

WEAD SUBMISSION DETAILS

Authors: Reiko Goto and Tim Collins,
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 - I. Overview of the work
 - II. The context and interaction with specific trees
 - III. Empathy as premise for art
 - IV. The *Plein Air* Mechanism
 - V. Conclusion
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***Plein Air: The Ethical Aesthetic Impulse*, Aberdeen, Scotland**
Reiko Goto and Tim Collins, 2011

Background: 'Eden3' is the title of a five-year research initiative, with artists and musicians working with technologists and scientists to reveal the biogenic interaction of trees with the changing atmospheric chemistry and climate of cities. The intent of the project is to reveal a tree's role in atmospheric exchange, while trying to understand empathy and imaginative human response to others. *Plein Air* is the first of a number of technologically innovative stable, sculptures; experimental artwork with trees to be developed and prepared for exhibition.

Plein Air: The Ethical Aesthetic Impulse is a multi-media exhibition presented at Peacock Visual Arts in Aberdeen Scotland during summer 2010. For this exhibition Goto and Collins explored trees in the city of Aberdeen with a portable easel that was designed and developed to observe a tree's response to atmospheric change; documentary photographs and sound provide a record of interaction with trees. The green house represented the artists' studio¹ and provided a closed context to demonstrate *Plein Air* and the experience of carbon dioxide (CO₂) exchange with trees. The video projection was developed in the core of the city. This twenty-four hour time-lapse animation and its voice over considers ideas about trees as living things, with intrinsic value.



The Peacock Gallery Exhibition: the installation overview (image left) and the greenhouse, trees and *Plein Air* (image right)

Goto and Collins are artists and researchers who focus upon natural systems and human values. Over the last ten years they have decided to formalize their interest in artist-led research by taking on PhD studies in the UK. Between 1995-2005 they were embedded as research fellows on the Nine Mile Run Greenway project and the 3 Rivers 2nd Nature project as research fellows at the STUDIO for Creative Inquiry, Carnegie Mellon University, Pittsburgh Pennsylvania. Between 1985-2005 they produced public art and installations that engaged water and living things. This paper examines work leading up to exhibition relevant to Goto's current research at Robert Gordon University Aberdeen, Scotland. Her work is defined by ideas of empathy, imagination and metaphor in relationship to artwork with trees². In this essay the artists reveal and reflect upon their process and artwork.

I. Overview of the work

There is a long history of artists painting outdoors, 'en plein air' (in the open air) with a French box easel. In the mid 19th century there were two groups of painters, the Barbizon School committed to realism and direct inspiration from nature. The other the 'Impressionists' committed to a more open and experimental approach to painting; yet also seeking inspiration from nature in the form of light, movement and changes

¹ The greenhouse is an essential tool in this work. It provides Goto with the best setting for her daily practice, as she works to develop intimate and empathic relationships with various trees (inside and outside the greenhouse) in different kinds of weather and seasonal changes.

² The PhD includes case studies and primary dialogue with Helen and Newton Harrison on their work *Serpentine Lattice* (date). A site visit and examination of the issues and context for Joseph Beuys' *7,000 Oaks* (date) and reflection upon her own work on *Plein Air*.

over time. Goto and Collins realized that in the name, the function and even in the related historical and cultural output of work; the 'plein air easel' was an ideal form for the development of a new metaphorical relationship with nature. The original painting easels and the innovation of paint in tubes were tools that allowed artists to move outdoors and immerse themselves in the experience of nature. *Plein Air* is an interactive device that allows users and audience to see and hear how trees are doing in relation to human interaction and atmospheric change. Where Millet extended the idea of landscape to peasants working in the fields and the impressionists examined the phenomenological exchange between light and material; the artists seek the possibility of empathic communication across species - in this case the exchange of ideas from trees to people.

In the exhibition of *Plein Air: The Ethical Aesthetic Impulse* the artists explore specific trees in public places. The work results in scientific data that reveals the respiration of trees; the work also results in a sonic output that is embedded in the artists' intent to reach across the human/non-human divide through empathy. The work has the capacity to reveal the life force which is at the same time the tree and me. Goto provided a specific question - that drives the work: "*Is it possible to create change if we understand that life is interdependent and interrelated with nature in our environments?*"

Plein Air is both system and metaphor. It addresses CO2 source and concentration, by monitoring the impact upon a tree. This provides an experiential interface to an important but relatively invisible climate change issue. The data is translated to sound in real time. This technology provides one way of listening to the breath of trees. The secret (invisible/silent) life of trees is understood (by the artists) as an incredible sensitivity and reactivity to the constant but changing impact of humans on the atmospheric chemistry in cities. Goto explains this by describing the human need to hear the breath of people and living-things we care for; to assure ourselves of their well being. At another level the artwork is defined by artist/easel/tree relationship; it is in form, image and method a physical metaphor for a new human/non-human relationship. The system has been designed to be portable and flexible it allows the artists to travel to various public forests, gardens and parks to experience the life of trees.

II. The context and interaction with specific trees



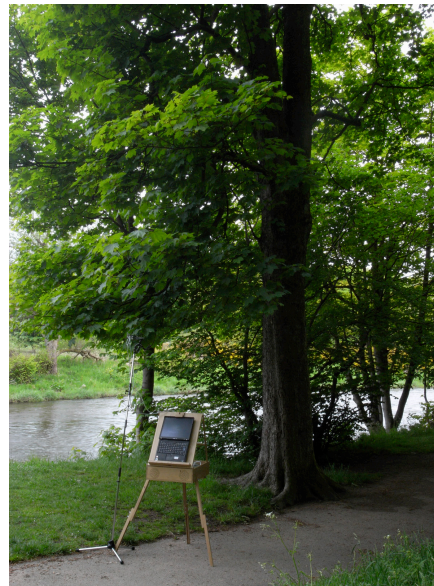
Maps of the city of Aberdeen: a view from the Don River (image left) and a view from the Dee River (image right)

The exhibition is also defined by the context and condition of woodlands in Scotland. Many people presume that Scotland is open, wild and full of nature. Actual woodland coverage is only 17 percent of the total land area³ (it is only 12 percent in the UK). These are the least forested areas in Europe. In history trees and woodlands of Scotland have been important to kings, lords and the government. The scope of woodland coverage has been influenced by demand for wood during wars followed by cheap available timber in Europe; forests have been treated as an agricultural crop, a utilitarian material. On the other hand throughout Aberdeen ancient standing stones remind us that it was once a forested Celtic landscape. The standing stones are pre-historical land-marks that use an early Ogham alphabet with letters described by the

³ Semi-natural woodland cover is only 4 percent (Scottish Natural Heritage).

names of trees; this suggests a forested past. The standing stones often define lost pathways and places. The stones are believed to have been erected and marked in the first century AD or earlier. The symbolic relationship between that lost alphabet and the language of trees; and its relationship to the Celtic landscape is largely lost today.

Goto developed two maps of Aberdeen city. One is a view of the city from the Don River, and the other provides a view from the-Dee River⁴. An imaginary trail of trees has been created that connects the rivers, city and parks. Seven places were chosen for work leading to this exhibition. *Plein Air* was used to observe specific trees in these places. In the installation the photographs and recorded sound represents the human/tree exchange and experience in each place.



The documentations of the trees and *Plein Air* in public places in Aberdeen: birch at Deeside Trail (image top left), elm at Robert Gordon University (image top right), elm at Union Terrace Gardens (image bottom left) and maple at Seaton Park (image bottom right).

⁴ Draining through Royal Deeside between Braemar and Balleteer alongside Balmoral Castle, the summer home of British Royalty.

III. Empathy as a premise for art

Goto and Collins developed a narrative for the exhibition video “A Tree is a Living Thing⁵”. This ten minute time-lapse animation focuses upon one very large tree set against the Aberdeen City skyline as it reacts to changes that occur over a day. The voice-over queries trees, meaning and value; it begins with the following paragraph.

Extraordinary living-things can stop us in our tracks, and demand our attention. Other living-things become familiar through intimate experience and attention over time. If science is defined by useful general truths, is it the role of aesthetics to help us to see specific truths? In other words, if science informs us of what trees are as a set of things and how they function as a biological organism – is it aesthetics that is responsible for the pictures in our head, and the ability to differentiate unique, meaningful and specific experience from the general idea? How do we value those living-things that envelop us with unexpected imaginative and aesthetic force? Furthermore, can we learn to know ourselves through others, through empathic exchange with living-things?



The premise of this experimental artwork and its multi-media installation is empathy; the perception and exchange of subjective states with foreign subjects. Empathy is an act of perceiving in which we reach out to the other to grasp their state or condition. It consists of one's feelings and physical experiences. Empathetic experience moves towards something foreign rather than something familiar. We comprehend feeling in others by observing the other person's facial expression or bodily gesture because we too express feeling through the body. Expression can be verbal or non-verbal (sound), performative or involuntary (body) or external to the body (artefact). These expressions can be called actions. *Action is always the*

⁵ Goto, R and Collins, T. (2010) *A Tree is a Living Thing* [online] Eden 3 [cited 30 March, 2011].
<<http://eden3.net/exhibitions/peacock/video/index.htm>>

*creation of what is not*⁶. Reading the expression of feeling or action in others, or in artefacts produced by others is a practice that can be cultivated and learned.

Empathy and sympathy are different. Sympathy is an act of assuming feeling in another based on what we know. (To get beyond assumption and presumption of feeling, is the task of empathic response.) In this sense sympathy is founded upon an intellectual understanding in which we rationalize a situation and impose a projection. Sympathy reflects one's own experience and intellectual understanding rather than trying to reach beyond it. Empathy is not based on one's self interest. It is a reaching beyond but without losing or forgetting oneself. We bridge the gap between self and the other, the known and unknown. We resonate with the feeling of the other and amplify it. Empathy in this sense occurs between subjects. It is inter subjective. In this way empathy helps us to enrich our own world image through interaction with different individuals, by extension it can occur in relation to artefacts and in the case of this project, with other living-things.

Needless to say trees do not have feelings, emotions or mobility and agency like we do; although they do respond to light, temperature and humidity as well as the chemistries of soil and air. We share and shape the environment in different ways. We don't perceive a tree in its subtle response to changes in the environment; this is what makes them foreign. Yet...we do have an ability to read the physical state of plants and trees; we can all recognize life and death over time, most people sense/see vitality or ill-health in plants, many can see more complex shadings of well-being linked to available moisture, soil, light, nutrients or predation. When we limit ourselves in the concepts that inform our perception we may or may not respond sympathetically, when we reach beyond our available concepts and commit ourselves to intimate and consistent attention we aspire to empathy. The artists posit that it is possible to experience plants and trees empathetically; (following Edith Stein) through careful observation, experience and memory. Knowledge based understanding and empathy are separate entities. Our imagination is linked to rational and intellectual understanding; the knowledge of complex social, cultural and ecological systems.



Prof. Trevor Hocking is checking the accuracy of the system (photo left); Goto and Mathew Dalglish testing the real time system with a tree in the light box at the Crop Technology Unit, University of Wolverhampton, West Midlands (photo middle); Collins is placing a leaf into the leaf chamber (photo right)

IV. The *Plein Air* Mechanism

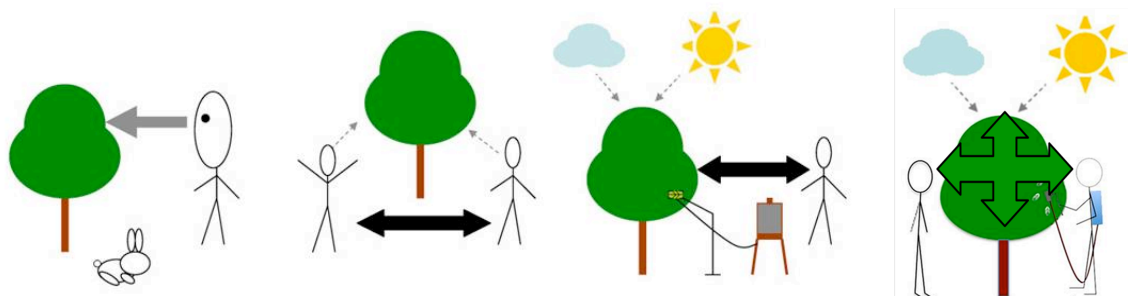
The *Plein Air* easel holds plant physiology sensing equipment and computer programs that translate data to sound. It includes a stand that holds a tree leaf chamber. It connects the reactions of that leaf to a number of plant physiology monitoring devices in the easel box. The audience experiences sound that re-presents the trees' response to atmospheric changes particularly in relationship to carbon dioxide; caused by human respiration, transportation, home heating and industrial pollutants. The physiological system compares atmospheric conditions to the conditions relative to a leaf. The sensors monitor: CO₂, humidity,

⁶ Stein, E. (2002) *On the Problem of Empathy*. (W. Stein, trans.). Washington D.C.: ICS Publications. (Original work published 1917), p.56.

temperature, air flow and light intensity. Mathematical equations based on these parameters give us photosynthesis and transpiration. The sound is produced in relationship to these numbers.

The process of photosynthesis begins with a leaf of the tree that is surrounded by atmospheric turbulence. On a leaf there are thousands of small pores called stomata. When the stomata open they take in carbon dioxide. The stomata also control transpiration. Water from the soil is drawn through the root and up the stem; passing into and through the green leaves. Transpiration maintains the leaf temperature while stomatal control prevents dehydration. Inside the leaf the green substance in plants called chlorophyll processes the sun light, carbon dioxide and water to create a type of sugar that builds the plant body, fruits and seeds. Leaves reduce the CO₂ level and produce oxygen during the day time and reverse the activity during the night. Some plants reduce the CO₂ level more than others.

The development of *Plein Air* required a process of technological development and practical testing. The first system enabled playback of data using a programmed sound device developed by Carola Boehm of Manchester Metropolitan University, with alternatives developed by Mathew Dagleish a PhD candidate at the University of Wolverhampton; it was in use during the California residency⁷. Returning to the UK, the project team spent months working with Matthew to develop and build a prototype version of the real-time hardware and software that transfers the plant physiological data into a sound program. (The system used in the exhibition would be redeveloped into a more stable platform by the technologists at Solutions for Research in Bedford, UK.) The real-time approach allowed the artists to experience the tree's immediate response as the environment changed; such as clouds and cars going by, or people breathing close to the tree would all effect response. In this exhibition the artists chose piano sound for its tonal legibility. During a public conversation⁸ a person talked about the desire for an attractive / natural voice that was not an instrument, but rather something to draw us into nature. In counterpoint an anthropologist suggested that presuming nature to be both attractive and complacent might be part of the problem of dominion; a more demanding voice might be called for. Collins and Goto continue to explore the relationship between 'sound' and 'feeling' in relation to response to the trees. (For details on development see research and residencies at <http://eden3.net>)



1) Visual Perception, 2) Dialogical understanding, 3) Techno-Perception, 4) Empathic Inter-relationship with *Plein Air* back-pack system that is under development.

VI. Conclusion

In the images above the artists present a concept-map of experience and understanding that took shape while working with trees. The two images on the left, define experiential then cultural dialogue leading to new ideas and understanding of trees. Goto would describe this as the dominant metaphorical relationship. On the right, you see an evolution, a new analogous relationship emerging as an idea and although *Plein Air* is not the final manifestation of this work.

⁷ Goto and Collins were invited to a residency program at the headland Art Center, Marin County California in the summer of 2008.

⁸ Goto, R and Collins, T. (2010) *Climate change: Seeing the invisible and hearing silence* [online] Eden 3 [cited 30 March, 2011]. <<http://eden3.net/dialogue/2010/IASH25sep10.pdf>>

The challenge in this work is to reveal an experience of trees that is invisible and silent yet linked to human behaviour. It is based upon ideas about the aesthetic perception of health and well being in landscape and ecosystems. As the largest living things, trees indicate the health of ecosystems; and the impact of human avarice. The reader should be clear, the voice of the tree – is chosen and applied by the artists it is not that of the tree. The artists take this initiative intending to experiment with empathic communication across species. The issue of anthropomorphism (in this case) constrains our empathy more than it can enable it. Critical constraints against anthropomorphism and analogous ecologies are perhaps important to remind us of the reality to which they are tied, and the need to link origin to analogue in a structured and ethical way. To see things differently, the artist would argue that this moral constraint must be reconfigured as a caution; to intend no harm or overt obfuscation.

*To live well is to be free to pursue life to the best of one's capacities and to support similar creative expression in others. To be creative is to live and practice with the intent to renew and add depth to our perception; to seek experience that calls into question the values that define everyday life. Theory is necessary because the world is full of contradictions that demand creative resolution.*⁹

In this work the artists embrace the research methodology with all its tensions and fallibility, with real potential for success and failure. Like Christopher Columbus they have convinced leaders with funding to set them free with theory, practice and technology to find another way. They set sail with clear premise, method and practice. They have crossed the water and touched new land; experiencing and learning things that transcend the original expectations. During the passage, Goto has discovered the depth and importance of empathic relationships with living-things, and has drawn initial conclusions. There is much work ahead, and new questions to be answered.

*Is it aesthetic truth or empathy and morality that will reshape our relationship to the non-human? Or is it the potential practical value, the benefit to society that we must consider as we expand the set of us, to include some of them? At this point in time one thing is clear – the remaining other is nature, the largest beings of that kingdom and this world are the trees.*¹⁰

⁹ Another excerpt from: Goto, R and Collins, T. (2010) *A Tree is a Living Thing* [online] Eden 3 [cited 30 March, 2011]. <<http://eden3.net/exhibitions/peacock/video/index.htm>>

¹⁰ Ibid