles and growth patterns, its changeability, and its emergent capacities to flourish and adapt, even evolve. Her connection with trees (and insects and plants) is tactile and sensory, a process of mutual communication. Likewise, plant behaviourist Gagliano has worked with plant communication and plant cognition, such as intelligence, for many years. As Senior Research Fellow in Plant Behaviour at the University of Sydney she has undertaken major laboratory experiments working with peas and mimosas to test whether plants can learn by association and remember.

Gagliano took a risk in 2018 when she wrote a phyto-biography, *Thus Spoke the Plants*.[23] In this book, she shared her experiences in conversation with plants, and worked towards a better understanding of the communicative capacities of plants. This concept of communication has been also evidenced by scientist Suzanne Simard who worked with forest systems and used Geiger-counters to chart the progress of isotopes in the soil (that she injected into one side) and charted the isotope progress across the forest floor via the soil and progress by mycelium.[24] These advances in understanding of how and why plants communicate are critical for a changed understanding and perception of plant life, by humans.

As a result, Gagliano has dedicated much of her work to the concept of 'listening' to plants or to make room and space for the agency and communicative power of plants to be observed and even witnessed. Does this idea of talking with plants reveal Gagliano as a quack? A sorcerer? A charlatan? As Stengers explains, the history of science has been plagued by misunderstandings of the process of science.[25] In equal measure to the laboratory facts and conventional techniques is the process of imaginative thinking and creative conceptual approaches. Without these kinds of speculations, science would never move forwards.

This relates to Cardoso's work because she is open to and experienced in the idea of deeper human-plant connections, outside the ordinary, outside the everyday. My interpretation is that these relations between humans and plants spill over into the realm of magical thinking and alternative communicating.

Historical context of nature observation

Drawing the thread back to Cardoso and her bottle trees, it is interesting to note that she draws on links between botanical art history of the late 18th century, and contemporary nature art now. There is a strong connection between her contemporary approaches to observing the natural world and the observational work of such Enlightenment botanists as Von Humbolt, Von Goethe, Von Neumayer (Germans), and Jose Celestino Mutis (Colombian) and the work of Cardoso.

Both periods in time, the 18th century and the 21st century mark a momentous shift in human attitudes towards the environment. Both periods of history are characterised by an intense concern for global issues, unquenchable curiosity about the workings of natural life and are represented by key artists who change human perceptions of the vegetal world.

18th century botany involved a taxonomical or classificatory approach. These scientists undertook long and arduous journeys to document nature – the weather,

Maria Fernanda Cardoso

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air pressure, rainfall, magnetic surveys. For instance, Georg Von Neumeyer accompanied Australian travellers Burke and Wills on the first leg of their fatal 1860 trip, and he also accompanied Australian artist Von Guerard on his seminal trip to the top of Mount Kosciusko. Melbourne-based Von Neumeyer's enormous record books are available to see in libraries such Sydney's Mitchell Library. There, viewers can see the massive tomes of weather, pressure, and botanical information that was recorded using classical brass equipment. Likewise, German scholars von Humboldt and von Goethe are well known for their massive tomes of scientific recordings, data collected from their brave botanical expeditions, sailing foreign seas, and exploring strange lands.

Such a mode of 'observation' is the strength of Cardoso's work. These approaches of the 18th century botanical explorers were risky, exploratory, and observational. This kind of curiosity for nature is important today, despite species losses. There are very interesting parallels between the mindset of botanists and nature-observing contemporary artists. It is partly the intensely close sensory links with natural life, partly the rigour and passion of that approach, and partly the sense of connection to nature (that has become slowly depreciated or even lost over the last 250 years).

Botanist Jose Celestino Mutis has been especially informative for Cardoso's career. He moved to Colombia in 1761, by which time he had become a re-

spected explorer, and he maintained botanical observation diaries until he died in 1808. He communicated regularly with Von Humbolt (with whom he worked) and the renowned taxonomist Karl Linnaeus.[26]

When Maria Fernanda Cardoso was a young girl, living in her home city of Bogota, she was given a gift from her father - it was a suite of leather-bound botanical illustration books, on the work of Jose Celestino Mutis. Her artwork, dissecting plants, lighting plants, growing plants, and exhibiting plants, has been part of Cardoso's nature-aesthetic preoccupation with Mutis-like enquiries. She does this with historical knowledge, a gardening passion, a philosophical awareness, and with a deft creative approach.

While I Live I will Grow connects strongly with the site, which was once part of a series of wetlands that were drained to make way for development and industry, historical processes that have led to increased drought and flooding in the area. The bottle trees signify this local history and the water management strategies that are a key aspect of the Green Square renewal project. They can reach a two-metre diameter and indigenous First Nations people traditionally made holes in the trunk to create reservoirs of water, as water is stored between the bark and trunk. The trees now grow among sandstone rock forms and communicate with each other via their gas and chemical emissions. Cardoso captures these stories and draws attention to the patterns and formations that endure and generate new growth. Cardoso's bottle trees will continue to grow, as will the story of her installation, the motto which she lives by, and the sense of community and communication that has been activated.

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Carsten Holler & Stefano Mancuso: The Florence Experiment

Internationally acclaimed artist Carsten Höller and plant neurobiologist Stefano Mancuso have collaborated on The Florence Experiment, *a project enabling the study of the interaction between human beings and plants. Visitors could participate in two very different experiments. The first entailed a descent down a sixty-five-foot slide and the second involved a carefully curated screenings in two special cinemas. The feelings of excitement, surprise, amusement, and fear experienced by the participants was compared with the growth and reactions of various kinds of plants in order to study the empathy between plant organisms and human beings.*

text and images by **Carsten Höller and Stefano Mancuso**

During the spring-summer period of 2018, Palazzo Strozzi hosted *The Florence Experiment*, a new site-specific project devised by celebrated German artist Carsten Höller and plant neurobiologist Stefano Mancuso, curated by Arturo Galansino, Fondazione Palazzo Strozzi Director General.

Connecting internal and external spaces of the famed Renaissance palace, *The Florence Experiment* comprised two experiences – monumental, intertwined slides will spiral visitors down a height of twenty metres, and a 'live' analysis of the impact of human emotion on plant growth. The project was designed to further our understanding of ecology – not only as respect for nature, but as the awareness of empathy between humans and vegetal agents.

Visitors were handed a plant to accompany them as they slid down from the second floor terrace to the Palazzo Strozzi's courtyard. To exit, the visitor would then pass into a laboratory where scientists measured their plant's photosynthetic parameters and volatile molecules, as triggered by the emotions experienced in the descending visitor, and picked up by their plant.

Located in the basement of Palazzo Strozzi, the laboratory also housed special cinema theatres, one screening scenes from famous comedies, the other excerpts from renowned horror films. The audiences' contrasting reactions produced different volatile chemical compounds, which travel through a system of pipes and tubes to the façade of the Palazzo. Outside, the impact of these compounds and their effect on the growth of Wisteria plant vines, arranged to climb up a series of wires in the form of 'Y's', became increasingly apparent over the summer months. The impact of the public's fear or amusement was expected to visibly influence the direction in which the plants grow, thus creating a plant graph illustrating the interaction between human emotions and plant behavior.

Höller has worked as an entomologist before becoming an artist and holds a PhD in pythopathology. Expanding on his increasingly interactive practice, this unique project has been devised with Prof. Dr. Stefano Mancuso, a founder of the study of plant neurobiology - which considers the complexity and intelligence of plants, with the capacity to communicate through the perception and emission of chemical compounds.

Carsten Höller and Stefano Mancuso

Installation view (detail) *Plant Decision-Making Based on Human Smell of Fear and Joy*, 2018 © Carsten Höller. Photo: Attilio Maranzano

Carsten Höller and Stefano Mancuso

Installation view (detail) *Plant Decision-Making Based on Human Smell of Fear and Joy, 2*018 © Carsten Höller. Photo: Attilio Maranzano

The Florence Experiment aimed at generating a new awareness of the way in which we see, understand, and interact with plant life, turning Palazzo Strozzi's façade and courtyard into fully-fledged areas of scientific and artistic experimentation with regard, mirroring the Renaissance's values of the alliance between art and science.

"With this project, so courageous and so special" comments Arturo Galansino, "Palazzo Strozzi became a site of real contemporary experimentation and reflection, turning an architectural Renaissance masterpiece into a workshop of dialogue between art and science. Cooperation with Carsten Höller, one of the most important artists on the international scene, and with Stefano Mancuso, a Florentine scientist known world-

Carsten Höller and Stefano Mancuso

Installation view (detail) *Plant Decision-Making Based on Human Smell of Fear and Joy, 2*018 © Carsten Höller. Photo: Attilio Maranzano

wide for his work on plant neurobiology, offered a spectacular opportunity to further Palazzo Strozzi's calling as a multidisciplinary space seeking to find ever new routes to involve and interacting with our visitors".

The project was promoted and organised by the Fondazione Palazzo Strozzi with the support of the Comune di Firenze, the Camera di Commercio di Firenze, the Associazione Partners Palazzo Strozzi and the Regione Toscana, and with a crucial contribution from the Fondazione CR Firenze.

Carsten Höller was born in 1961 in Brussels, Belgium. He studied agricultural entomology at the University of Kiel where he received his doctorate in 1988. By the 1990s, he began to make artworks and eventually abandoned science as profession to pursue a career as an artist. His work was the subject of solo exhibitions at a number of international institutions including the Moderna Museet in Sweden (1999); Fondazione Prada in Milan (2000); MASS MoCA (2006); Kunsthaus Bregenz in Austria (2008), and the Hamburger Bahnhof in Berlin (2010). This autumn, the New Museum will present the first New York survey exhibition of his projects. Höller lives and works in Stockholm, Sweden.

Stefano Mancuso is the Director of the International Laboratory of Plant Neurobiology (LINV) in Florence, Italy, a founder of the International Society for Plant Signaling and Behavior, and a professor at the University of Florence. His books and papers have been published in numerous international magazines and journals, and La Repubblica newspaper has listed him among the twenty people who will change our lives.

Extremophiles: The Act of Performative Habitat

Egle Oddo creates living sculptures by installing evolutionary gardens *that function as public artworks. She plants seeds of wild species and cultivars together, fading the demarcation line between sites for agriculture, untamed soil, and urban green areas. These gardens become living seed banks, safety zones for biodiversity, allowing the most vulnerable species to thrive. Through examining the desertification tendency appearing in the south of Europe, Oddo identified a set of plants that present particular resilience to extreme conditions:* extremophiles. *With an integrative approach, Oddo created an interdisciplinary team making associations between* extremophiles *and some substantial cultural, ecological, and socio-political urgencies.*

text by **Egle Oddo and Basak Senova**
images by **Egle Oddo**

Since 2017, the Turkish curator Basak Senova has been working with Egle Oddo in the framework of the *CrossSections*[1] project, an interdisciplinary platform for explorations into artistic research and education through dialogue and production. Senova's objective has been to create a collective, interdisciplinary, and critical research platforms and networks that integrate the process of producing knowledge exchange and distribution models in the context of art. During this project, Senova has been acquainted with Oddo's practice and methodology.

Oddo has been creating living sculptures by developing gardens that function as public artworks, since 2007. These gardens are small de-regulated areas that serve as models for researching new landscape designs and new forms of interactions: plant-plant and plant-human-plant. The seeds used in the project have been collected by the artist together with different communities and experts, and they are exclusively natural seeds belonging to the public domain, not patented nor been subject to laboratory alterations.

Oddo's first interdisciplinary project *Ark of Seeds* (2012-2019) has allowed her to study biological aspects of plant biodiversity and to compare legislation that regulates the circulation of seeds and plants between several continents. During the years, Oddo has created an interdisciplinary workgroup that has been operating under the project name The World in Common since 2019. The collaboration of Oddo and Senova continues with *The World in Common* project. In this respect, this article reflects on the process and the outcomes of the project from Oddo and Senova point of view.

The Act of Performative Habitat: Sculpting the Process, Carving the Performance

In 2007, Oddo's research was focused on creating an action-sculpture able to contain and dispense plant seeds in public areas. Dispersal of biodiversity through seeds was preferred before moving and transplanting adult plants, because seeds germinate only if conditions trigger them, otherwise they could stay dormant until the environment seconds their awaking. Therefore, their adaptability and rate of success as adult plants is higher than moving formed sprouts.

Egle Oddo

The World in Common, performance, 2018 © Egle Oddo & Antti Ahonen

Oddo's attention was also directed to the aesthetic quality of the sculptural object in order to convey values associated with urgency, public care, and preservation of natural resources. It was a monument to urge people to act together for the conservation of plant biodiversity disappearing at a very quick rate, taking into account the alarming considerations already coming from scientists at the time. [2]

Oddo designed, together with sculptor Nastia Eliseeva, a shape to be realized in bronze and she designed a public ritual to cyclically share the seeds with the community. She obtained permission to install the sculpture in Espoo, close to EMMA Museum, one of the most important modern art museums in Finland. During the process of gathering the funding for the realization of the ambitious sculpture, Oddo realized that there were un-coherent elements in the project. The mass of bronze produced and installed did not represent conveniently an instance to ecological preservation, and the monumental aesthetic was leaning towards a classic conservative fashion, at the same time appealing for a specific baby-boomer generation and repulsive for the youngest generations. Reflecting on aspects of communication and ethics, Oddo decided to suspend the process of realization of the bronze sculpture and to concentrate on the other aspect of the design: *the ritual*.

As Oddo explains, in performance art, communication is not linear, however similarly to theatre, the act exists and is magnified by the body of the performer:

> Plant seeds are often inconspicuous, tiny, and volatile. The first necessity for the design of the ritual was to magnify the seeds' presence and their importance through the body of the performer. I wrote a *libretto* where I scripted the action of masked actors, musicians, and aerial acrobats to distribute seeds to the audience during a spectacular ritual. The goal of magnifying the presence of the seeds was achieved. However, after representing the ritual a few times, I realized that there was something fundamental still missing in the performance in order to convey the idea of care: *affection.*
>
> In neuroscience and in several biological studies, touch is considered the fundamental tool to express and understand affection. [3] Also, plants are known to communicate via touch, based on the various chemical exchanges elicited by touch occurring between plants, insects, and mammals for whom the oxytocin systems may enter in dialogue with touch. [4] By taking tactile experience at the heart of my research process, I started to observe and experiment with different ways of touching the plants and the seeds, and how plants touch humans. I built a series of tools and furniture that would facilitate this interaction.

This practice led her to think that she should concentrate on the sense of touch as the primary source to possibly elicit affection during a participatory performance:

> The first result of this new way of thinking was the participatory performance called *Seeds Bombs Kill Only Boring Gardens.* Seeds bombs are innocuous objects invented as an agricultural device presumably used to seed unreachable areas; they are made of soil, clay, compost, and seeds, therefore they do not explode. In the participatory performance, the public is invited to build a set of egg-shaped clay objects that contain seeds: the seeds bombs are then thrown in urban green areas. The aesthetic of the action resembles that of a dissident act, with a pacific and un-harmful result, as the seeds are chosen from local and non-invasive flora with the purpose to transform urban areas. These performances seem to be very effective in conglomerating different generations acting together, and furthermore, they seemed appealing to a transversal and diverse range of citizens. Successively, these performances became the point of departure to create a new type of garden.

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The World in Common, installation-performance, 2019 © Egle Oddo & Antti Ahonen

During her practice with seeds and public performances, Oddo observed the emergent ways in which different life forms touch each other in a community. Her observation is based on the sensorial connection between the human body, the *biocenosis* [5], and the local environment.

Her artistic approach suggests tactile experience by questioning the visual dominance over touch. For her, touch contains a complex range of transcultural practices in itself as the tactile experience may be considered as a highly ethical and/or unethical interaction. By moving one step forward with known discussions on the tactile experiences, Oddo investigates the experience of touching plants and seeds. At the same time, she also reviews plants touching humans.

She observed that humans prioritize their interaction with plants based on taste and edibility, scent, and visual appeal. Therefore, she decided to realize gardens that purposefully confound the distinction between site for agriculture and site for leisure, and wilderness. In order to achieve this goal, she selects, collects,

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Seedbombs Kill Only Boring Gardens, participatory performance, 2018 © Egle Oddo & Fondazione Orestiadi

and plants mixes of cultivars and wild species. Oddo named the design resulting from this practice as *evolutionary gardens*. This term connotes a garden in constant change; these gardens would not be kept in a certain shape, they would present unusual assemblages of plants with a dynamic biotic differentiation, and moreover, even the plant populations represented in the garden would change during time. [6]

It might be worthwhile to focus on one example to explain her practice in her own words:

> During the project in Gibellina, Italy, where I was entrusted urban land parcels to realize an *evolutive garden,* the allocation was possible through the collaboration of Fondazione Orestiadi, Cantine Hermes, and the Townhall of Gibellina, and the collaboration of the University of Palermo. Also, the local inhabitants and MAG association contributed in a fundamental way to the initiation of the process. The concurrence of a public administration, a university, a private enterprise, and a non-governmental cultural organisation, makes this experiment a unique example of a community effort.
>
> After identifying the spot, I started to observe the soil characteristics, local meteorology, and insects' population in collaboration with permaculture expert Eva Polare, the initiator of a regional seed bank called *Sementi Indipendenti.* We interviewed local direct cultivators, gathering and analyzing data to decide how to work the land, what type of compost and nutrients to integrate, what population of plants to include, which consociations to favor. We collected seeds of local wild species during three different seasons and, in collaboration with Professor Anna Scialabba (STEBICEF Department of Plant Biology of Palermo University), we decided to make an experiment with brassica. We received certified seeds of different Brassica progenitors from the Germplasm Bank of Palermo University. Precisely a large number of endemic entities present in Sicily suggests that the island is a possible center of differentiation of the Brassica genus. Moreover, regardless of the phytogeographic interest, these endemisms take on particular importance as they represent the probable ancestors of the forms and varieties of cultivated cabbage. [7] I was interested in how the Brassica genus of progenitors would naturally iridize in the new climatic conditions.

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Repository, performance, 2018 © Egle Oddo & Sergio Urbina

All the choices were performed by different actors in the project, such as how to work the land; where to collect the seeds; when to saw; to fence or to leave it open; to water or to leave it dry; and to care collectively or to abandon it. All of these methods included, excluded, or mixed; all of these actions constitute a performative body. The body of the artist herself is included in the habitat that enacts it through its locality and its manifold instances. Therefore, a *Performative Habitat,* following the definition of her own practice proposed by Oddo, is a conglomerate of desires and resources, a pattern leaving behind identity-based expectations in favor of collective vitality.

This venture from classical bronze sculpture to the evolutionary gardens

Egle Oddo

The World in Common, installation-performance, 2019 © Egle Oddo & Antti Ahonen

and recently to performative habitats, has been taking place for the last 12 years.

For Oddo, this process resembles a potential metaphor for a new perception to practice a mechanism that shifts mass production to individual or community-based action by detecting and activating natural resources. This very action also triggers a series of *urgent* statements and implications in the anthropological, economic, political and ecological contexts.

The World in Common

In light of these research questions aggregating around her botanically mediated perception of habitat, labor, and aesthetics, Oddo started to form a new body of work in 2018:

> *The World in Common* is an artistic research that seeks to merge the expressivity of performance and visual arts with extraordinary *biotopes*. Biotopes constitute the habitats in which specific bio-diverse ranges of living communities are nurtured and able to thrive. I understand biotopes as open systems that are approachable for any individual's ordinary daily activity and practicable strategy, providing an insight into local biodiversity.
>
> *Extremophile* plants offer the point of departure for the research. They perform an important role in inhospitable biotopes, often contributing to prepare the habitat for more species to settle.
>
> *The World in Common* is interested in the cultural intersections emerging among diverse populations that inhabit biotopes. Moreover, it pretends to support the coalition between various types of knowledge, in order to break down the binomial opposition between the natural and the artificial in a biotope. *The World in Common* generates sensorial contexts by linking various spheres of knowledge and interconnected meanings with the passion to detect new findings as a shared lively experience.

The Anchor Point: Extremophiles

Egle Oddo's practice forms the basis and the point of departure for *The World in Common*, with the aim to overcome its limitations and extend it into a new—yet to be invented—artistic practice. Oddo identifies how this form of practice started with her research that led her to the *extremophiles:*

> From 2015 to 2019, I examined the *desertization* tendency, generally speaking a natural process, and the *desertification* caused by human activity, which both appeared in the southern region of Europe. [8] There are several factors contributing to desertification such as: impoverishment of soil generated by monoculture exploitation, pollution, raising salinity, shortage of water, and negative loops accelerating loss of biodiversity. [9] Accordingly, I identified a set of plants that present particular resilience to all kinds of extreme conditions: *extremophiles*.

Extremophiles are plants and organisms that are able to grow in habitats where various physicochemical parameters reach extreme values. These plants present different survival abilities, and in some cases are able to remediate the soil, and make it suitable for re-population with glycophyte plants, therefore having an impact in countering desertification. There are thermophiles growing at high temperatures, psychrophiles growing at low temperatures, acidophiles and alkaliphiles growing respectively in acidic or basic pH values, barophiles growing best under pressure, and halophiles growing with high salinity. Often these organisms are poly-extremophiles, able to live in biotopes where many extreme factors operate simultaneously. [10]

Oddo explains further that extremophile plants appear in different regions of the world, in a wide variety of biotopes:

> They have largely been overlooked and considered a less valuable species. As a result, no comprehensive germplasm bank of extremophiles yet exists, and no in-depth study on their status of conservation in the world has been conducted.
>
> Extremophile organisms include members of all three domains of life, bacteria, archaea, and eukaryotes; they are at large microorganisms, mostly archaea. The initial interest of the artistic practice focuses on multicellular creatures, progressively including other life forms becoming relevant in the course of the project. The study of extremophiles in biology has provided, over the last few years, groundbreaking discoveries that challenge the paradigms of the modern concept of what constitutes life and what are the limits of life. These findings have made the study of life in extreme environments one of the most exciting areas of research and can tell us much about the fundamental laws of life and existence.

By extending the research questions into the realm of anthropology and the humanities, Oddo is eager to explore new expressions and to create *performative habitats.* [11]

In 2013, a group of scientists from the University of the Philippines discovered *Rinorea niccolifera,* a plant able to absorb nickel in very high amounts,

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Growing a Language, performance, 2018 © Egle Oddo & Antti Ahonen

beneficial to perform phytoremediation of soil by removing heavy metals in contaminated areas. [12]

A group of scientists at the Centre of Biotechnology, Technopole Borj Cédria in Tunis, who started their research in 1998, finally addressed the extraordinary nutritional potential of specific halophytes, containing oils comparable to olive oil and powerful anti-inflammatory substances in 2011. [13] Halophytes are able to extract the salt from the soil, remediate it, and make it suitable for repopulation with glycophyte plants.

Accordingly, Oddo realized that it is possible that the introduction of selected extremophiles in high salinity deserts and pre-deserts, may contribute to counter desertification in small areas, and thereby support the life of local populations. She is intrigued by the potential of extremophiles not only as biologic performers, but also as carriers of unforeseen socio-economic benefits for human populations in critical conditions.

In 2019, through her participation as a speaker at the conference *The Role of Germplasm Banks in the Conservation and Valorization of Plants and Cultural Diversity*, she established contacts with the Italian Society of Botany and RIBES, the Italian Network of Germplasm Banks. [14]

Gathering a Workgroup to Explore Extremophiles

With an integrative approach, Oddo created an interdisciplinary team under *The World in Common* project framework.

The core group is formed of: Professor of Botany Anna Scialabba (University of Palermo), working on plant biology in collaboration with international institutions; documentarist Antti Ahonen (independent researcher), photographing and performing; associate Professor Karim Ben Hamed (Centre de Biotechnologie, Technopole Borj Cédria, CBBC), expert of extremophile plants; curator and designer Basak Senova (Visiting Professor, Angewandte, University of Applied Arts, Vienna), developing experimental curatorial formats that communicate artistic research and practice; artist Egle Oddo (independent researcher), developing new artistic practices based on research; biologist Emmy Verschuren (Institute for Molecular Medicine Finland, University of Helsinki), focusing on molecular medicine and immune systems; Professor of Botany Gianluigi Bacchetta (University of Cagliari), expert on in-situ and ex-situ plant conservation; producer and cultural manager Johanna Fredriksson (independent researcher), concentrating on various ecological projects; IT specialist Myles Byrne (independent researcher), designing peer-to-peer protocols for academic and social organizations; and anthropologist Pekka Tuominen (University of Helsinki), researching public space, urban planning, its development, and its influence on local populations.

Extremophile plants offer a common field of discussion for the workgroup members, not only extremophiles perform an important role in inhospitable biotopes, they also present a high degree of plasticity in survival strategy and an agile potential for conceptual interconnections, especially when observing the difference between *extremophilic* and *extremotolerant* organisms. [15]

Accordingly, Oddo makes new associations between *extremophiles* and some substantial cultural, economic, medical and anthropological aspects in her recent works. Recent scientific studies on extremophile organisms have acknowledged their importance, pointing out that in light of climatic change, it is fundamental to understand survival mechanisms that act in extreme biotopes. [16] Anchored via these associations, the aim of the group is to become acquainted with those habitats, and to discuss the mechanisms and intersections among biology, society, geo-political and cultural conditions by addressing ecological and socio-political urgencies.

In this respect, research done through *The World in Common* aspires to discuss and explore the implications suggested by extremophiles and extreme biotopes as the point of departure for an artistic production. The artistic activity and the research performed by *The World in Common* forms a *corridor* that links together a series of biotopes that otherwise would not be in communication, allowing diverse living forms to meet, interconnect, and exchange strategies of mutual subsistence. At present, the biotopes the workgroup is researching and interacting with are placed in Europe, Africa, and South America. Since the urban and human-made landscapes also present conditions that can be defined as extreme for many living forms, as an artistic intervention, the workgroup establishes a network of biotopes by connecting parcels of land in swamps, deserts, prairies, and forests, along with small areas such as the green belts along rivers, town parks, terrace gardens, and roadsides.

Forming a Corridor for Contamination or Survival?

It is debatable if the *assisted migration of plants* [17] and the mobility of organisms needs to be defined as a form of contamination, or if it is part of a survival strategy. This depends on the perspective one takes towards restorative conservation, in-situ, ex-situ conservation, translocation, or other methods for the preservation of biota. All of these require intentionally touching and moving plants and organisms. Reading articles and reviews published since 2007, collaboration between

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Repository, installation, 2018 © Egle Oddo & Sergio Urbina

in-situ and ex-situ conservation is seen by a high percentage of scientists as a necessary tool to detain the progressive loss of biodiversity. [18] Therefore, the mobility of seeds, plants, and other organisms is here conceived as the result of a strategy for survival that includes human action in conjunction with, and in relation to other factors.

The workgroup considers the introduction of a set of practices: (i) Assisted migration: human-assisted movement of plants into their species established range, to help their adaptation to climate change; (ii) Assisted range expansion: human-assisted movement of species to areas just outside their natural range, facilitating natural range expansion in response to climate change; and (iii) Assisted long-distance migration: human-assisted movement of species to areas far outside their established range, beyond areas accessible via natural dispersal, in response to climate change.

Extremophiles can be divided into two categories: *extremophilic* organisms that require one or more extreme conditions in order to grow, and *extremotolerant* organisms that can tolerate extreme values but can also grow in normal conditions. This division is important in the decision on which organisms to move ex-situ and which to preserve in-situ.

During her visit at CREA (Council for Agricultural Research in Italy), Oddo has established contact with Agriculture Researcher Simona Aprile, who has been

forming, maintaining, and observing a field of extremophiles growing ex-situ for 18 years. This collaboration is especially significant for the implementation of a comparative study of the same extremophiles species growing in-situ and ex-situ, and to anticipate possible results of actions.

Factors of adaptability by extremotolerant organisms are interesting also for the research workgroup members Emmy Verschuren and Pekka Tuominen. Biologist Emmy Verschuren is considering the implications of extreme biotopes through the lens of molecular medicine. Anthropologist Pekka Tuominen is interested in the extension of the concept of extreme biotopes to public spaces in urban environments, and the interaction between different communities living together.

The creation of a corridor of biotopes boosts up the interdependence of data crossing anthropology, medicine, and environmental urgencies.

The Slow Time of Interaction among Biotopes

During 2019, the workgroup founded the conditions to become operative in the preliminary design of a corridor of biotopes. The interaction with plants is necessarily seasonal and it needs a long-term commitment. The workgroup explores more subtle relationships between responses of vegetation, immune systems, the cooperation between protein-based and other forms of life, the performance of urban biotopes for ex-situ conservation, the geo-political implications as tunable features of planetary environmental emergency. The workgroup fosters peer-to-peer practices that will lead to considerations and outputs in various directions: in the natural sciences with regards to geo-political entanglements, and concerning their surfacing in the humanities in the form of visual art and performance.

A cross-sectional approach is the method chosen to observe the data with an observational and descriptive form of research. Cross-sectional research is used to describe the characteristics that exist in a community yet does not determine cause-and-effect relationships among different variables. The workgroup would like to use this method to detect and gather data in order to support further research and experimentation. They will be recording the information that emerges in each biotope and its population throughout the project, without manipulating variables.

The locations of the biotopes and planned artistic interventions:

- Biotopes located in Finland: a set of urban and peri-urban biotopes. *Performative habitats* at Mänttä Art Festival. Negotiations to open a garden for the patients of the Helsinki Hospital, Cancer Department.

- Biotopes located in the Mediterranean region, with a focus on Croatia, Tunisia, Sicily and Sardinia. In Croatia, a moment of reflections on the research questions and the implications. Artistic intervention at G-MK gallery and in ZMAG (network of environmental activists). In Sicily, comparative study of extremophiles in-situ and ex-situ. Interventions in dry areas in collaboration with the University of Palermo and its Germplasm bank, and in Sardinia with the University of Cagliari, and the Sardinian Germplasm Bank. In Tunisia, a conservation-oriented interaction in the *sabkha* biotopes, in collaboration with Biotechnology Centre of Borj Cédria. Collection of extremophiles seeds from the wild and observation of extremophiles in-situ and ex-situ. Possible establishment of a North Africa and Mediterranean Bank of Extremophiles germplasm. Artist residencies and displays in collaboration with several cultural partners.

- Biotopes located in Algeria: extremophiles garden ex-situ. Establishment of an

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Arboretum Corporis, installation-performance, 2018 © Egle Oddo & Juha Huuskonen

extremophiles garden in the Sahrawi Refugee Camp in Smara Algeria, in collaboration with artist Mohamed Sulaiman and Motif Art Studio.

- Biotope located in Gambia: establishment of *evolutionary garden* in collaboration with Dr Modou Barry and the Youth organisation Eco-Village Nature Camp and Forestry Education.
- Biotope located in Brazil: the type of interaction in under evaluation. Professor Gianluigi Bacchetta (University of Cagliari, Department of Life and Environmental Sciences) is involved in the third mission to preserve the semi-arid vegetation of the *caatinga* ecosystem in Brazil. Since September 2019, he has been work hands-on on a strategy for in-situ and ex-situ conservation. The operations are conducted together with CCB - The Centre for Conservation of Biodiversity and with the local institutions as the Federal Rural University of Semi-arido (UFERSA) of Mossoró and Prof. Salvador Barros, the University of Fortaleza (UFC), Natal (UFRN) and Chapadão do Sul (UFMS). Together they form a network of applied research (Red de Pesquisa Italo-Brasileña) in the agro-forest and botanic sector. Their aim is to help herbs, bushes, and trees growing in the Brazilian outback (sertão) and the caatinga to thrive in their original biotope, without excluding assisted migration if so needed.

The loss of workers' rights has accelerated its pace in several states, as well as in the west, which were once carriers of values leading to the creation of the social state.

Thinking Economic and Socio-Political Urgencies through Extremophiles

As a priority, the team discusses socio-political urgencies in the context of *The World in Common* project. Although an obvious way to make associations it would be by linking with the extreme life conditions of some populations experiencing forceful migration, there are too many mismatching aspects that create thought-provoking and articulated counter debates in the group.

Oddo exemplifies it through the observation on ex-situ extremophiles conducted by CREA agricultural researcher Simona Aprile:

> Simona Aprile seems to point out that after long-term translocation in a hospitable and highly competitive biotope, certain extremophile plants loose their fertility and ability to reproduce, while adapting to the new environment. It seems that they behave territorially, and their adaptation methodologies and behavioral patterns to survive in extreme conditions are very distinct from the physical, mental, and emotional mobility of humans. Therefore, a blunt rhetorical association between these plants and displaced populations at large would inevitably result with misleading assumptions.

Nevertheless, as a workgroup member, I (designer and curator) underline that "from a positive and productive point of view, to review these plants' survival patterns, which are based on *collectivity* and *collective achievements*, new perspectives and alternative survival strategies for the future could be developed for the enriching life standards in new environments". [19] Another member, Myles Byrne (IT expert of peer-to-peer structures) adds: "the *jackpot* of global crises appears to threaten disciplinary and territorial boundaries, causing attempts to harden them, which in turn accelerates the state of crisis. Extremophiles guide us in seeing past these boundaries".

Workgroup member Johanna Fredriksson (independent art project manager and producer) finds her anchor point with extremophile-thinking via her concern with aspects related to labor. The loss of workers' rights has accelerated its pace in several states, as well as in the west, which were once carriers of values leading to the creation of the social state. Fredriksson detects a constant problem in the field of cultural production: the negation of the value of labor. [20] Fredriksson sees that dissimilar working environments would need to be connected in solidarity for the implementation of better workers rights, and considers the unfavorable exploitative *biotope* as a reality to be subverted by the action of the *extremo-intolerant producer*. Her direct action includes open budgeting, making the problems visible, especially reminding institutions of the reality of working conditions, implementing a better common ground where both institutions and workers can act together under the fair distribution of resources.

Documentarist Antti Ahonen has always been cultivating his interest in the extremes, reading extensively about different forms of extremism including

forms of cultural, political, and anthropological extremism. In his work, he often studies extreme fields, ranging from science to parascience. He seems attracted by the impossibility to test and document certain phenomena by conventional scientific methods, and he sees the act of surviving in extreme conditions as a compassionate act, at the same time wanting to be subversive and being kindred with extreme conditions.

Anthropologist Pekka Tuominen is very concern with the ideological aspects of being trapped by the nostalgia for extreme situations. He sees a certain induction to passivity sprouting by mass media coverage of global catastrophes and wars. Tuominen is very critical towards a superficial fascination for the extremes, seeing it as a form of western escapism to be avoided.

Biologist Emmy Verschuren reflects on a series of exogenous factors that concur to form a frame. The term *syndemic* is a contraction of *synergistic epidemic*: multiple interrelated epidemics happening concurrently. In 2019, the term *global syndemic* came into wide use in biomedicine to communicate that the epidemics related to obesity, malnutrition, and climate change are not happening in isolation, but are synergistically exacerbating each other. Each epidemic alters the environment in which the other diseases develop, leading to new evolutionary paths of disease. The synergy of diabetes and obesity into the metabolic syndrome *diabesity* is an example. Analogously, cancer is not a single malfunction of cellular reproduction, but a diversion of cell development, which alters the cellular environment, in turn leading to further diversion of healthy function. Extremophiles are a reverse image of this: they establish niches not only for themselves, but anchor other species, allowing ecological networks to expand. In exploring extremophiles, Verschuren hopes to find clues for how to redress the perversion of healthy niches in cancer, and also for how to address the global *syndemic*.

The Third Middle: A Stance Moving between Phenomenology and Knowledge

During one of the meetings with the workgroup, after my remark about a third possibility and standing point for the group's attempt to develop a third way of knowledge production through extremophiles, Oddo started to use the term *the excluded third* (il Terzo Escluso) referring to the *Principle of Excluded Middle*:

> Instead of inscribing the term in the Aristotelian footprint set towards a mathematical sequence [21] or using it to usher the Hegelian boulder of the political metaphysics with its contradictions, [22] I brandish the term as I carry my hoe, attempting to plow a zone of resistance against binomial and binary categorization of phenomena and concepts. Extremophiles seem to negate the exclusion of the third way, showing that a third proposition, which has been previously neglected, may also exist. Extremophiles perform as prompters of life expanding beyond the improbable and excluded conditions. That brings a valid definition for extreme biotopes: habitats that are beyond the medium possibility. The presence of extremophiles shifts biotopes from ranking as *impossible* to *territorial* and eventually to *porous* and *evolutionary*.

Extremophiles perform a type of biological and conceptual labor that has not been recognized before. They don't fit the public-private binomial opposition in the working sphere, nor they embody a form of activism and civil disobedience, even if they could easily be mistaken for those forms of labor.

The inclusion of *the Excluded Middle* has been quite a relevant tool for the team to define their standing point in their attempt to develop a third way of knowledge production through extremophiles. Again as Byrne puts it, critical choices being framed by political interests as false binaries is nothing new, but now the content of the false binary choices offered is itself often blatantly untrue. "Solutions or answers to current crises quickly reveal their dependence on assumptions of the stability of the general background. Yet the general loss of this stability is widely acknowledged as the highest-level description of the global state of crisis".

Respectively, Oddo underlines a vital association:

> Quoting Professor of Sociology Bob Jessop: "While some imaginaries and their associated crisis-solutions need to convince only a few key policy makers or strategists leading to more administered, indirect, market-mediated, or molecular changes that involve limited participation from subaltern groups, others are effective only because they mobilize much wider social support. A third phase begins when some imagined recoveries are retained and undergo theoretical, interpretative, and policy elaboration leading eventually to their becoming taken-for-granted and integrated into standard policy procedures and, perhaps, new crisis-management routines. This raises the key issue of the (always limited and provisional) fit between imaginaries and real, or potentially realizable, sets of material interdependencies in the economy (or, for our purposes, the ecological order more generally) and how the economy is linked to wider social relations". [23]

Conclusion

The last century culminated with the hyperactive promotion of short-term and unsustainable modes of environmental engagement, and still in the beginning of this century, alternative approaches are frequently presented as romantic. Serious debate about un-growth economics is pushed aside and categorized above all as unrealistic. However, it cannot be any more realistic to persist with growth-oriented practices that have produced existentially threatening levels of environmental change.

In this vein, Oddo's *evolutionary gardens* and her way of activating the public opens new channels for knowledge sharing. Furthermore, it creates a third standing point and perspective to detect governing mechanisms and the conditions they create for us. Her practice proposes a collective action and intelligence to be activated. We need forms of knowledge production that acknowledge the loss of stability, and that what we produce must be ready to continually, sustainably change, and evolve.

Performative habitats, Oddo's new art practice, indicates a persistent act of performing as a non-stop process. This practice questions and initiates new presentation and interaction models to compile, interpret, and process knowledge while receiving diverse perspectives from different directions on the move. It clearly indicates a third possibility. And for the audience/participant/receiver of her practice, it requires a third standing point, which would be followed by questions and curiosity.

Consequently, she reveals her final question as follows:

> The various Green New Deal and ecosystem valuation proposals frame ecological solutions within the science of market pricing, as if the continual process of life and evolution itself could be fitted inside capitalism.
>
> Instead, we need to practice *Thinking Through the Garden*, placing human artifacts back within the dynamism of biology and nature. This is analogous to the trend seen in science over the last decade, where physicists migrate to biology, re-framing assumptions about the origins of life and the mechanisms of cancer.

Extremophiles and *extremotolerant plants* withstand extreme conditions but do not contribute actively to create and maintain a state of emergency in a biotope.

The incidence of exogenous factors on the cycle of life, seen in the light of our lost myth for the syndrome of the above-all-maker-and-savior, set for us an unknown task: *what does it mean adaptation to the extreme conditions we have set ourselves?*

Endnotes

[1] Developed and curated by Basak Senova, CrossSections was designed as an interdisciplinary platform for explorations into artistic research and education through dialogue and production. The project employed an open format to reflect upon "process" with the intent to articulate critical reactions to the political, economic, and social disturbances facing us today. Over the course of three years (2017–19), the artists, together with other scholars and cultural workers, have organized various meetings, accompanied by residencies, workshops, exhibitions, performances, and book launches in Vienna, Helsinki, and Stockholm.Participating artists included Heba Y. Amin, Nisrine Boukhari, Benji Boyadgian, Yane Calovski, Ramesch Daha, Ricarda Denzer, Nikolaus Gansterer, Inma Herrera, Barbara Holub, Otto Karvonen, Ebru Kurbak, Bronwyn Lace, Marcus Neustetter, Behzad Khosravi Noori, Egle Oddo, Isa Rosenberger, Lina Selander, Tamsin Snow and Timo Tuhkanen. The project partners were Kunsthalle Exnergasse – WUK in Vienna; IASPIS – the Swedish Arts Grants Committee's International Programme for Visual and Applied Artists; Konstfack University of Arts, Crafts and Design; and NFK – The Nordic Art Association in Stockholm; Nya Småland with different locations in Sweden; HIAP – Helsinki International Artist Programme and Academy of Fine Arts – University of the Arts Helsinki in Helsinki; Center for Contemporary Arts, Estonia in Tallinn; and Press to Exit Project Space in Skopje.

[2] S. Díaz, J. Fargione, F. Stuart Chapin III, D. Tilman, *Biodiversity Loss Threatens Human Well-Being*, published August 15, 2006 on Plos Biology, open access.

[3] D. M. Ellingsen, S. Leknes, G. Løseth, J. Wessberg and H. Olausson, *The Neurobiology Shaping Affective Touch: Expectation, Motivation, and Meaning in the Multisensory Context*, published online January 6, 2016 on US National Library of Medicine National Institutes of Health.

[4] D. Markovic, N. Nikolic, R. Glinwood, G. Seisenbaeva, V. Ninkovic, *Plant Responses to Brief Touching: A Mechanism for Early Neighbour Detection?,* published November 9, 2016 on PlosOne.

[5] *Biocenosis* is a term coined by Karl Möbius, to describe the interacting organisms living together in a biotope in 1877.

[6] Oddo's work with evolutionary gardens is inspired also to the work of Professor Salvatore Ceccarelli. Salvatore Ceccarelli, associate professor of Genetic Resources and Genetic Enhancement at the Faculty of Agriculture of the University of Perugia until 1987, was working at the International Center for Agricultural Research in Dry Areas (ICARDA) in Aleppo, Syria from 1980 to 2011. In 1995, he began experimenting with participatory genetic improvement of grains in Jordan, Algeria, Ethiopia, Eritrea, Yemen, and Iran with the aim of providing effective solutions to increase agricultural production without leaving behind the protection of biodiversity and adaptation of crops to climate change. Participatory evolutionary genetic improvement has also the aim to maintain food sovereignty and to give seed control to farmers. Thanks to the work of Prof. Ceccarelli and researcher Stefania Grando, many cultivators have already been able to develop excellent grains and commercialize the products successfully, while remaining faithful to principles of biodiversity conservation and protection of the environment.

[7] Based on the numerous publications of botanists P. Mazzola, F. M. Raimondo, and G. Bacchetta, by the Italian Society of Botany, Groups for he Conservation of Nature, Floristry, Briology, Mycology Lichenology.

[8] Data collection from *National Action Plan for Combating Drought and Desertification*, by the Italian Ministry of Forestry and Agriculture, and from a series of articles by independent scholars including *Principali studi sul rischio desertificazione in Sicilia*, by Francesco Cancellieri, Vincenzo Piccione and Vincenzo Veneziano, appeared on issue 1/2017 of the publication "Geologia dell'ambiente".
As reference for the definition of *desertization* and *desertification*: *Discussion paper on the preparation of the World Map of Desertization with particular reference to salinity/alkalinity problems*, and *Draft Report of an FAO Expert Consultation on the Preparation of a World Map of Desertization*. The consultation was held on the occasion of the FAO/ISSS Expert Consultation on Prognosis of Salinity and Alkalinity, FAO, Rome, 3-6 June 1975.

[9] *Combattere la Desertificazione nell'UE: di fronte a una Minaccia Crescente Occorre Rafforzare le Misure*, Focus Report of Curia Rationum at EU Court of Audit, 2018.

[10] P. H. Rampelotto, *Extremophiles and Extreme Environments*, Life (Basel) Aug 7, 2013, pp. 482–485.

[11] *Performative habitats* is an expression coined by Egle Oddo in 2019, while dialoguing with curator Basak Senova, it designates dynamic sensorial situations performed together by different life forms in a given biotope.

[12] Phytoremediation refers to the use of hyperaccumulator plants to remove heavy metals in contaminated soils. Phytomining, on the other hand, is the use of hyperaccumulator plants to grow and harvest in order to recover commercially valuable metals in plant shoots from metal-rich sites. The discovery's study first author is Prof Edwino Fernando from the University of the Philippines. Edwino S. Fernando, Marilyn O. Quimado, Augustine I. Doronila, *Rinorea niccolifera (Violaceae), a new, nickel-hyperaccumulating species from Luzon Island, Philippines.* PhytoKeys 37. pp. : 1–13, 2014. doi: 10.3897/phytokeys.37.7136

[13] R. Ksouri, W. M. Ksouri, I. Jallali, A. Debez, C. Magné, I. Hiroko I, and C. Abdelly, *Medicinal Halophytes: Potent Source of Health Promoting Biomolecules with Medical, Nutraceutical and Food Applications*, US National Library of Medicine National Institutes of Health. November 30, 2011.

[14] Egle Oddo's report about her participation to the conference:
https://koneensaatio.fi/en/boldness-blog-relational-seeds-collections-the-weight-of-public-care-english/

[15] G. M. Zenova, N. A. Manucharova, D. G. Zvyagintsev, *Extremophilic and Extremotolerant Actinomycetes in Different Soil Types*, Eurasian Soil Science Journal, Springer. April 2011, Volume 44, Issue 4, pp. 417–436.

[16] S. K. Bajay, M. V. Cruz, C. C. da Silva, N. F. Murad, M. M. Brandão and A. P. de Souza, *Extremophiles as a Model of a Natural Ecosystem: Transcriptional Coordination of Genes Reveals Distinct Selective Responses of Plants Under Climate Change Scenarios*, Frontiers in Plant Science. September 19, 2018.

[17] The human-assisted movement of species beyond their historic ranges, in response to climate change. A recent review on the topic found that 60% of published articles generally support assisted migration, while 20% are opposed, and 20% remain undecided. Supporters point to the possible extinction of species without assisted migration, while critics point to the lack of guaranteed success, the possible unintended consequences, and historical dangers of introducing species to new habitats.

[18] G. Bacchetta, D. Ballesteros, and P. Belletti, *Conservación ex-situ de Plantas Silvestres.* Istituto Superiore per la Protezione e la Ricerca Ambientale (Ministero dell'Ambiente e della Tutela del Territorio e del Mare, Italia), and Jardín Botánico Atlántico, 2008.

[19] The following statements are extract from notes of the workgroup meeting 29.9.2019 at Kamari, Kone Foundation premises, Helsinki.

[20] In the experience of Fredriksson, cultural institutions often introduce neglected working conditions, creating discrepancies between the underpaid content provider (the artist, the curator) and the staff of the institution perceiving a monthly salary. Fredriksson also refers to the research of Minna Henriksson about labor conditions of artists.

[21] In the *Logic* of Aristoteles, it is suggested that both a proposition and its negation cannot be true, and that a third possibility is excluded, *tertium non datur*.

[22] Reference to G. F. Hegel's text published in 1821: *Grundlinien der Philosophie des Rechts*, and referring to its contradictory interpretations sprouting in the exegesis of philosophy.

[23] B. Jessop, *Economic and Ecological Crises: Green new Deals and No-growth Economies*, *Development*. Palgrave Macmillan UK. (23 February 2012) 55, p.17. Also see (Daly, 1996; Harvey, 2010; Jessop, 2012).

Egle Oddo received her BA in Classical Studies; continued her studies in Department of Paining, Academy of Fine Arts in Palermo and Polytechnic of Fine Arts in Valencia; and completed her MA in 2001. Oddo participated in Baltic Biennale (2010); 54th Venice Biennale (2011); Mänttä Art Festival (2015); Casablanca Biennale (2016); Triennial Agrikultura (2017); 5x5x5 artists selection of Manifesta12 (2018); *CrossSections* Triology at Kunsthalle Exnergasse, WUK, Vienna (2018),;*Growing a Language*, Museo delle Trame Mediterranee of Fondazione Orestiadi (2018); the *CrossSections* exhibitions ExLab, UniArts, Helsinki and Konstfack, Stockholm (2019). A board member of Myymälä2 gallery, and Pixelache Trans-disciplinary Platform for Experimental Art, Research and Activism.

Basak Senova is a curator and designer; studied Literature and Graphic Design (MFA in Graphic Design and Ph.D. in Art, Design and Architecture at Bilkent University) and attended the Curatorial Training Programme of Stichting De Appel, Amsterdam. Lectured in various universities as an assistant professor; was the resident fellow at the UniArts, Helsinki; and received Associate Professorship by the Higher Education Council of Turkey. Curated the Turkey and Republic of Macedonia pavilions at the Venice Biennale (2009 and 2015); many other biennials, international exhibitions and projects; acted as the Art Gallery Chair of (ACM) SIGGRAPH 2014. Senova is a visiting professor at the University of Applied Arts, Vienna.

The Empire and The Hissing Folly

The Hissing Folly *is a collaborative, multidisciplinary artwork by Cole Swanson that employs invasive phragmites, or European common reed* (Phragmites australis subs. australis) *in both its material construction and critical foundation. This reflection on the artwork and its referents demonstrates how the organism acts as a signifier for imperial folly and its role in ecological collapse; conversely, the presence of common reed in both ancient and modern artistic narratives posits that the regeneration of natural systems relies centrally on the disabling of empires in their various forms.*

text and images by **Cole Swanson**

"But a thick growth of whispering reeds began to spring up there, and these, when at the year's end they came to their full size, betrayed the sower, for, stirred by the gentle breeze, they repeated his buried words..."
Ovid, p.133

Alone, blue mud wasp helicopters overhead, upward into the rafters of the Loft Gallery, and zigzags its way past the peak of *The Hissing Folly*.[1] The thatched structure rises from the ground, squeezing tightly between the heavy beams of the century-old architecture. At its pyramidal base, the floor is littered with thousands of winged insect bodies. The room is searing from the summer sun beaming in from the craggy windows of the chamber's clerestory. The silence is only momentarily interrupted by the buzzing of the wasp; the iridescent creature settled itself on a single reed of thatch protruding from the western façade of the monumental artwork. The installation has transformed dramatically since the gallery shuttered its doors as a response to the pandemic. The hissing of the folly, which emanated from a four-channel sound installation inside the pyramid's interior, has gone quiet with the absence of human visitors; however, this newfound silence provides only the illusion of absence – there is life everywhere. Gallery staff warns me to take care, not only from bees, hornets, and wasps but from the bats that have colonized the site, spotted days before flying circles around the folly's peak.

Months earlier, the Loft Gallery hosted a monoculture. A process rather than a mere product, *The Hissing Folly* began materializing through a community-driven harvest of invasive phragmites (*Phragmites australis subsp. australis*). Also known as European common reed, the perennial grass was transported to North America sometime within the past two centuries.[2] Over three harvest sessions, I worked with a volunteer team comprised of local residents and members of the Central Lake Ontario Conservation Authority to clear-cut 1.5 acres of dense phragmites growth from a biologically sensitive marshland in Thickson's Woods. The effort produced over 230 yelms (bundles) of reed, which provided a limited opportunity for native plant species to emerge in the coming spring.[3] Common reed has been traditionally employed in rooftop thatching since the Neolithic pe-

Cole Swanson
The Hissing Folly (Thatch detail),
Invasive phragmites, wood and sound installation, 2019

Jamie A. McMillan

Community Harvest of Invasive Phragmites: Thickson's Woods, Ontario, C-print, 2019

riod throughout the plant's original European habitat.[4] Stored within the Loft Gallery over several months, the yelms were dried, trimmed, and thatched onto the skeletal structure of the pyramid. The only apparent evidence of life in the space was limited to the thatch itself, mirroring the impacts on biodiversity the invasive plant wreaks on ecosystems throughout North America.

A multidisciplinary project, *The Hissing Folly* centres both its construction and its critical framework on phragmites, with specific importance paid to the plant's transition from a native species in Eurasia to an invasive species in North America. This examination of the artwork and its referents will demonstrate how phragmites has become a signifier for human folly in the pursuit of empire; it will also meditate on the potential for natural systems to thrive resulting from the disabling of empires demonstrated through art in both ancient and modern contexts. [5]

The Hissing Folly is named in part after a centuries-old tradition of folly architecture. Common throughout the United Kingdom since the 18th Century, follies are fanciful buildings with little function beyond providing curiosity and pleasure for visitors to the palatial gardens of countryside estates. They are often inspired by structures associated with powerful empires from bygone eras, including Roman temples, ruined abbeys, Egyptian obelisks, and pyramids.[6] The artwork's title also references the hissing reeds from the King Midas tales in Ovid's *Metamorphoses.* Ovid presents separate narratives that establish Midas as the failed emperor. In passages on the gift of the golden touch and the curse of the ass's ears, both gold and reeds are employed as devices that warn against the relentless pursuit of imperial greed. The relationships drawn between mineral and plant are solidified as an ancient sign for the commoditization of nature and the transformations that ensue in the natural world as a result.

Rewarded for his service to the god Bacchus, King Midas acquired the gift to transmute everything he touched into gold. The first objects changed were of the fertile earth – a branch, a stone, a lump of soil, a stream; however, Midas's magic soon betrayed him, and the terrifying realization that even food and drink became molten ore found the king begging Bacchus to take back the cursed gift.[7] In her analysis of the text's imperial underpinnings, Fotini Hadjittofi suggests that a lust for *fama* – gold and empire – are inseparable concepts, and that Midas's failure to understand that only the gods can control *fama*, brought about catastrophe.[8] Midas's power produced a metaphorical monoculture, a still, golden ecology devoid of natural difference. In atonement, he relinquished his imperial ties, retreating to the forest to reunite with nature under the auspices of Pan.[9]

In a related passage, Ovid recounts Midas's failed to return to an imperial world as the self-appointed judge in a musical contest between Pan and Apollo. According to the ruling of the sacred arbiter Tmolus, the rustic tune of Pan's reed pipes was outshone by a single pluck on Apollo's lyre. Pan, a lesser deity presiding over nature, and Apollo, the golden and imperial god, represent conflicting ideologies wherein the empire commands dominance over the natural world. Midas disagreed with Tmolus, claiming that Pan's song was the sweeter of the two, and was accordingly punished by Apollo to don the ears of an ass. Midas's repeated attempts to wield imperial dominion – in this episode as its judge – resulted in his public humiliation. He attempted to hide his animal ears with a fashionable headpiece, but the king's barber discovered the furry lobes, and sworn to silence, found relief by whispering the secret into a hole dug into the earth. From this tiny furrow, a swath of reeds began to grow, and blown in the wind, they hissed the king's embarrassment to all who would listen.[10]

In both stories, the interception of nature by proponents of the empire results in a viral spread of matter, first of gold, then of reeds. In a modern context, these tales provide a framework for what Foster, Clarke, and York call *The Midas Effect*, which represents "the inability of received economics and the capitalist system itself to recognize that there are intrinsic values and critical thresholds in nature, which we ignore at our own cost".[11] Materializing the myths of Midas, such a thre-

Frans Pilsen after Peter Paul Rubens

Oordeel van Midas Tmoli Judicum, Engraving, 1710 – 1784 © Public Domain

shold has been breached in the present, evidenced by the spread of invasive phragmites throughout North America. Shifting from mythological to ecological worlds, the reeds have once more established themselves as signifiers for the folly of imperial ambition.

Invasive phragmites was unintentionally transported from its native Eurasian habitat to the eastern shores of North America sometime within the past 150 years.[12] Speculation on the precise manner of the organism's passage to the new world is wide, but in the context of the Great Lakes, the growth of non-native phragmites echoes the movement of colonial settler activity that occurred throughout most of the 19th and 20th centuries. Biogeographic research has shown that in Canada, invasive phragmites established colonies tracing the eastern coastline, along the St. Lawrence Seaway, and

into the Great Lakes system.[13] The presence of the reed has dramatically intensified throughout the mid 20th century from human-centered activity including road and railway development, wetland disturbances, and agricultural projects.[14] Highway networks were established adjacent to the seaway to facilitate the movement of people and goods, which significantly contributed to the rapid spread of the exotic genotype.[15] The inland presence of phragmites appears linked to a lack of awareness or care for the sensitive ecology of the shoreline. Proximal highways, with their moist ditches, provide ideal environments for the transmission of seeds and rhizome fragments by vehicles traveling between urban centres and into the country's interior.[16] Furthermore, the plant's ability to thrive in a broad range of environmental conditions makes it particularly well adapted to colonize various human-generated habitats, including urban storm-water catchments, agricultural runoff systems, and irrigation ditches.[17]

According to Agriculture and Agrifood Canada, invasive phragmites has earned the title of the 'worst' invasive species in the country.[18] The rapid spread and incredible resilience of the reed conjures images of a future devoid of biodiversity, a future in ecological ruination. With the persistent growth of capitalist empires, fueled by a world system divided by nation-states and their corporations, environmental degradation seems inevitable; however, a radical disabling of capitalist mechanics, achieved by non-monetary, education-oriented action offers a more optimistic picture of the future, or at the very least, re-centres responsibility from the tangled, often-abstract realm of the empire back toward human agents. On capitalism, ecology, and the apocalypse, Isabelle Stengers states that there is "no symmetry at all between destroying and regenerating... you can destroy without knowing. Generating, regenerating, is a matter of fostering and learning".[19]

The Hissing Folly was built to promote awareness, volunteerism, and community action, and therefore represents a modest effort toward disabling the imperial systems that persist the loss of biodiversity. According to Lynn Short, invasive phragmites "spreads readily between public and private lands, without regard for boundaries" and that "any management plan for [them] must be comprehensive in including all affected areas, must be coordinated among all affected community members, and must be on-going".[20] In this spirit, a sustainably-conducted, volunteer community harvest was implemented, which became the conceptual and material foundation for the exhibition overall.

The installation artwork's form employs scientific data and multisensory engagements to expand awareness of the invasive species and its environmental effects. Clad in dry stalks, their seed heads trimmed to prevent further spread, the fifteen-foot pyramid stands the height that a single reed of the subspecies can grow in Canada – 2.5 times taller than its native variant.[21] As dry thatch crunches underfoot, human visitors crouch into the folly's interior and are engulfed in darkness like that found in the tall, dense groves in nature.[22] Surrounded by reed, reaching inward from above and upward from below, inhabitants may indulge their other senses – wafts of dried stems and the sound of rushing fronds swirl around them. The hiss, generated by field recordings captured from a massive monoculture in the woods nearby, haunts the space with the spectres of dwindling life forms. The marshland symphony of avian and insect voices has been extinguished. The din of a highway is gently audible in the distance. As the culmination of Midas's story in the *Metamorphoses*, all that remains is the awful truth hissing forth from stalks that demand the listener bear witness to such folly.

Only weeks after opening to the public, *The Hissing Folly* was silenced and shuttered as a result of safety protocols implemented to protect against the COVID-19 virus. Precipitated by imperial negligence, the onset of the pandemic evinced yet another crossing of thresholds from humanity's overconsumption of nature. It disabled the empire, slowing its machines, closing its borders, cultivating stillness. It will take some time before we understand the impacts of the pandemic on the health of biosystems,

Cole Swanson

The Hissing Folly, Invasive phragmites, wood, and sound installation, 2020.

Cole Swanson

The Hissing Folly (Interior view), Invasive phragmites, wood, and sound installation, 2020 © Visual Arts Centre of Clarington

and to determine if such a hindering of imperial action indeed slows the spread of invasive agents throughout the natural world. For now, there is pleasure to be had in scanning the floorboards and the rafters of the Loft Gallery, where I find innumerable species unknown to me before now. The folly has become the Ovidian forest. It offers respite from the empire, and grows in complexity and difference moment by moment in its solitude.

Endnotes

[1] *The Hissing Folly* is an art installation launched in February, 2020 at the Visual Arts Centre of Clarington in Bowmanville, Ontario. The art centre is housed in the former Mackay's Caledonia Mills building, reconstructed after a fire in 1905, and was used to process barley products for breakfast cereals. Situated on the uppermost floor of the building, the Loft Gallery has been retained in its original state, offering artists an opportunity to create responsive, site-specific work in conversation with the history and environment of the local community. Visual Arts Centre of Clarington. "Our History." Accessed July 14, 2020. https://www.vac.ca/vachistory.html

[2] Saltonstall, Kristin. "Cryptic Invasion by a Non-Native Genotype of the Common Reed, Phragmites Australis, into North America." *Proceedings of the National Academy of Sciences* 99 no.4, 2002, p.2445. doi: https://doi.org/10.1073/pnas.032477999

[3] The action required to successfully manage invasive phragmites in North America is far more extensive than the clear-cutting undertaken for this project. Emerging research shows that a combination of methods may be required to eradicate the presence of invasive phragmites, including the cutting of reeds, the application of herbicides, the burning of seed heads, and the spading of rhizome root systems. See Short, Lynn. "Examination of Comparative Manual Removal Strategies for Non-Chemical Control of Invasive Non-Native *Phragmites australis subsp. australis*: Phase II." *Humber College*. (2017). https://www.opwg.ca/wp-content/uploads/2017/12/Summer-2017-Phrag-Research-Report-Humber.compressed.pdf

[4] Wichmann, Sabine and Jan Felix Köbbing. "Common Reed for Thatching—A First Review of the European Market." *Industrial Crops & Products* 77 (2015): 1063-1073. doi: https://doi.org/10.1016/j.indcrop.2015.09.027

[5] For the purposes of this essay, the term *empire* will encompass imperialism, colonialism, and global capitalism by way of their shared ambitions toward expansion, relentless competition, and the accumulation of wealth and territory. See James, Paul and Tom Nair *Globalization and Violence Vol.1: Globalizing Empires, Old and New.* London: Sage Publications, 2006, p.xxiii

[6] Hunt, John Dixon. "Folly in the Garden." *The Hopkins Review*. 1 no.2, Spring 2008, p.241 doi: https://doi.org/10.1353/thr.2008.0035

[7] Ovid. *Ovid: Metamorphoses*. Translated by Frank Justus Miller. Cambridge, Massachusetts.: Harvard University Press, 1951. pp.127-131

[8] Hadjittofi, Fotini. "Midas, the Golden Age Trope, and Hellenistic Kingship in Ovid's Metamorphoses." *American Journal of Philology* 139, no. 2, Summer 2018, p.296 doi: https://doi.org/10.1353/ajp.2018.0014

[9] Ovid, p.131

[10] Ibid, pp.131-133

[11] Foster, John Bellamy; Clark, Brett and Richard York. "The Midas Effect: A Critique of Climate Change Economics." *Development and Change* 40 no.6, 2009, p.1091 doi: https://doi.org/10.1111/j.1467-7660.2009.01613.x

[12] Saltonstall, p.2445

[13] Lelong, Benjamin; Lvoie, Claude; Jodoin, Yvon; and Francois Belzile. "Expansion Pathways of the Exotic Common Reed (*Phragmites australis*): a historical and genetic analysis." *Diversity and Distributions*, 13, 2007, p.431 doi: https://doi.org/10.1111/j.14724642.2007.00351.x

[14] Ibid, p.435

[15] Ibid, p.437

[16] While the transport of phragmites fragments by vehicles along roadways remains a key factor in the inland spread of the organism, new evidence suggests that the sexual reproduction and seed establishment of the plant may be heightened from conditions associated with climate change at northern latitudes. Brisson, J.; de Blois, S and Claude Lavoie. "Roadside as Invasion Pathway for Common Reed (*Phragmites australis*)." I*nvasive Plant Science and Management*, 3 no.4 (2010): 506 – 514. Doi: https://doi.org/10.1614/IPSM-09-050.1

[17] Short, p.2

[18] Ontario. Ontario Ministry of Natural Resources. *Invasive Phragmites – Best Management Practices.* Peterborough, Ontario: Ontario Ministry of Natural Resources, 2011, p.4 https://docs.ontario.ca/documents/2675/stdprod-089643.pdf

[19] Latour, Bruno; Stengers, Isabelle; Tsing, Anna; and Nils Bubant. "Anthropologists are Talking – About Capitalism, Ecology, and Apocalypse." *Ethnos* 83, no.3, 2018, p.602 doi: https://doi.org/10.1080/00141844.2018.1457703.

[20] Short, p.9

[21] Ontario, p.5

[22] According to the Ontario Ministry of Natural Resources, a stand of invasive phragmites can contain up to nearly 200 stems per square meter and may be comprised of 100% invasive reed, making it a true monoculture. Ontario, p.6

Cole Swanson is an artist and educator based in Toronto, Canada. Featuring sound art, photography, video, installation, painting, and sculpture, his practice considers interspecies relationships and complex, coevolutionary systems. Swanson has collaborated with ecologists, conservation authorities, and community members to challenge mainstream discourses on commonly reviled species, and has launched ambitious projects drawing from multidisciplinary methods and research findings. He has exhibited work internationally and is a two-time Shastri Indo-Canadian Institute Fellow for his research on the traditional preparation and use of natural materials. His educational practice includes postings at the Ontario College of Art and Design University (Toronto) and Humber College (Toronto).

Bruno Côrte
Untitled, series of 30 objects, different species, variable dimensions, 2004/2018 © Bruno Côrte

Bruno Côrte: Vegetal Materialities

Bruno Côrte's work addresses human-plant relationships through the proximity and intimacy of vegetal manipulations. A forager and collector of plants, Côrte re-envision the vegetal form through process and manipulations that allude to human-vegetal transhistorical continuities and interdependencies.

text and images by **Bruno Côrte**

This series emerges from fieldwork and plant research carried out between 2004 until 2018. Most of my work involves natural materials. Collection is the most interesting and important part of the process. It always translates into a personal introspective in contact with the surrounding spaces. The following stage involves cataloging the specimens. This helps me to deepen my knowledge about each species and to shape links with new plants I am not aware of. In this particular work series, showed last year in Serpente Gallery, in Oporto I took several, long walks in many different environments. I collected most of my specimens from the riverbanks. I develop an intimate connection between the plants I collect and the places I visit. Eventually, my studio is transformed into a garden.

After these plants dry out for approximately a year, I work them into new shapes, creating new objects. Reworking the plants into objects allows me to study their forms and the characteristics qualities of their preservation. During this process, a poetic and elemental contemplation of the botanical universe can unfold—artificial and natural bind as a new skin growth. The disappearance of the body happens and the encounter with the fabrication of traces begins.

This series simultaneously redefines the notion of landscape through the disassembling of vegetable elements. The result is a fossilized herbarium and a new botanical garden. It's my tridimensional herbarium.

Bruno Côrte
Untitled, series of 30 objects, different species, variable dimensions, 2004/2018
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Bruno Côrte, lives and works in Lisbon.
He Graduated in fine arts, and illustration at the University of Madeira and in AR.CO, Lisbon, and started to exhibit in 1998. In 2001, he won the 1st prize for visual arts in Madeira Island with Landscape Study. In 2003, he won the 2nd place on the same contest with two large-format photographs. In 2008, he was awarded a travel scholarship to Japan by Cerveira Biennial, to conduct a research project on the Japanese landscape, a subject which he had researched and explored previously, either in painting, installation and as well as most recently in photography.

The appropriation, accumulation, and usage of several vegetable elements, like leaves, flowers, tree branches, and plants are predominant in his work, Me and My Nature, 2002; Sementes e Outras Naturezas, 2004; Chlorophyll room, 2007; Paisagem, 2011; and Landscape study, 2013 are examples.
Côrte exhibits regularly in Serpente Gallery, Oporto.
www.brunocorte.pt

Manuela Infante
Estado Vegetal, performance, 2019 © Manuela Infante

Manuela Infante: Estado Vegetal

Since its first staging in 2016, Manuela Infante's riveting piece of experimental performance, Estado Vegetal, has been celebrated as the kind of groundbreaking type of performance that aptly reflects the preoccupations of anthropogenic times. In Estado Vegetal, plants are simultaneously form, content, and essence. From beginning to end, the polyvocal monologue acted with impetus and wit by actress Marcela Salinas diffracts identity, displaces anthropocentrism, and uproots our culturally grounded conception of the world in the face of incommensurable trauma and loss.

interviewee **Manuela Infante**
interviewer **Giovanni Aloi**

Estado Vegetal is a polyphonic, branching, exuberant, reiterative, divisible and sessile monologue. Its prota- gonist is a woman, who is not an individual; she is a multitude, a swarm. This is not an animal play, it is a vegetable play. Based on the revolutionary thinking of plant philosopher Michael Marder and plant neuro-biologist Stefano Mancu- so, the exploration consists of probing the ways in which new concepts such as plant intelligence, vegetative soul, or plant communication can transform our creative practice.
If we accept that plants have other ways of thinking, feeling, communicating, other way of being intelligent, a di- ferent form of consciousness and another notion of time, perhaps we can see our own notions of thinking, feeling, communicating and being aware, transformed. In Michael Marder's words, "recognizing a "valid "other" in plants is also beginning to recognize that vegetal other within us."

Giovanni Aloi: I wanted to begin by talking about plants and your personal relationship with plants. Plants in your childhood, plants in your home...

Manuela Infante: I grew up in Victoria, Vancouver Island, so in my childhood, I was surrounded by lush forests. Also the lady that works with my grandmother loves herbs and was always collecting cuttings, grafting branches to root and grow into full plants. I used to love Lantana -- it grew where I lived. I was fascinated by the myriad of tiny flowers composing a large umbrella—the fractal composition was interesting.

GA: do you have houseplants and where do they come from?

MI: I have never bought plants. They come from friends as a present or have been grafted from other plants. Others come from previous homes I lived in; they have traveled with me. The lady who takes care of them during my absence might bring me a new one once in a while. And sometimes plants just appear out of nowhere. They arrive on the terrace from the air or birds. I have an 8 feet tall cactus on the terrace, and I have no idea where it came from.

GA: plants have become central to contemporary conversations in science, philosophy, and art. When I started to become involved in academic discourses in the early 2000s the main focus was on animals. And it was interesting to see how plant studies emerged from the basic non-anthropocentric notions that were developed at the time. I was impressed with Michael Marder's work and his ability to re-position plants within the discourses of continental philosophy from which they had been excluded pretty much all along.

MI: yes, I ran into his work pretty early on and it really struck a chord with me. I also like his work on fire and other subjects like a few short articles he wrote on deserts. I read *Plant-Thinking, The Philosopher's Plant* and *Graft,* and other essays. His thinking really helped me to develop my views on the subject. I wrote him an email about my project, and he was very supportive. I was very excited when he ended up agreeing to write an article in this book about *Estado Vegetal.* The whole thing comes full circle. When you are an artist engaging with academic thinking and text, one of the most exciting things that can happen is to have the authors who inspire write about your work—to me, that's an accomplishment.
I have also read the work of Stefano Mancuso and Monica Galliano but Marder's work is by far the most influential on my work. Both Stefano and Michael saw *Estado Vegetal* and were very interested in how their ideas have, shall I say, translated, into a different discipline. But translation is not really the right

Manuela Infante

Marcela Salinas in *Estado Vegetal, performance,* 2019 © Manuela Infante

word. Theater is a form of material-thinking, so it cannot be a translation but rather a dimension in which their ideas have "lived on", travelled, metamorphosed into a different state.

GA: what do you think interested them about transformative process?

MI: I see theater as a kind of pressure-chamber in which ideas can be expressed and tested. There is a certain kind of thinking that can happen within the structure of academia. But I don't think that academic institutions and structures allow for things like unknowledge, obscureness, and mystery to play important roles.

In its incorporation of sound, light, time, and text, theater provides something like a miniature model of the world in which you can observe and explore the movements of a much bigger, ungraspable and self-organizing unit. And that's very important to me in my thinking and in my practice since my concern is with the non-human. A lot a of what I do as a director is about letting things self-organize. That's why I like to work in the arts because it allows me to dance around things instead of speaking about things directly.

GA: I found the narrative structure of Estado Vegetal to enhance a poetic quality, and to lend itself to a certain poignancy grounded in realism. Some moments are very intensely emotional, the affective charge is tremendous. The ways in which the different voices intertwine produce a complex tapestry of emotions and affects that seems masterfully orchestrated.

MI: Estado Vegetal is as a composition of affects. I like this notion we have just crafted here. The performance is not a composition of texts and it is not a composition of images. It is a composition of affects. I organize affects in along a trajectory of sorts to trace an affective journey. But the journey is far from linear.

GA: It seems to me that Estado Vegetal capitalizes on a deliberate ambiguity, a blurring at the edges in which one character seamlessly flows into another or in which one body ventriloquizes multiple voices that never announce themselves. The mother, the girl, the old lady, the tree—the embodiment and the fluidity points towards a collective, shared state of mind a, a plant-like communicative network. The viewer find themselves actively engaged in negotiating these presences in a non-hierarchical way. As the performance unfolded, I realized that clearly pitching each line to the appropriate character didn't really matter. That gave way to a beautiful overlay between human and plant akin to how I imagine trees and other plants communicate with each other through their roots and fungal networks. The result is a beautiful carpet of affect, woven in a surprisingly seamless way, producing a whole that's impossible to disentangle. It seems to me that the supporting mesh underneath the carpet is made of an idiosyncratic desire, a sense of longing that bears deep existential undertones. Quite a few moments in the performance are marked by a sense of absurdity that we are only allowed to wallow into in our private spheres. Some of the narrative threads can only exist as moments of vulnerability and intimacy in the solitary encounter between human and plant, in which one being meets another.

MI: The private sphere has been very important to me. The narratives are meant to represent our attachment to plants and consequent vulnerability to them. I think improvisation is the key here. The narratives and characters emerge as part of a stream of consciousness. They are emerging from our shared experiences of plants and the branching process.

We wanted the narrative to feel like a spontaneous process of branching out where new branching happened unannounced and new perspectives intertwined. This is part of an important question of multiplicities that I am to address

Manuela Infante
Marcela Salinas in *Estado Vegetal, performance,* 2019 © Manuela Infante

through the body of one actor. We carefully considered the idea that plants are multitudes and how that might work within the context of a monologue. So the solution was polyvocality.

Mancuso talks about how plants communicate in polyphonic ways. So, at that point, we also began to think about technology and thus incorporated the looper, which Marcella uses live on stage to shatter the identity-based assumption that in theater assigns one character to one actor. In my next work on rocks, I will be working with three actors. In the case of Estado Vegetal, part of the sense of intimacy that emerges from the play comes from Marcela's own loneliness on stage. But I feel there is something interesting in this post-identity and this form of understanding acting as a multiplicity construct that can be explored further. As Virginia Wolf said "Multiplicity is the possibility to keep becoming".

GA: I wanted to ask you about the minimalism that Estado Vegetal seems to embody. I was fascinated by the idea that the monologue is such a classic genre in theater, it is one of the quintessential pillars of the artforms, it is like the nude in classical painting. But I was surprised by the humorous entrance of Marcela on stage and how you slowly upturn the conventions and expectations of the monologue to great effect. I was fascinated by the absence of a tree as a visual image in the matrix of the performance and how the different narratives, in turn, contributed fragments to the image of a tree only existing in the minds of the audience.

MI: yes, I think we approach the tree from a cubist perspective. We never described it, but we kept shedding light on it from different angles and different perspectives. The result is a tree made of situated speculations, and also a tree that remains obscure, a face of it always hidden to us.

GA: with this level of cubist fragmentation also comes a sense of loss. Trauma and loss enable the audience to effectively consider what's usually invisible in plant life, their communicative abilities and different timescales. But at the same time, it is trauma and loss that congeal a series of considerations about human life too.

MI: Trauma is a broken moment. It is when time warps. Yes, I can see how trauma and loss can induce a state that can help us to consider different timescales and perceptions. There is something about the incommensurability of trauma, it is so immense and impossible to grasp. During our improvisations, I asked Marcela to imagine the point of view of a mother coming to terms with a traumatic event. I don't think as Estado Vegetal is the grieving of a mother, but it was an effective tool to guide Marcela through the performance.

Ultimately, trauma is the moment of change and that's the important part of trauma that I wanted to channel. Trauma allows access into a different dimension and in this case, I hope that it also represents an opportunity to rip apart anthropocentrism. And in this context, loss works well too because when engaging with plants we are in a constant state of loss. There's a separation at stake, an evolutionary separation, and communicative separation. Mediating loss was actually one of the most complicated aspects of Estado Vegetal. Sometimes Marcela would get too absorbed in the motherly loss and I would try to bring her back to a less dramatic place because of a fear that we might involuntarily cast an image of "mother nature"—that has been quite terrifying and I am glad to see that audiences don't seem to read the work in that way.

GA: Towards the end of Estado Vegetal, the notion of fixity becomes central. Previously in the performance, plants rebelled to the imposition of pots as a form of tyranny. Pots allow us to move plants where we think they should be and in that sense, they infringe on their prerogative to be permanently situated somewhere—which is their nature. Later on, this point is further expanded through the consideration that plants commit to a situated life, confined to a never-ending present they have to embrace and successfully navigate; while us animals flee. If the situation becomes adverse, we abandon our surroundings and find shelter elsewhere. This powerful consideration repositions the evolutional hierarchy we have treasured since Darwin. Instead of being at the top, we are cast as evolutional cowards.

MI: Yes, there were quite a few ideas echoing this in what you have called the "red scene", the more lyrical moment. Animals "evade", when plants "face", danger. New materialist and post-human feminism has said a lot about situatedness and location. The humanist fleeing into an "objective view" of the world, instead of having the guts to produce situated knowledge is without a doubt a form of cowardness. I cared that we committed to the behavioral reality of plants, at least as we see it. And I think that commitment made things happen. For instance, Marcela is stuck in the center of the stage, which is something that the tradition of theater tries to avoid. In theater, you want to create a sense of dimensionality and fluidity and use space in dynamic ways. Commitment to a territory is multiplied in different spheres of the performance. It governs the lighting, the sound design, the writing. There's also a multiplicity of existences for these notions.

GA: Yes, and light plays an important role in Estado Vegetal too. I assume that much of the improvisation with Marcela you mentioned earlier must have emerged on stage directly?

MI: Yes, we considered the lighting as a key to photosynthesis so at one point we began to practice the notion of phototropos. In theater, the light follows humans—that's the norm. We decided to reverse that and let light move the actress. These plant-like adjustments can transform your practice bit by bit. But it took a lot of practice and work.

GA: Despite the darkeness, Estado Vegetal is also humorous. The performance begins in what seems a lighthearted tone. However, the mood changes rapidly...

MI: I always incorporate humor into my pieces. I have used the expression "fooling around" before and I think that's an important methodological tool in what I do. There's something silly and lighthearted about that, an experimental openness; when fooling around I trust where humor might take me. I can follow laughter because I trust humor as an indicator of a shift, or a change. Humor is a good star to follow when working with non-human topics since one cannot address them directly, so there´s nothing left than learning to very seriously dance or fool around them. Marcela is a comedian. We went to school together. I have known her for twenty years. We have not worked together for a long while, but I have followed her professional development. Whatever she does is full of humor. So I have not planned the humor that dots Estado Vegetal, but it has emerged spontaneously in places and I have harnessed it as a steering wheel to drive the narrative.

Manuela Infante is a playwright, director, scriptwriter and musician. Between 2001 and 2016 she worked as a playwright and director of the company Teatro de Chile. On her own, she has pre- miered Fin, in the Festival of Modena; What's he building in there?, created in an artistic residence at The Water- mill Center, space of investigation of Bob Wilson; On the beach, curated by Bob Wilson and premiered at the Barishnikov Arts Center in New York; and Don't feed the humans, premie- red at the Hebbel am Uffer in Berlin. Outside Chile, his work has been presented in Holland, Ireland, Spain, Italy, Germany, Japan, United States, Mexico, Brazil, Peru and Argentina.

Hybrid Fruit: cross-breeding botany, art and science

Vegetal organisms are potent metaphors for bio-political concerns within my arts practice. Plants are manipulated in their various forms; whole plants, cut flowers, sprouted seeds, extracts, and plant cell tissue culture in an aseptic medium. Chimeric interfaces; plants entwined with fleshy matrices, proved to be uncanny predictions for future technologies and ecological interconnection. Comparing humans to plants elucidates upon anthropogenic problems and solutions. Bioremediation is required to restore the loss of biodiversity associated with colonialism and modern medicine. Speculative futures promise deferred mortality via cutting-edge technologies. Via intimate interactions with plants, I endeavor to tease out symbiotic connections with other organisms and environments.

text and images by **Niki Sperou**

In my practice, vegetal organisms are potent metaphors for bio-political concerns. With the aid of science and technology, plants are manipulated in their various forms; whole plants, cut flowers, sprouted seeds, extracts, and plant cell tissue culture in an aseptic medium to create art that models life and questions the status quo. Biology, the study of living systems, is based on hierarchical structures and is therefore highly political.

Living media bears the potential to decolonize culture; to be inclusive, demystified, feminist, and dissident toward privilege of the fully human over non-human. Thus, it can subvert asymmetrical power relationships such as the hierarchies imposed on life and the boundaries between disciplines. Transdisciplinary practice builds common ground to disrupt traditional borders which influence policy and create change via inclusion. It can generate access, engage varied voices, question subjectivism, seek new or contest viewpoints, explore potential futures, and encourage new skills with new tools.

In the lecture *Biennales and Biology*, curator and social critic, Marian Pastor Roces, (2005), speaks of a national grafting and questions fixed notions of identity. Roces links multiculturalism with eugenics, biotechnology, and botanical hybridity. She states that "one could argue that all is hybrid in the world". The world is full of complex infusions of strains; hybrid, exotic, mutant.[1] This essay focuses upon the *Chimera* (2003-2004), *Man A Plant* (2006), and *The Colonised body* (2016) series of artworks. Expressions of human-plant entanglements within these series are the result of long-standing reflection upon anthropogenic problems and solutions.

Ancient Greek allusions and contemporary biotechnology, the fixed and the mutable, underpin the *Chimera series*. Within my work, the term suggests the dissolution of boundaries – not only between the taxonomies of living organisms, the natural and the artificial, gender, and the fields of study such as art and science but also between old and new knowledge. The aim is to test long-held models against what it means to be biological today.

Chimeras are fanciful ideas, hard to grasp, incongruous; they are futures that are hard to predict. Technology necessitates responsible actions, and Promethean myth cautions that a lack of forethought can have monstrous

Niki Sperou

Chimera Series: Blood Flowers; agalma (detail) Glass vessel, white carnations, blood, on light-box plinth, 2003 © Niki Sperou

repercussions. Mythological narratives can be used to explore issues philosophical and ethical. Myth and ritual often work together. Ritual provides a way to reduce our anxiety toward the future, to help us move forward and to alleviate guilt and loss. "Rituals give rise to new stories or variations of the old."[2] A form of ritualistic practice today is enacted through the life and death, care, timing, rites, implements, and garments of laboratory work. Science is a contemporary form of societal ritual undertaken to solve problems.

The scientific process, according to subjective involvement, may be perceived to be analogous to social experience. Within both science and culture, bodies are subjugated, territories are colonised, power struggles occur between species, race, gender, and class. In fact, recent biotechnological interventions extend age-old questions regarding the subjugation of the body, likeness, and otherness.

Science and tradition like categories; these artworks are assigned to two categories of aesthetic votives as defined by ancient Greek culture; *agalmata* for the mutable and living, and *anathēmata* for fixed and non-living.[3] As ephemeral artworks produced in a laboratory, *agalmata* are ritualistic objects of non-utility. *Anathēmata* are reproductions of *agalmata*, in this case, photographic documentation.

However, to categorise living and non-living is in itself a contradiction if the aim is to avoid traditional binaries. Consider that eating a salad is biting into living tissue.[4] Extending this idea to technology; in an era when cells and tissues in culture can survive indefinitely beyond the donor and intelligence can be downloaded, what does it mean to be living today?

The *Chimera series* is uncannily prophetic of future technologies. It ac-

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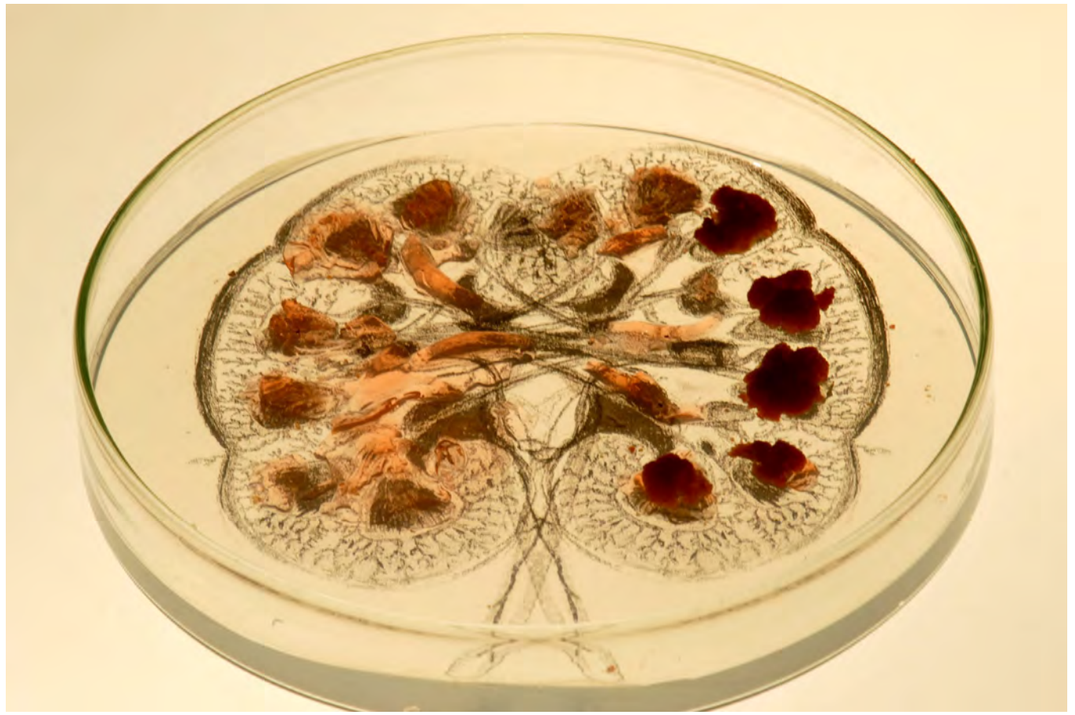
Chimera Series: Blood flowers; anathēmata, giclée prints, 2003 © Niki Sperou

quires layers of meaning beyond initial notions of hybridity, connection, and deposed structures. Amongst the various *Chimeras* are; *Blood Flowers*, *Hanging Form* & *Waxed Votives*.

Chimeras are assimilations; plants entwined with fleshy forms generate notions of ecological interconnection. Initially informed by the Human Genome Project completed in 2003, the artworks evoke that which genome mapping revealed; all cellular life is more closely related than first thought. That humans share approximately 50% genetic similarity with bananas is a quirky fact often cited to echo this belief. The intention is to evoke contemplation. How can we better accommodate multispecies justice? How does this impact upon broader canons of otherness?

Chimera Blood Flowers (2003) is an installation of fresh white carnations infused with lysed and treated human blood. In proximity, *anathēmata*, large format photographic images, extreme close-ups of earlier iterations of blood flowers, reveal bodily structures; fat, flesh, orifices. These vesicular textures substantiate both morphological and codified, DNA, human-plant connections. Genome studies have collapsed past paradigms associated with the organic world. Hybrid forms of life are emergent via novel theories and the interventionist shift toward designing life. For example; genetic technologies in which genes can be deleted or spliced together; serial endosymbiosis theory that claims eukaryotic cells evolved from a symbiotic fusion of simple prokaryotic cells inside each other; and Horizontal Gene Transfer instead of parent-offspring reproduction. Is life just a



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Man A Plant Series (installation detail) Glass Petri dish, plant tissue culture, agar medium, drawing, produced via aseptic technique, on light-box plinth with wall mounted giclée prints, 2006 © Niki Sperou

reshuffling of building blocks? Regardless of good intention, can technophile children of Prometheus be trusted to be responsible designers?

Chimera hanging form (2004) is an amusing machination of ladies' pantyhose, diaphanous flesh-toned Lycra, nylon optical fiber, and liquid green chlorophyll circulated through meters of clear plastic tubing. Surprisingly, a new appreciation for the complexity of the human circulatory system was acquired during its design. Electric pumps of increasing power were tested until an extra-large septic tank pump was found suitable. The aim was to create a chimeric plant-animal interface as with *Blood Flowers*.

This work speaks to recent developments in micro-algal bioreactors. Although not technically plants, because they are single cellular and do not have true roots, stems, leaves, and vascular tissue, micro-algae are plant-like due to their ability to photosynthesise. Aquatic micro-algal bioreactors are touted toward combatting greenhouse gas emissions and climate change. One 90 x 90 x 210 cm (3 x 3 x 7 ft) bioreactor unit is said to absorb up to 400 times more carbon dioxide than the same footprint of trees. "The algae inside the Eos Bioreactor lives inside a tube system and water tank within the device, which is pumped full of air and exposed to artificial light".[5] Via the process of photosynthesis, chlorella vulgaris create oxygen and absorb carbon dioxide, water and light to produce energy that can be harvested and converted into superfoods and ecofriendly bio-fuels. According to one manufacturer, machine learning software will manage an artificial-light source, temperature, and pH levels.

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Man A Plant Series (installation detail) Glass Petri dish, plant tissue culture, agar medium, drawing, produced via aseptic technique, on light-box plinth with wall mounted giclée prints, 2006 © Niiki Sperou

Here lies the chimera, technology is both problem and solution. Technological inertia is not the answer. However, that which consumes more power to drive machinery to absorb atmospheric Co2 to produce more fuel to burn and put more Co2 into the atmosphere seems futile. To remedy the pickle we are in, should we just plant more trees instead?

Continuing in the vein of human-plant interaction is *Man A Plant*, 2006, a series of in-vitro plant tissue culture artworks and giclée print. The series results from an informal conversation with Professor Wei Zhang during my longstanding residency at the Department of Medical Biotechnology, Flinders University. Zhang explained that plants are almost entirely comprised of stem cells. A small explant can develop into an entirely new one, a genetic clone of the parent. The artwork is titled after French Enlightenment philosopher Julien Offray del La Mettrie's, 1747, text *L'Homme Plante*. LaMettrie held to a continuity between humans, animals, plants, and machines. *Man A plant* is the result of musings upon La Mettrie's observations, plant's innate ability to rejuvenate themselves, and the speculative future of deferred mortality via stem cell technologies.[6]

Pluripotent stem cells harvested from the body have the potential to differentiate in-vitro into therapeutically useable cell types. These are then reintroduced into patients to regenerate damaged parts. Via the use of their own cells, patients might avoid problems associated with organ rejection, xenotransplants, medical prostheses, ethical and religious issues. If humans were like plants, they could heal themselves. *Man A Plant*, speaks to this allegory via undifferentiated vitis vinifera (red grape) plant cell tissue culture,[7] human anatomical drawings, and artfully cast and stained gel growth medium. The artwork is produced aseptically allowing the tissue culture to grow without contamination. Plant respiration forms a layer of moisture eventually obscuring the work. Life is subject to change, therefore, giclée print provide documentation alongside this ephemeral work. Transformation is intrinsic to living systems and an important consideration when manipulating live media.

Toxic notions of anthropogenic change drove earlier research that focused on genetic modification in bacteria.[8] Antibiotic resistance genes, are highly exacerbated by imprudent drug and chemical administration. Extending upon concerns to do with the trust we place in modern medicine, our faith in the common good and goods is economics-driven anti-biotic resistance. Bacteria have pushed back against antimicrobial use with quick adaption and mutation. Compared to humans, bacteria have the advantage of a large population, faster generational reproduction, and Horizontal Gene Transfer.

Genetic fluidity, Horizontal Gene Transfer (HGT), occurs in intimate interactions between other bacteria and various hosts; human, non-human, and the environment. HGT is important because it challenges the Darwinian consensus that genetic evolution happens exclusively via reproduction. Antibacterial resistance is the result of plasmid DNA transmission, the sharing of beneficial genes that allow bacteria to adapt quickly to new threats.

Within the artwork, *The Colonised Body*, 2016, the human-plant hybrid reappears. The form acts as a type of distributed self. Just as rhizomatic information distributes through digital technologies, this body acts as a conduit for the dissemination of DNA information; the dispersion associated with bacterial symbionts that travel between humans, non-humans, aquatic and terrestrial environments.[9]

A systems biology approach is inferred by the artwork. As time and contexts change, art and science require critical self-correction and novel creative models to address new issues. In the last decade, science has moved toward the bigger picture, relational rather than a reductive method.

The installation is fecund with growth; sprouted seeds crowd glass vessels; a bodily textile with the verdant gut; and Winogradsky columns striped with layers of living sediments. A Winogradsky column is a vessel filled with muddy pond water, carbon and Sulphur, for culturing a diverse ecosystem of microorganisms. Water, soil, microbes, plants, and bodies evoke an integral arrangement necessary for health. Botany signifies a communal ecology in which patterns and interactions between micro and macro, organic and non-organic happen.

Philosopher Dalia Nassar and Professor of plant physiology, Margaret Barbour explain their observations in *Rooted*.

> Our view is that there is a synecdoche between tree and environment… The environment is an expression of the tree just as much as the tree is an expression of its environment. This is clear in the example of soil, which undergoes significant and lasting evolutionary changes as a direct result of the actions of a tree… However, trees do more than simply influence or transform the environment: they create it… an ongoing, productive relating over time and place… What we find, then, is a relation of reciprocal causation and dependency between tree and environment… The tree-environment relationship appears to mirror our understanding of a living organism… mutual dependence… between a living being and its (in part nonliving, physical) context… To claim that tree and environment are engaged in a process of reciprocal causation… is to challenge the view that it is only living beings or organisms that are composed of mutually forming and interdependent parts… In other words, the tree-environment relation implies that what has long been recognised as the defining feature of individual organisms extends beyond them and can be found in the interactions between living (organism) and nonliving (environment).[10]

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The Colonised Body (installation detail). Installation: hand embroidered textile, sprouted seeds, glass vessels, Winogradsky columns. Photo credit: Sam Sperou. 2016
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The Colonised Body (installation detail). Installation: hand embroidered textile, sprouted seeds, glass vessels, Winogradsky columns. Photo: Sam Sperou. 2016 © Niki Sperou

Another recent observation that challenges past perceptions of plants is that they exhibit intelligence regardless of being without organs as we know them.[11] That we are oblivious to their sentience is part of the reason we freely exploit plants. Veganism, for example, is considered an ethical alternative to meat consumption. In the laboratory ethics clearance is not required to work with them. Adherence to stereotypic reasoning affords me more comfort toward working with plant cultures than mammalian. Through close interactions, however, I become attached to them. Constructing new ontologies of nature, responding to what is around us, and building respectful encounters is important to overcome outdated viewpoints.

Much as the colonial notion of terra nullius (nobody's land), was a form of blindness toward indigenous people, there was also imperialist plant blindness. Early colonists could not see the importance of ecological interdependent ecosystems and advocated the misguided clearing of natural ecosystems for health reasons. Shortsighted deforestation of pristine regions by early settlers precipitated ecological unbalance; soil erosion, loss of biodiversity, invasive species, and feral monocultures.

Grove in Pacini elucidates upon the coloniser's misguided intentions and damaging impacts. Ultimately so profound they could no longer be ignored,

> [t]he negative consequences of deforestation were even more visible in the colonies: here, in particular, the land had also been cleared for medical reasons as trees and forest spaces were suspected- up until the early eighteenth century - of harboring humidity-born diseases... and to make matters worse, local forests were often felled as well to satisfy the aesthetic tastes of colonial landowners fixated on reconstructing European-like prospects.[12]

Historic clearing of botanic terrains required remediation via revegetation. *The Colonised Body* draws upon parallels between blindness; cultural, botanical, and bacterial, and the need for remediation.

Much as colonisers cleared the land, we have wreaked havoc on our gut. Overzealous use of antibiotic drugs, sanitisers, chemicals, and a western diet have caused a loss of microbe genetic diversity that has precipitated a 'Westernised' gut. It is now estimated that bacteria account for two kilograms of body mass and that there are mechanistic links between microbiome heterogeneity and good health. The clearing of microbiota from human bodies and the associated problem of antibiotic resistance may be remediated via a 'rewilding' of corporeal terrains. The rewilding movement, coined in 2011, aims for the restoration of ecosystems; reintroducing what's missing and allowing nature to self-motivate and reverse the destruction of the natural world. Rewilding is said to resonate within our psychology, reawakening primordial magical behaviors locked inside genetic memory.[13] Current research suggests that a gut microbiome can be remedied through the transplanting of beneficial probiotics, prebiotic nutrients, and in persistent cases of disease, fecal transplants from healthy donors. Perhaps rewilding will become increasingly important as we develop new and more potent technologies for manipulating and editing life.

The long-held modernist notion that bodies and environments should be bacteria-free has been proved wrong. Modernist Germ Theory had racist eugenic, and antifeminist 'good housekeeping' implications. To sterilise meant to eliminate agents, both germs and people, that produced disease.[14] Herbert Winslow Hill, Director of Epidemiology, Minnesota State Board of Health and Director Institute of Public Health of London, in *The New Public Health*, 1871, advised his book was, "To teach women, girls, and prospective mothers, that they may practice in their household and in turn teach their children to war on invisible germ-foes is one of the functions of public health bacteriology."[15] To counter, *The Colonised Body* speaks to a 'leaky' feminist aesthetic with the creation of a gut garden.

Situated indoors, away from a natural environment, *The Colonised Body* needs to be tended daily; watered, re-seeded, culled, cleaned, and sub-cultured. These actions are akin to both gardening and laboratory work. Despite the artificial setting, watching seeds sprout and grow evokes joyful excitement, care, and empathy. Observing living organisms has a positive psychological impact and is incredibly seductive. Associate Professor Gulia Pacini in *Arboreal Attachments*, suggests, "Planting in our own gardens can help us envision new encounters and non-anthropocentric interactions with all kinds of non-human organisms."[16] Via intimate interactions with plants I tease out symbiotic connections and parallels with other organisms and environments.

Endnotes

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[7] Vitis vinifera was selected for its fleshy texture, colour, and for its availability. The Department of Medical Biotechnology, Flinders University tissue cultured vitis vinifera invitro for research into the production of Resveratrol a powerful antioxidant widely used in health supplements.
[8] The artwork *Trust* (2013) was informed by the problem of imprudent drug administration resulting in antibiotic-resistant bacteria. Trust was produced for the Toxicity Project, Video Pool, Winnipeg Canada. Toxicity was the first major bio-art project in Canada.
[9] The bacterial resistome (antibiotic resistance genes) and associated location in host and environment was the focus of a residency undertaken in 2016 at the South Australian Health & Medical Research Institute, SAHMRI. The SAHMRI residency, an initiative of the South Australian Living Artists Festival, SALA,

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[16] Pacini, *Arboreal Attachments*, p. 195

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