



Transformations

ISSN 1444-3775

Issue No. 26 — Thinking in the Arts-Science Nexus

Plant thinking as geo-philosophy

By Prudence Gibson

Australian artist Janet Laurence's BioArt deploys plants as a conceptual apparatus and her work is an example of growing scientific and artistic interest in the neuro-biology and communication capacities of plants. Her work engages with the relevance of plant life as a means of redressing the place of humanity in the world. Her work helps to shift the ontological significance of plants, as independent and agented beings, which subsequently changes their aesthetic value. This shift towards a more equalized register of being affects our cognition and perception of plants and plant-thinking. It also affects how the functions and adaptability of plant life can inform the way we live in, and consciously perceive, the world around us.

Janet Laurence has a biocentric view of the world. Much of her work incorporates live biotic matter such as plant seedlings, tree branches, root systems and plant-related material such as seeds and soil. Her use (or re-use) of plant life in an art setting, often conducted as a "concept of care," suggests the lively elements of nature. Her aesthetic interpretation of the physical benevolence of the earth is important for a revised understanding of the environment, as an energetic operative and as a system of information, rather than as an inert backdrop to human action. This paper constitutes a discussion of Laurence's repurposing of plants in her art. Her plant artworks are mobilised out of the fecund ground and into the gallery space and, as such, they address plants' ontological status and they engage with theories of the grounded geological earth.

The eco-psychology of our global society (exhibiting symptoms of extinction fear and critical climate change concerns) and new discoveries in how plants operate, adapt, and sense all things inform this analysis of Janet Laurence's important plant-specific art work. Her art practice fits within the theoretical framework of the geo-philosophy of Jussi Parikka and his concept of the "Anthroscene" which marks the abject results of mankind's impact on the earth's geological surface (*The Anthroscene*); it also fits with Ben Woodard's interpretation of Schelling's "un-grounding of nature" philosophy (*On an Ungrounded Earth*) and, finally, it links with the "plant-thinking" concepts of philosopher Michael Marder ("For a Phytocentrism to Come" 237). It does this in part by acknowledging the problematic anthropocentric divide between human subject and natural object, through her creation of immersive, interactive and experiential installation encounters, in order to alleviate and diffuse a conventional and divisional dyad relationship.

Laurence's interactive artworks draw attention to the marks humans have left on the earth's surface, through agriculture, mining, land-clearing and urban development. The artworks highlight the issue of how new discoveries in plant science show us that plants can smell, hear, think, learn, remember and communicate (Chamovitz). This information changes our perceptions of, and relationships with, plant life and with the surface of the earth and nature more broadly.

The impact of these changes is not yet fully known, but its evidence creates a more agile passage between the disciplines of art, philosophy and science because it redresses any hierarchical models of being. Artist, plant, gallery floor, writer, soil, viewer, branch and thought: these are all of equal register.

Janet Laurence has been creating and exhibiting art for over twenty years in Berlin, Paris, Asia, the US and Australia (Laurence, *Home page*). Her work reflects her perturbation over critical climate change issues and it investigates the accelerating crisis she sees in the natural environments she explores and repurposes. She has collaborated with scientists, pharmacists, herbarium scholars, landscape gardeners and botanists over the last twenty years and she is currently working with the IGA (Laurence, *Home page*) exhibition organized by the Berlin Senate at the site of the former Tempelhof airport and Blumberger Dam for 2017. *Gardens of the World* is a 25 hectare section of the overall 66 hectares dedicated to artists working with garden elements, and Laurence's work will be installed in this section.

Laurence was invited by IGA to visit the Botanical Museum in Berlin-Dahlem, located at the Free University, to meet various academic plant experts. She made contact with Professor Matthias Melzig, Institute of Pharmacy at the Free University Botanical Gardens, an expert in psychotropic plants, to access specialist plant knowledge. Laurence's aim for this project was and is "to connect myth and magic of plants with medicine, through art" (Personal interview). Thus began her research into the properties of plants, their toxic qualities and transformative effects. She investigated the history of the herb garden at Dahlem, the planting of which is laid out and cultivated in the shape of a human body. She also researched the eleventh century mystic, Abbess Hildegard Bingham, reflecting a long history of research and usage of plants for medicinal purposes in Europe.

For her 2017 IGA installation, Laurence began research into psychotropic bio-science, and then created a preparatory design for a medicinal garden on high pod-like plinths for her work, *Inside a Flower*. These high pods will be scattered in formation (creating the experience of walking through a forest-like garden), whereby the visitors will wander until they arrive at her geodesic flower structure. This geodesic (strutted dome) form is designed like the interior of a flower. The units of the exhibition are elaborated as cellular elements of nature, made large, ungrounded from their original purpose. The audience can taste the various plants, via hanging vials, on the way to the flower. The hallucinatory effects of the plants might alter the visitors' experience of the flower. Viewers will literally be imbibing plant extracts, participating fully with the plant world as equals. This is not plants "for us" but plants "with us."

The access Laurence was granted to the Botanical Garden and Botanical Museum of Berlin's Plant Science Library, during her research trip to Berlin in 2014, provided resources and research material for the exhibition. She was granted entry to the herbarium and particularly the Dahlem Centre of Plant Sciences, also at the Free University, which runs across 43 hectares and holds 22,000 plant species. In 1879 the herbarium was established and now has a Japanese garden, several glasshouses, and orchid and carnivorous plant pavilions. The history of gardens, medicinal plant usage and more recently an interaction between art and science, in particular plant keeping, collecting and gardening is suggested through the means of Laurence's exhibition display, as garden coterminous with museum. The artist's curiosity has long been informed by empathizing with plant life, creating clinics for sick plants (such as her Biennale of Sydney installation *Hospital for Sick Plants 2010*) and using the spaces of galleries and museums to form museological associations with specimens, to create awareness of their extinction threat.

Jussi Parikka's Anthroscene

Laurence's work, then, sits within a framework of changing perceptions of nature, particularly the history of human impact on the environment. Geophilosopher Jussi Parikka weaves connections between culture, morals and the geology of the planet in his book, *A Geology of Media*. He expands

debates regarding the Anthropocene, scientific cultures and technological realities through a discussion of artists' perspectives. His method of establishing discourse surrounding pollution and mass extinction, and the ways in which artists mediate these eco-issues, has had an influence on this paper. Following Parikka's lead, the paper initially analyses the art work of Janet Laurence in the context of the Anthroscene, followed by a discussion of her work in the context of Schelling's *ungrounding* and then Marder's *plant-thinking*. If we understand the Anthropocene as the collision of nature, culture and industry during the late nineteenth century, then Parikka's incorporation of technology and geology into the analysis of the layers of the earth, as a record of human impact, results in the term he has coined, the "Anthroscene" (1-8). Parikka's provocative Anthroscene is the obscene impact of mining the earth for resources, without due care. Parikka describes the carboniferous Anthroscene as, "the layers of photosynthesis that gradually were being used for heating and then as energy sources for manufacture in the form of fossil fuels" (*A Geology of Media* 17).

This "obscene" new stratum or top layer of geology (the result of electronic waste, climate change and energy depletion) is important to any theory regarding plant life and aesthetics. We can think of plants as philosophical enactments of nature and beauty, but also as survivors of human over-production. Their roots extend down amongst the debris of mobile phones and redundant tablets where the digging harvester has scraped and the miners have dug their shafts. Could plants be the mediation between the historical damage wrought upon the environment and the possibilities for change in our attitude to resource usage? This "turn towards plants" would require a move away from the historical categorization of plants, the systemic collection, classification and taxonomy of plants and the curating of plant specimens in storage facilities. It would in fact require a complete reordering of the ontological status of plants, with a concomitant receptivity to the concepts of plant learning and memory. In this paper, I present artist Janet Laurence's work as a contribution to this discourse.

Jussi Parikka is conscious of the divisional collapse between subject/object, and between culture/nature (*A Geology of Media*, x) however his vision is one of the earth as a geology of media, as deep-time resources that might intermingle with the roots of trees. Parikka brings attention to the underground as tangential to the ungrounded (digging into the earth, and digging as deep thought) and to bring our attention to the invisibility of sub-surface activity (*Anthroscene* 8). How can we consider a turn towards Laurence's relevance of plants, without wondering about their sub-strata activities? Laurence's work functions as a defense of Parikka's ideas, due to her consistent placement of organic and inorganic elements next to each other in her installations and of her ability to bring the memory of the deep earth inside the gallery space. *Inside a Flower* 2017 will exhibit real biotic plant matter and constructed versions of a flower alongside each other. In *Hospital for Sick Plants* 2010, she placed plants and plant matter in a medical tent and connected them to medical tubing or wrapped them in gauze, placed alongside beakers and petri dishes. Science + Nature = Art. Aside from the obvious interpretation of nature requiring resuscitation, the work also connects with Parikka's issues of nature and culture being inter-dependent. This work might be considered as a re-privileging of the human over the non-human, as it refers to what plants can do for us. However it is also a plaintive call regarding what we can do for plants. This model is an aggregated and inter-species network of activity.

Attempts at a less human-focused view, and a tolerance for the likelihood of expanded plant properties, are evident in Laurence's IGA Berlin work. *Inside a Flower* is a hedonistic and alchemical tour of the workings of a plant. Magic and medicine meet where the human participant seeks to be transported by the agented power of the plant: to become one with the flower. So consumed with our own self-import, we have missed the chance to comprehend plants as they really are: a source of information, a system of complex networked and aggregated action. Photosynthesis, rhizomic activity, transfiguring neural properties and the lengthy process of growth extending beyond the lifespan of the human (especially in the case of trees) are elements or conditions from which we may learn. Parikka's media materialism is enacted by Laurence in terms of re-purposing medical equipment and enacting a system of care that refers to the past but

also addresses the way we engage with plant life and the soil beneath our feet.

Ben Woodard's Ungrounding

Philosopher Ben Woodard writes, "The digging or ungrounding of the earth is often tied to thought" (8). The concept of the ground refers to a transcendental geology, a production of matter relating to deep time. However, in an artistic context, the "ground" refers to the base of the artwork. The painting canvas, the piece of paper and the sculptor's stone all constitute types of ground. The ground in art has suffered a similar conceit as the ground in nature, in that they are considered no more than a background. Ungrounding or regrounding a concept of geological time has implications for how we understand the relationship between human and nature and art. The world need not be privileged over the earth. Mankind need not be privileged over plants. This paper, then, refers to Janet Laurence's movement of plant and earthy matter out of the ground, literally, and out of the ground, conceptually. By doing so, she contributes to the possibility of reconsidering our human place in the world.

The changes in perceptions of nature connect with Ben Woodard's interpretation of an "ungrounding" of the earth. Woodard analyses Speculative Realist philosopher Iain Hamilton Grant's writings on nature-philosopher Friedrich Schelling (1775-1854) and his concepts of the ground. Grant refers to the problem of sufficient reason in concepts of "naturalism," as never exhausting its ground. The ground cannot be reduced. The ground does not depend on a human witness. If the earth is ungrounded, then it is no longer a backdrop, it is no longer inert. According to Woodard, ungrounding is a geological digging in the soil, as a means of disrupting our perception of the planet's surface (*On an Ungrounded Earth* 3). He is referring to mining machinery and agricultural infrastructures. Woodard draws upon Schelling who urges for a move away from privileging the world over the earth (concept over physicality). In other words, the human habit of thinking about nature as an external phenomenon needs to be overturned. In fact we are within a grounded nature bearing a period of time outside our comprehension and we are also gravitationally grounded to the earth. Laurence's artwork resonates with these ideas as she, conversely, hauls plants out of the earth and presents them in the gallery spaces. She also resuscitates them, keeps them growing in artificial spaces, re-performing their functions and caring for them over suspended periods of time, in an aesthetic context.

Laurence's work ties into an ungrounding in terms of redressing our perception of the earth's surface (and the way plants puncture both below and above) and all the objects and detritus and mismanagement that contributes to the earth's temporal geological strata. When her plants are removed from their natural environment and regenerated in artificial spaces, this distinctly draws attention to how and why we have seen plants as immobile. Instead of that paralysis, Laurence mobilises plants by moving them to the gallery space, to new outdoor sites, to gallery storage/collection places. The accepted axiom that plants are incapable of sentience or intelligence or mobility can change, in the context of geo-philosophy, by Laurence's encouragement of audiences to interact with her plants directly via tinctures and unorthodox museum displays (Laurence, *The Alchemical Garden*).

To relate Laurence's *Inside a Flower* to an ungrounding, I use Woodard's discussion of an external and putrefied ungrounding. In his book *On an Ungrounded Earth*, this concept of shifting earth perceptions eventually leads him into the nebulous world of science fiction, a common habit among theorists who shave close to the principles of Speculative Realism theories. Woodard acknowledges that Iain Hamilton Grant (a theorist present at the seminal 2007 Speculative Realism roundtable discussion at Goldsmiths University) has brought renewed attention to the ungrounding concepts of Schelling. In Woodard's discussion, the earth is not just the world, the earth thinks through its inhabitants, it does not exist for our delectation: it is the "unthinged" (*On an Ungrounded Earth* 9).

Geophilosophy extends to aesthetics. In a complementary fashion to these critical philosophical

concepts, Laurence's artwork, in an illustrative capacity, creates a more concrete and material version of an ungrounding. It makes reference to an archaeology of things as fetishized objects (such as plant specimens and laboratory apparatus as artwork components) and it refers to human interaction with plant specimens. Her art mediates or punctures the problems of human privileging by serving as an inter-connecting relation. Plants connect geology with atmosphere and Laurence connects art with science.

Growth is an important characteristic of plant life. In an unpublished paper delivered to Stuttgart University in 2014, Woodard speaks of the seasonal generative abilities of plants to blossom, bear fruit and reproduce ("Rootedness and Embodiment" 3). This *growth* could be read as *thought*, plant capacities as conscious enactments. He is not suggesting that plant thought or communication is neurological, because plants have no brains within which to have neural activity (though there is conjecture about rhizomic systemic intelligence being an equivalent). As Woodard says

Various controversy has erupted over whether "signal integration" – basically a plant's ability to combine various sets of sense data into an action – counts as a form of intelligence. The central cause for why plants do not qualify as having intelligence is due to their lacking neuronal and synaptic structures. In a functional sense plants can communicate to their own bodies, to other plants, and to animal species (wasps to attack caterpillars) through what has been referred to as hormonal sentience.

A second work by Laurence that involves plants, in this case young trees, was made by the artist in September 2014. She embarked on a major collaborative project, *The Treelines Track* at Bundanon, south of Sydney. This natural intervention (planting new native trees along a singular line, with stones laid and inscribed with poetry) was the result of directly working with Landcare Australia's Shane Norrish, and made possible through a Bundanon Trust grant. The project's genesis began with Laurence walking through the Trust property and wondering about its histories – natural, colonial, pastoral and regenerative. Wombats were a major problem in the area, disrupting new planting with their constant digging, leaving clumsy damage in their wake. Laurence's quote, "I had to consider the area as a home for the wombats too," reveals her empathy for animal and plant alike (Personal interview).

To apply Woodard's re-interpretation of Schelling's "ungrounding" as "regrounding" to Laurence's work for my own purposes, the disruption of perception of the earth is enacted by the artist in this installation *Treelines Track*. The reason for this is we consider the bush to be natural. Yet we forget the history of agriculture, of clearing land for pasture, of growing crops, dusting them with chemicals and then leaving paddocks fallow, of colonial litter barely below the soil surface, and so on. In other words, the bush that Laurence re-plants or co-plants is not natural, but artificial. The bush land has a long history of production and interference. In Laurence's work, regrounding is extant because she subverts our utopian experience of the land; she challenges it, confronts it and redresses our instinctively idealistic associations of the bush. Laurence did this by designing her *Treelines Track* artwork as an address to the history of change in the area.

Michael Marder

Laurence's work is directly informed by plant philosopher Michael Marder's concepts of plant-thinking, where plants are afforded the ontological status to move outside their limited role as background, backdrop, Umwelt or environment (Personal interview). Plants remember and learn, according to the experiments of scientist Monica Gagliano at the University of Western Australia ("In a Green Frame of Mind" 5). This confirms what Laurence has instinctively known and represented in her artwork: plants have more functions and capacities than we previously thought.

Plant theorist Michael Marder is leading the charge in a field of philosophy that redresses the

ontological status of plants. Where once plants were relegated as non-feeling, non-thinking entities, recent discoveries in science are upending this attitude. Marder addresses the lack of sentience and mobility in plants as an historical explanation of their low ontological status in western culture. He suggests that the use, production and harvest of plants have obscured human understanding of plants' wider significance. In summary his plant thesis follows non-cognitive plant thinking, human thinking about plants, human thinking as becoming de-humanised by encountering the vegetal world and finally, the relationship between thinking and the existence of plants, without negating their "otherness."

Marder's plant philosophy is an attempt to avoid dichotomies or habitual dyads of man/world, subject/object, plant/landscape. His plant-centric view forms a critique of anthropocentrism. Instead of adopting a solely human lens, he brings attention to the idea of human consciousness being mutually connected to our vegetal roots ("For a Phytocentrism to Come" 237). With new research proving plants remember and learn to adapt in threatening environments (Gagliano 4), space is opened up to bestow sentient attributes to plants. This, then, leads to a more equalized view of the hierarchy of all things (a flat ontology), including plants, animals, desks, bottles or thought itself, where the human is toppled from its apical or dominant position and plants are elevated from their lowly role to a horizontal plane of relevance metaphorically contradicting the physical verticality of their growth.

The historical activities of using plants for their aphrodisiac, narcotic, sedative and hypnotic qualities should not be abandoned but added to with a new re-interpretation of their relevance, and Laurence pursues this aim. Marder sees plant-thinking as a "thinking without the head" because human thinking has become increasingly "de-humanized and rendered plant-like, altered by its encounter with the vegetal world" ("What is plant-thinking?" 1). These concepts of plant-thinking affect phytology (study of plants) today and effect an aesthetic or artistic interaction with plants. *Thinking like a plant* is what Marder is referring to here, as opposed to referring to plants' ability to comprehend and communicate.

To extend this discussion of plants as intermediary between earth and human, plant theorist Michael Marder is concerned with vegetal phenomenology. This is an enquiry into the ontology of sensory plants and a requisite redressing of a perception of their place in relationship to all things. Recent theories regarding the moral and ethical relations between humans and animals have extended to the non-human debates regarding plants (*Plant thinking* 1). In his article "For a Phytocentrism to Come," Marder quotes Aristotle: "Plants seem to live without sharing any locomotion or in perception" (241). In other words plants only *appear* to live and Marder describes this as a "vast green blind spot" (241). It has occurred to Janet Laurence as well as to Michael Marder that the vegetal life of plants is an important component in redressing the problems of climate change and environmental damage. The act of plant growth is central to Marder's theories, in his attempts to move beyond the legitimacy of life as being the domain of the animal world alone. By elevating plants as the rightful representatives of sentience, growth and learning, Marder of course risks doing no more than swapping zoocentrism for phytocentrism. In other words, toppling the animal (human) from its apical position in the hierarchy of ontology and replacing plants in that super-star role may be no more than a furthering of anthropocentric human hubris.

Is it possible to articulate Laurence's work as an aesthetic of plant experience, as a manifestation of the visualization of plant wonder, of plant information/co-evolution and adaptation during periods of crisis? If the answer is yes, the aesthetic has developed as (and relies upon) an instinctual reaction to critical climate change issues and geo-philosophical urgencies such as the changes in the strata of the earth that are ripe for un-grounding and re-grounding. In an effort to align philosophy with plants, Marder charts various continental philosophers who refer to plants to inform their concepts, for instance, Nietzsche's interest in vegetal digestion, Hegel's concession that the act of devouring extends to the nutritive properties of plants, and Freud's repression as an interference with flowering as sexual maturation and human ripeness (*Plant-thinking* 172-5).

When Marder draws a link between “spirit consciousness” as being only partly exposed to the light, as are plants whose roots are hidden in the dark soil, we see his wish, the urge, the desire to connect plants with “life” (173).

These associations between plants, philosophy and life are enduring. The mediation of art in this equation suggests something else. Artworks predicated on the import of plant energy, plant force, plant transformative powers move us into the world of metaphoric ideation. However, a true plant-art ontology must resist the urge to transcend, to idealise and to sublimate. Artists using plants as aggregates in an overall aesthetic system, and plant theorists charting this territory of plant aesthetics must stand firm and avoid romantic rhetoric. Philosopher Schelling states that if a certain thing’s conditions can’t be given in nature, then it is impossible (Hamilton Grant 160). I contend, as a short summary, that Laurence’s art sits both inside and outside nature, must resist transcendence and agree with Schelling that it is “impossible.”

Conclusion

For Janet Laurence, her work addresses ontological significances in the natural world and her ideas emerge from those questions of where humans sit in relation to other species and other things. The fascination of Michael Marder is his curiosity about a transfigured means of human thought, that has become dehumanised and plant-like in its properties, and how that relates to plants. There are random and arbitrary elements of *Treelines Track* in terms of the rogue behavior of plants and trees. Laurence and Landcare’s Shane Norrish can plant new trees but the way they grow, adapt, inhabit, die off or affect other trees is out of the realm of their intentions, as they have no control over the weather etc. Could tending to vegetal life equate to a tending of human thought?

The difficulty of living in the early twenty-first century is making sense of these questions and addressing them in an epoch of ecological threat, where human subjectivity has caused a neglect of our environment, and where human thought *seems* incapable of ecological resolutions. However this investigation into Laurence’s work reflects a curious interest in how related eco-fears are manifested in art. How do artists make sense of aesthetics at a time when they have never before seemed so futile? Janet Laurence has been preoccupied with these concepts of finitude and decay, of re-growth and replenishment, for all of her working life.

Laurence unearths her plants and risks a topography of hell: Ben Woodard says, “hell is an all too familiar landscape, often a volcanic region with roaming demons or floating rivers of souls more or less terrestrial” (*On an Ungrounded Earth* 71). Woodard agrees with Jan Zalasiewicz when the latter proposes that the earth will bury humans and all trace of us, as a strange xeno-archaeology (*The earth after us* 67). It is as though Laurence is pre-empting this darkly perverse concept of the surface of the earth, enfolding us all into its layers, as a speculative horror. She intuitively knows that human (and animal and plant) life may be exterminated or at least that it exists on borrowed intergalactic time.

Why can’t we function better, protect the environment better, when seemingly basic plant systems seem to be functioning well, with or without human touch. Edourdo Kohn says, “To engage with the forest on its own terms, to enter its relational logic, to think with its thoughts, one must become attuned to these” (*How Forests Think* 20).

The connection between art and the biology of plants converges with thought. The vegetal soul seeks nourishment and works to reproduce itself. This, too, is the intended consciousness of human life. To see that species are less dissimilar might be the key to comprehending that “being” is more than acting as a subject in an objective world. Instead, it might help to reground the geology of the earth and to shift human perception away from the subjective and towards an aggregated system where neither plants nor aesthetics are cast aside.

Dr Prudence Gibson is author of *Janet Laurence: The Pharmacy of Plants* UNSW Press 2015, and *The Rapture of Death* Boccalatte Publishing 2010. She teaches in creative writing at the University of New South Wales and has published seven academic peer-review journal essays and seven short stories published in fiction journals, *Antipodes*, *Eureka Street*, *Etchings Journal* and *Blood*. Gibson has published over 380 articles, reviews and catalogue essays on art for Artlink, Australian Art Collector, Vogue, The Australian, Art Monthly, The Conversation and more. She has curated exhibitions *The Carpentry of Speculative Things*, Alaska Projects 2013 and *The Pharmacy of Love and Hate* MCA Artbar 2013, with an exhibition *Aesthetics after Finitude* 2015 at UNSW. Her research interests comprise plant philosophy, experimental art writing and hybrid creative/academic writing.

Works Cited

- Chamovitz, Daniel. *What A Plant Wants to Know*. New York: Scientific American, 2012.
- Gagliano, Monica. "In a Green Frame of Mind: Perspectives of the Behavioural Ecology and Cognitive Nature of Plants." *AoB Plants*, 7 (2014): 1-8.
- Hamilton Grant, Iain. *Philosophies of Nature After Schelling*. London: Continuum, 2006.
- IGA. Home page. Web. 23 March 2015.
<www.iga-berlin-2017.de/en/>
- Kohn, Edouardo. *How Forests Think: Toward an Anthropology Beyond the Human*. Berkeley: University of California Press, 2013.
- Laurence, Janet. Personal interview. Sydney, 4 Mar. 2015.
- . Artist's web site. Home page. 23 Mar. 2015.
<www.janetlaurence.com/>
- . *The Alchemical Garden of Desire*. McClland Sculpture Park and Gallery catalogue, Victoria, 2012.
- Marder, Michael. *Plant Thinking: A Philosophy of Vegetal Life*. New York: Columbia University Press, 2013.
- . *The Philosopher's Plant: An Intellectual Herbarium*. New York: Columbia University Press, 2014.
- . "What is Plant-thinking?" *Klesis: Revue Philosophique*, 25 (2013): 124-143.
- . "For a Phytocentrism to Come." *Environmental Philosophy* 11.2 (2014): 237-252.
- Parikka, Jussi. *The Anthroscence*. Minneapolis: University of Minnesota Press, 2014.
- . *A Geology of Media*. Minneapolis: University of Minnesota Press, 2015.
- Woodard, Ben. *On an Ungrounded Earth: Towards a New Geo-Philosophy*. New York: Punctum Books, 2013.
- . "Rootedness and Embodiment." *Unsorcery: Future Nature*, a conference at Academie Schloss

Solitude, Stuttgart, Germany, July 23, 2014. Unpublished.

Zalasiewicz, Jan. *The Earth After Us: What Legacy will Humans Leave in the Rocks*. New York: Oxford University Press, 2008.