

antennae

THE JOURNAL OF NATURE IN VISUAL CULTURE
SPRING 2021



vegetal
entanglements

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THE JOURNAL OF NATURE IN VISUAL CULTURE
edited by Giovanni Aloï

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: antennaproject@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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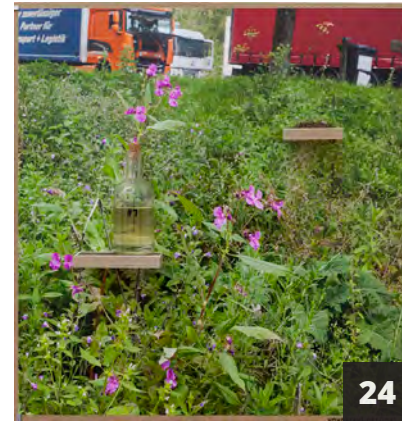
vegetal entanglements

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Lois Weinberger: Fieldwork
text: Franziska Weinberger
images: Lois Weinberger

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.



Katrin Petroschkat UNUNKRAUT
text and images: Katrin Petroschkat

Ununkraut is an offline/online artwork and cyber-chemical research on human-plant relations by Katrin Petroschkat. It focuses on so-called "weeds" and the human-plant relations that term entails.



The Flowerless Ones: A Vegetal/Human Encounter-

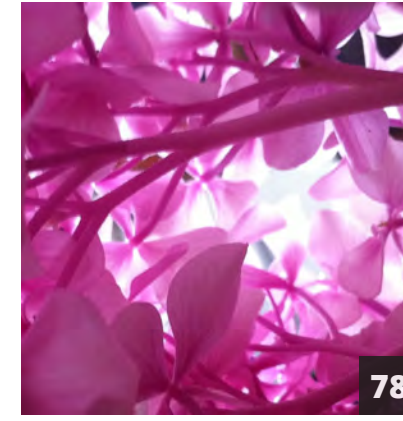
text: Dawn Sanders

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.



Unearthed: Photography's Roots
interviewee Alexander Moore
interviewer Giovanni Aloï

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.



Bahia Shehab: The Chronicles of Flowers
text and images: Bahia Shehab

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.



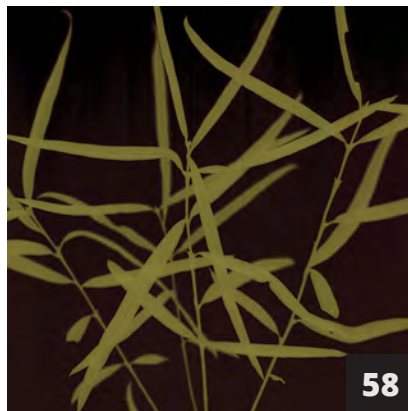
Raksha Patel: Air Heads
text and images: Raksha Patel

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 anthropomorphic qualities.



Vivien Sansour: The Seeds of Change
interviewee Vivien Sansour
interviewer Noura Al Khasawneh

Vivien Sansour is the founder of the *Palestine Heirloom Seed Library*. Trained in the field of Anthropology, Vivien worked with farmers worldwide on issues relating to agriculture and independence.



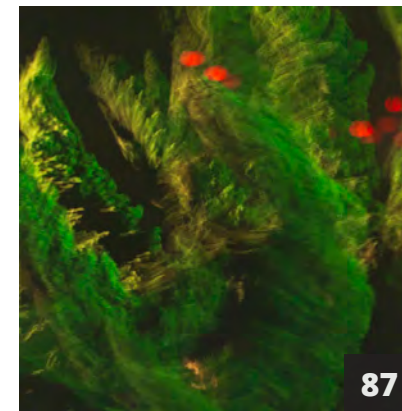
explorations
text and images: Shaun Matthews

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.



Anna Ridler: A Contemporary Tulipmania
interviewee Anna Ridler
interviewer Jean Marie Carey

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.



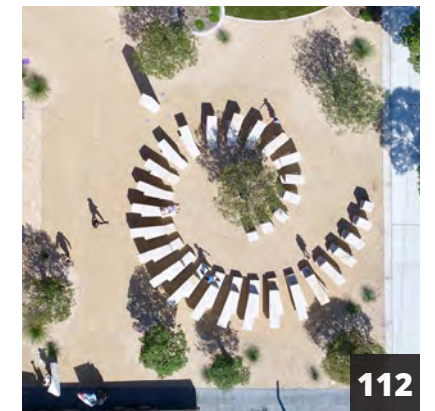
Time-based trees: A sequel to animated aesthetics
text: Martin Bartelmus
images: Cyprian Gaillard

In Cyprian Gaillard's 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.



Becoming Plant: A Supplement to Roger Caillois's 'le fantastique naturel'
text: 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.



Earth Voice: plant blindness, magic, and art
text: Prudence Gibson
images: Maria Fernanda Cardoso

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.

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Carsten Holler & Stefano Mancuso: The Florence Experiment

text and images: Carsten Höller and Stefano Mancuso

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.



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text: Egle Oddo and Basak Senova
images: Egle Oddo

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.



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The Empire and The Hissing Folly

text and images: Cole Swanson

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.



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Bruno Côrte: Vegetal Materialities

text and images: Bruno Côrte

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.

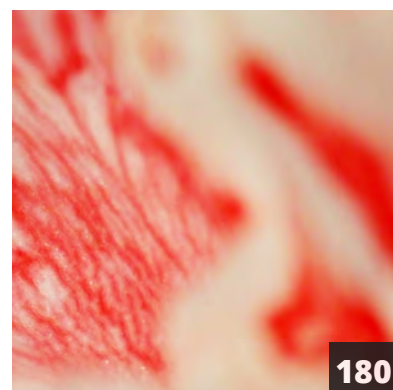


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Manuela Infante: Estado Vegetal

interviewee: Manuela Infante
interviewer: Giovanni Aloï

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.



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Hybrid Fruit: cross-breeding botany, art and science

text and images: Niki Sperou

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.



editorial

Giovanni Aloï

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 underlying 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, curators, 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 exceptionalism, 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 Pflanzen/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 triptych 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 Aloï

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



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.

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.

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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.
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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 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 disconnec-

tion/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 oeuvre 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 *So-coba* (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

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

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-