



5-2015

# Environmental Art: A Study of Psychology and Activism

Leah Davidson  
*University of Pennsylvania*

Follow this and additional works at: [http://repository.upenn.edu/uhf\\_2015](http://repository.upenn.edu/uhf_2015)

 Part of the [Art and Design Commons](#), and the [Photography Commons](#)

---

Davidson, Leah, "Environmental Art: A Study of Psychology and Activism" (2015). *Undergraduate Humanities Forum 2014-2015: Color*. 3.

[http://repository.upenn.edu/uhf\\_2015/3](http://repository.upenn.edu/uhf_2015/3)

This paper was part of the 2014-2015 Penn Humanities Forum on Color. Find out more at <http://www.phf.upenn.edu/annual-topics/color>.

This paper is posted at ScholarlyCommons. [http://repository.upenn.edu/uhf\\_2015/3](http://repository.upenn.edu/uhf_2015/3)  
For more information, please contact [libraryrepository@pobox.upenn.edu](mailto:libraryrepository@pobox.upenn.edu).

---

# Environmental Art: A Study of Psychology and Activism

## **Abstract**

Environmental art can reinterpret natural processes, generate awareness about environmental problems, restore damaged ecosystems, and convey the power and beauty of nature and wildlife. The purpose of this project is to investigate the symbolism of color in environmental art and photography and its relationship to human psychology. To survey the field of environmental art, I visited galleries and interviewed artists in the field, with the purpose of analyzing 50 significant pieces of art that represent a variety of genres, colors, and cultural heritages. The final project will analyze the future potential of art as a tool for social change and lead to the creation of a digital platform at Penn to showcase interdisciplinary student projects.

## **Disciplines**

Art and Design | Photography

## **Comments**

This paper was part of the 2014-2015 Penn Humanities Forum on Color. Find out more at <http://www.phf.upenn.edu/annual-topics/color>.

**Environmental Art: A Study of Psychology and Activism**

2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn Humanities Forum

University of Pennsylvania

Faculty Advisor: Prof. Bethany Wiggin

May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn  
Humanities Forum

Leah Davidson, Wharton 2016, University of Pennsylvania

**Abstract:**

*Environmental art can reinterpret natural processes, generate awareness about environmental problems, restore damaged ecosystems, and convey the power and beauty of nature and wildlife. The purpose of this project is to investigate the symbolism of color in environmental art and photography and its relationship to human psychology. To survey the field of environmental art, I visited galleries and interviewed artists in the field, with the purpose of analyzing 50 significant pieces of art that represent a variety of genres, colors, and cultural heritages. The final project will analyze the future potential of art as a tool for social change and lead to the creation of a digital platform at Penn to showcase interdisciplinary student projects.*

Environmental psychology is a broad field studying humans' attachment to a sense of place, found in either built or natural environments<sup>1</sup>. It analyzes a variety of interventions on an individual or collective scale, including formal conservation biology and newer therapeutic approaches to improving environmental interactions and human well-being.

As an alternative to more practical or scientific methods, environmental art is a communication tactic that promotes sustainable living through its psychological influence. Timo Jokela writes that environmental art can serve three purposes: 1) dominate a place, 2) be characteristic to a place (the adaptation to the environment), and 3) be defined by a place (created by the environment)<sup>2</sup>. In *Visual Culture and Nature*, Rosi Lister defines three similar strands of environmental art: 1) art which observes and interacts with the (usually) natural environment, 2) art which reclaims or improves physical environments in the tangible sense, and 3) art which engages the social environment with pedagogical and/or activist intent<sup>3</sup>.

Since the 1960s, environmental art has taken on many different names: "land earthworks, site-specific art, destination art, ecological art, eco-art, total art, and environmental sculpture<sup>4</sup>." The past 40 years have marked a transition from representational art (paintings, sculptures, drawings, etc.) to non-representation/performance art. As a source of beauty, emotional provocation, inspiration, and information, art assumes many different meanings depending on the cultural context, personal background, and geographic location of the artist and medium, colors, and artistic techniques used.

For my project on environmental psychology, I studied the interplay between visual art, human cognition, and environmental activism over time and across contemporary landscapes, analyzing and cataloging over 50 pieces of art and piloting a program at Penn dedicated to showcasing student work in the emergent area of the environmental humanities (EH). This paper will first explore how select environmental artworks creatively integrate conservation messages and then discuss the process of creating a digital platform at Penn to celebrate art as activism.

## **I. Art to Evoke Emotion**

The relationship between art and emotion has been heavily studied and scrutinized. Humans derive pleasure from the process of interpretation – from recognizing patterns and attributing meaning to abstraction<sup>5</sup>. According to Pinchas Noy and Dorit Noy-Sharav in the *International Journal of Applied Psychoanalytic Studies*, complex artwork with high technical skill can trigger meta-emotions – that is, multiple emotions simultaneously.

Art also provides an emotional release. As visual, auditory or sensory stimuli evoke memories, they allow participants to newly process their own experiences and challenges through their appreciation of art. In “How Music Convey Emotions,” Noy proposes that art interacts with its audience through “unconscious symbolizations, displacements, condensations and other distortions” that result in narrative formation, through direct messages that elicit emotional affect, and by influencing the interpreter’s ego in such a way that engenders the desired emotional reaction<sup>6</sup>. When exploring

significant artwork of the past century, I noticed how interactions of light, color, and texture generate different emotional reactions.

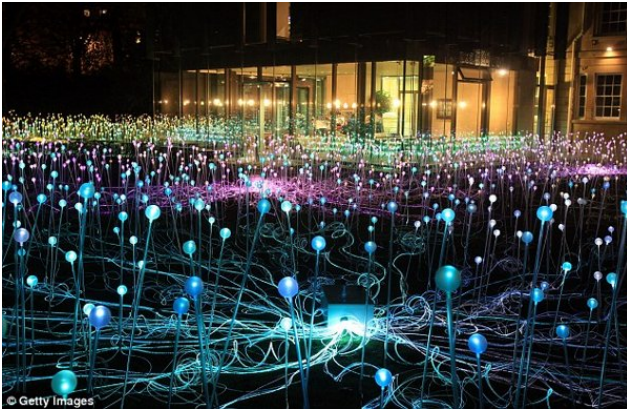


For example, Bavarian artist Nils Udo creates “potential utopias” out of found materials, drawing inspiration from colorful flowers and reflective pools of water to spark the imagination and evoke **tranquility, serenity, and hope.**

In 2010, one of the more renowned environmental artists Bruce Munro formed *CDSea* out of 600,000 used CDs collected internationally. He was inspired to capture the essence of light on a Sydney Harbor beach. He recalls, “...The light was still strong, like a blanket of shimmering silver light. I had this childish notion that by putting my hand in the sea I was somehow connected to my father’s home in Salcombe, Devon<sup>7</sup>.”



This sense of **connectedness, optimism, and warmth** comes across through the twisty grassy path in the reflective terrain. Munro similarly channeled his own feelings and energies through *Field of Light* (2004-12), a mixed media embodiment of his experience traversing the heat of the Red Desert in Australia in 1992. He writes, “I wanted to create an illuminated field of stems that, like the dormant seed in a dry desert, would burst into bloom at dusk with gentle rhythms of light under a blazing blanket of stars.”



Conversely, Jim Denney’s use of the fiery colors red, orange, and yellow in his 2011 work *Obstacle* arouses **anger and distress**. Denney’s art portrays the history of the Pacific Northwest, covering subjects such as the impact of fire on nature and wildlife<sup>8</sup>. By drawing out the contentious relationship between humans and their environment, he depicts the phenomenon of natural decay.





Emotions have historically played a large role in motivating people to take pro-social or pro-environmental actions. Rachel Carson's *Silent Spring* (1962) and Al Gore's *An Inconvenient Truth* (2006) raised awareness about the dangers of pesticide and climate change, respectively, through apocalyptic imagery cultivating feelings of guilt and personal responsibility.

With the publication of *Silent Spring* in 1962, Rachel Carson reeled in readers with the familiar portrayal of the American dream – images of deer silently crossing the fields, foxes barking in the hills, and people watching the migration of birds. Then, in traditional dystopian fashion, we discover that this paradise is not as it appears. The chicks stop hatching, the birds permanently disappear, and the apple trees no longer bear fruit. Since resistance against using pesticides as chemicals was a relative new phenomenon at the time of *Silent Spring*, fear and despair worked in this setting to stir public conscientiousness and resulted in the ban of DDT in the 1970s.

With *An Inconvenient Truth*, Gore similarly tied people's emotions to his message by relating environmental degradation to the loss of loved ones (e.g. the indirect connection of the death of Gore's sister to lung cancer). The movie uses powerful language and imagery, such as the dead bodies in the aftermath of Hurricane Katrina and a polar bear searching in vain for an ice floe, to evoke emotion. Gore begins very similarly to Rachel Carson's "Fable for Tomorrow" chapter at the beginning of *Silent Spring*. He says:

*You look at that river gently flowing by. You notice the leaves rustling with the wind. You hear the birds; you hear the tree frogs. In the distance you hear a cow. You feel the grass. The mud gives a little bit on the river bank. It's quiet; it's*

*peaceful. And all of a sudden, it's a gear shift inside you. And it's like taking a deep breath and going, "Oh yeah, I forgot about this."*

He deconstructs this paradise by connecting the effects of global warming to the devastation of Hurricane Katrina, an event that was regularly making news headlines at the time of *An Inconvenient Truth*'s release.

Although *An Inconvenient Truth* greatly increased awareness of human-induced temperature increases, a 2009 research study by the journal *Science Communication* shows the declining effectiveness of perpetual scare tactics in cultivating a sense of caring and love for the planet<sup>9</sup>. Lacking a plan of action, people will change from reducing the perceived danger to reducing their fear, which leads to denial that a problem may exist or, in the case of climate change, that the problem may be human-induced. More recently, environmentalists, such as David Sobel and Daniel Goleman, have questioned the rise in ecophobia ("a feeling of powerlessness to prevent cataclysmic environmental change"), particularly among children, and promoted the return to a more holistic understanding and appreciation for nature.

## **II. Art to Incite Urgency**

Cultural activism deploys cultural resources, such as art, storytelling, and theatre, to involve citizens in environmental controversies<sup>10</sup>. Art can therefore be used to incite urgency and the need for concrete behavioral change.

Depicted here are two pieces of art highlighting the dire consequences of global warming. A three-act performance of construction, destruction, and rebirth, *Crude Awakening* at the Burning Man Festival in 2007 showed eight figures from different

religions joining in worship around a 99-foot wooden oil derrick. The climactic ignition of 2,000 gallons of propane and 900 gallons of jet fuel served as a symbol of our dangerous addiction to fossil fuels.



**Source: Matthew Taylor**

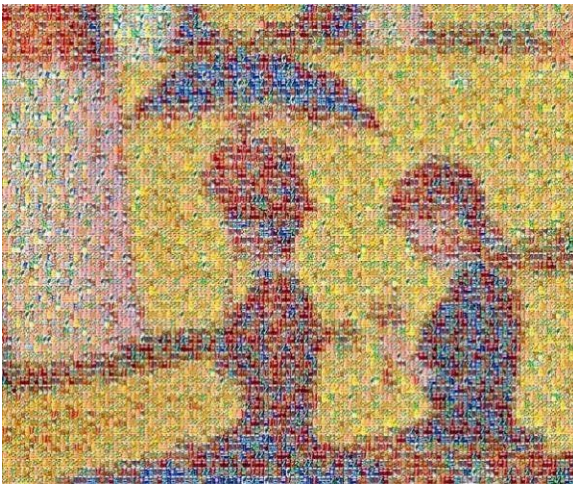
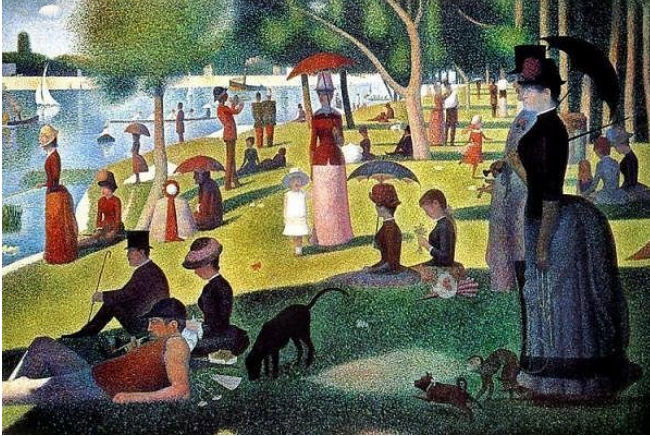
Since 2005, Brazilian artist Nele Azevedo's *Melting Men* installations have illustrated the World Wildlife Fund's warning that melting ice could raise sea levels by 3.3 feet by 2100, placing life-like miniature ice sculptures in key city spaces around the world which melt within half an hour. These iconic images help audiences internalize the finite nature of the planet and its resources, prompting dialogue on related issues and themes.



May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn 9  
Humanities Forum  
Leah Davidson, Wharton 2016, University of Pennsylvania

Source: Reuters

## II. Art as Education



May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn10  
Humanities Forum  
Leah Davidson, Wharton 2016, University of Pennsylvania

Art can also be integrated into education as a sensory and analytical experience. Chris Jordan uses digitally assembled pieces for the purpose of ecological awareness. His *Running the Numbers* exhibit (2006-present) provides an alarming look into US consumerism, offering a visual representation of statistics, such as the 426,000 cell phones discarded in the US each day and 2,000,000 plastic bottles used every five minutes. Each image requires a couple of weeks of work, as Jordan takes a few hundred images and digitally constructs a larger image.

Jordan spoke to the link between psychology and action:

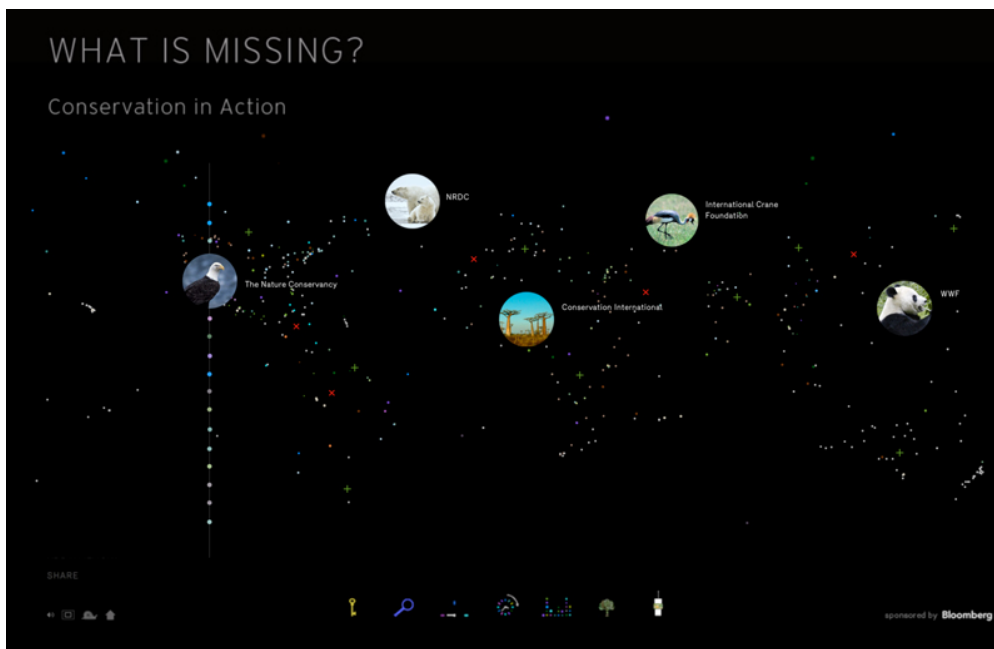
*Issues [around waste] that are so important in the real world, exist only in our mind as an abstract figure. If we can't comprehend the issue then we don't feel anything, therefore we don't act. I'm trying to create these images that point toward comprehension of the issues so we begin to feel something, so its not just an intellectual exercise. If we feel angry, or sad, or frightened, that is when we act decisively.<sup>11</sup>*

Digital media artist Andrea Polli uses advanced technology to help viewers visualize invisible particles that pose a threat to human health through the exhibit *Particle Falls*. These particles were detected in real-time as spots of color on falling blue light – first in 2010 in San Jose, California and then projected onto the front of the Wilma Theater in Philadelphia in 2013.

In 2009, Maya Lin, the Yale student who rose to fame for designing the Vietnam Veterans Memorial in Washington D.C., started “What is Missing?,” a multimedia exhibit sponsored by Bloomberg that serves as a tribute to the loss of biodiversity. In a Yale interview, she explained:

*Each dot represents a story about the natural world... If you clicked on Manhattan, it would jump up and form fifty dots... And so we went for the earliest written accounts, from the Dutch settlers, where they found that lobsters were six feet long, oysters were twelve inches in diameter. And as you follow, say, the Manhattan wormhole, as you get further and further along, the rivers degrade, the abundance of wildlife disappears, but then there is an arc of hope. The [1970s] come, the Clean Air Act happens, the Clean Water Act, and all a sudden in present day, in the top of the line of dots, you get to seals returning to the harbor, nature comes back<sup>12</sup>.”*

The interactive website contains video messages, audio soundbytes, and images, and culminates in links to environmental groups, so visitors to the site can also conceptualize successes and gains.



**Source: [whatismissing.net/](http://whatismissing.net/)**

### III. Art as Ecosystem Restoration

Although art may be less measurable in its carbon impact, ecosystem restoration can either become a byproduct or end goal. Stuart Allison writes in *Ecological Restoration and Environmental Change: Renewing Damaged Ecosystems* about how art provides unique participatory experiences: “The science of restoration is seen as objective and a bit distant because of its objectivity. Because art and the response to art are understood to be subjective, the presence of art in ecosystem restoration invites human engagement<sup>13</sup>.”



As an example of the latter (ecosystem restoration as the end goal), Hungarian-born American artist Agnes Denes’ living installation *Wheatfield--A Confrontation* (1982) involved planting two acres of golden wheat over a four-month period on a landfill in Manhattan. Through proper fertilization and irrigation, the land yielded 1,000 pounds of healthy wheat. Harvested grain from the wheat field, collectively worth \$4.5 billion dollars, traveled to 28 countries as part of the Minnesota Museum of Art’s

"International Art Show for the End of World Hunger", serving as a commentary on mismanaged resources.

Similarly, as part of *Blue Rocks* (2002), ecologist Aviva Rahmani adorned 40 boulders in an obstructed trail with ultramarine pigment, buttermilk, and native mosses to observe whether a small action could trigger a larger regional impact. After the town of Vinalhaven, Maine ordered Rahmani to clean the rocks, the USDA and other federal agencies took notice and donated \$500,000 toward the installation of a wider culvert more compatible with the local tidal and wildlife patterns.

As an example of the latter (ecosystem restoration as a byproduct), Christo and Jeanne-Claude surrounded 11 Miami islands with pink polypropylene floating fabric to create *Surrounded Islands* (1983). The process took two weeks and involved 430 workers. During the construction phase, the land and marine crew collected 40 tons of waste. The “painterly” aesthetic beauty of the once-overlooked islands reflects their now clean and pure material state<sup>14</sup>.



Other artists integrate themes of decay and revival into their work through recycled materials. Israeli artist Rehov Eilat creates elaborate sculptures out of trash and paints on delivery bags, broken doors, and canister lids. Likewise, American artist Sandhi

May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn14  
Humanities Forum

Leah Davidson, Wharton 2016, University of Pennsylvania



Schimmel Gold upcycles junk mail and paper waste – postcards, brochures, cards, and tax forms of which people would normally dispose – to construct thought-provoking mosaic images of beauty. Her work, done entirely by hand, and her tools, water-based, nontoxic paints, are illustrative of a deep environmental commitment.



**Source: Art Slant**

Daniel McCormick and Mary O’Brien from Fairfield, California pursue “remedial art,” juggling the seeming tension between art, which derives effectiveness from standing out from the natural landscape, and restoration, which must blend in to attract local wildlife. For each project, O’Brien conducts research, McCormick models the design, and a scientific mentor from an academic or conservation field provides site-specific guidance and expertise<sup>15</sup>. In their artist statement, McCormick and O’Brien explain:

*We are compelled by the idea of using sculpture in a way that will allow the damaged areas of a watershed to reestablish themselves. As it has evolved, our art has become focused on strategically congregating sculptural components*

*made from riparian materials back into the watershed. They are intended to give advantage to the natural system, and after a period of time, as the restoration process is established, the artists' presence becomes less and less apparent,*

These habitat-enhancement sculptures on the Truckee River in Nevada are emblematic of their vision of conservation.



**Source:** <http://watershedsculpture.blogspot.com/>

#### **IV. Art as Interaction with the Natural Environment**

Environmental art can also serve as interaction with physical spaces by creatively maneuvering natural materials. Brazilian artist Henrique Oliveira transforms plywood, a relatively flat, lifeless material, from discarded fences into cavernous, inhabitable spaces, so it appears as though roots are bursting from human-occupied walls.



Land art, an art form popularized by Robert Smithson, is one of the more popular environmental art movements and exemplifies this interactivity. It began in the 1960s as a critique of artificiality and commercialization. Smithson's most famous artwork *Spiral Jetty* (1970) was originally constructed from a "team operating dump trucks, a tractor, and a front loader." Over a period of three weeks, Smithson created a 1500-foot long, 150-foot wide coil with over 6000 black basalt rocks on the northeastern shore of the Great Salt Lake. The artwork was submerged in 1972 and revealed again in 2002 when a regional drought caused water levels to lower.



**Source: © Holt-Smithson Foundation/Licensed by VAGA, New York. Photo:**

**George Steinmetz**

Long created a famous piece *Line Made by Walking* (1967), which involved walking in a straight line up and down a field in Wiltshire, England. He adjusted the photograph angle, so that it captured the light and revealed a path in the grass. In comparison to *Spiral Jetty*, Long took a minimalist approach to his intervention with the natural environment instead of employing mechanized equipment.



Land art frequently receives criticism for destroying natural ecosystems; however, many land artists have managed to incorporate open landscapes into living sculptures while keeping the local environment intact. Since the 1970s, a new art form of “working with nature” emerged, led by European artists Goldsworthy, Drury, Prigann, Nils-Udo, Sjoerd Buisman, David Nash, and Herman de Vries and North American artists Patrick Dougherty, Rob Staab, and Michael Singer. These artists incorporated into their artwork the traditional skills of weaving, wood-working, dry-stone walling, and plant husbandry<sup>16</sup>.

British sculptor Andy Goldsworthy said, "Movement, change, light, growth, and decay are the life-blood of nature, the energies that I try to tap through my work." As in pieces like *Rowan Leaves and Hole* (1987), Goldsworthy uses natural materials, such as

flowers, leaves, mud, twigs, snow, and rocks, as tools, integrated into specific sites with the work of his teeth, saliva, and bare hands. Goldsworthy's sculptures convey a certain rawness and passion for outdoor exploration. He once explained:

*Nature is intensely beautiful and at the same time very unnerving, and at times deeply frightening. You feel it as soon as you go out to the land, where everywhere you go things are dead, decaying, fallen down, growing, alive... I would hope that I don't have a romantic view of nature. I do feel the beauty of it, for sure. But it's a beauty that's underwritten by extreme feelings<sup>17</sup>.*



*Rowan leaves laid around hole*

*collecting the last few leaves*

*nearly finished*

*dog ran into hole*

*started again*

*made in the shade on a windy, sunny day*

*Yorkshire Sculpture Park, West Bretton – 25 October, 1987*

Similarly to Goldsworthy, British environmental artist Chris Drury creates “cloud chambers” out of stone, wood, and turf, which resemble a camera obscura (dark on the

inside, with a door, white floor, and small opening in the ceiling that serves as the pinhole camera). Meditative and peaceful, the cloud chambers project images of the sun, clouds, and trees.



**Source: Wikimedia Commons**

Other artists have recreated natural habitats on a smaller scale. Helen Mayer Harrison and Newton Harrison built a functional fish farm as part of *Portable Fish Farm: Survival Piece #3* (1971), which allowed them to catch and serve carp, rudd, tench, breem, catfish, brine shrimp and lobsters<sup>18</sup>. Vaughn Bell and Josh Keyes' exhibit *Pocket Biospheres* allowed people to put their heads in miniature greenhouses to examine their relationship with the natural world.

#### **IV. Art as Storytelling**



Art represents collective participation in storytelling, bringing people together from different backgrounds for dialogue. The Japanese Art Miles Mural Project showcased at the UNESCO World Conference on Education for Sustainable Development in 2013 encouraged students from across cultural contexts to come together to visually represent peace and sustainability, with two schools from different countries responsible for different parts of the mural.

Red Earth reunites professionals from within and outside of the arts for participatory performances and public engagement across Europe and Asia. Their projects respond to the prehistoric and contemporary experiences of landscape<sup>19</sup>. A symbol of geological change at the cliffs, their 2005 piece *Trace* comprised a 200-meter long erosion line along the beach leading to the sea, which culminated in public performances.

Art has a transcendent power, as people are able to appreciate and unravel its mysteries from across the generational, linguistic, national, and cultural boundaries that otherwise segregate society.

May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn21  
Humanities Forum  
Leah Davidson, Wharton 2016, University of Pennsylvania

## **V. Applied Project at Penn: Creation of the Penn Program in the Environmental Humanities**

In addition to a study of the field of environmental art, my Undergraduate Humanities Forum fellowship led to the creation of the Penn Program in the Environmental Humanities (PPEH), housed at [www.ppehlab.org/](http://www.ppehlab.org/). This tripartite project, co-founded with Prof. Bethany Wiggin, aimed to create an overarching digital forum for projects in the Environmental Humanities (EH), centered on the campus of the University of Pennsylvania with filiations extending regionally, nationally, and globally.

### **What are the Environmental Humanities (EH)?**

EH names a field of knowledge that promotes collaboration among disciplines and across the two cultures: human and natural sciences. As Nobel laureate Paul Crutzen's widely adopted name for a new era in geologic time, the anthropocene, reminds us, the natural force that is the human species now profoundly shapes the planet and its atmosphere, most significantly via a warming climate with the well-known list of related woes from melting ice caps to habitat loss to species extinction to drought and famine. Natural sciences can no longer be understood distinctly from human sciences; work in our anthropocene era must knit knowledge across the nature-human divide so foundational to modernity. In the postmodern and within an ecological system under stress, EH offers a means of secondary succession, pointing toward a sustainable future by promoting the kinds of collaborative knowledge production necessary to insure future livability, perhaps even lovability.



Identified by Harvard's James Engell among others from leading institutions across the globe as a primary engine for new knowledge creation, EH names a recognized academic field, one traversed by history, languages and literatures, aesthetics, philosophy, history of science, complexity theory, biology, earth and environmental science, biology, and attended by a proliferation of scholarly journals, academic conferences, and job listings. But EH has also taken root amidst very real world concerns. Thus, it is deeply concerned to promote and foster connections within and beyond the academy, leveraging institutional expertise to drive resilient cultures of succession.

### **The Environmental Humanities at Penn**

Despite major strides made at peer institutions, Penn lacks academic resources in this area. Yet with the adoption of the new strategic plan for SAS and its stated top commitments to Energy, Sustainability and the Environment as well as to Digital Humanities, we face a moment of considerable opportunity. In tandem with these emergent SAS targeted areas and together with existing institutional players, including the Penn Humanities Forum and various SAS departments, as well as the diverse initiatives and student programs supported by FRES and the Green Campus Partnership, this proposed digital platform promotes attention to existing faculty, staff, and student work and in doing so promotes the creation of new work in this area. Inspired by the rich *Arcades* site launched by Roland Green at Stanford as well as the rhizomatic site evolving around the deeply collaborative *IntheMiddle* blog, this platform aims to provide an umbrella for current and future EH projects and will grow to host conference talks, speaker series, blogs, journals, and more. Dedicated audio-visual and digital tech support

would enable the site to capture and host the rich array of events already on campus: audio and video files capturing a wealth of materials ranging, for example from lectures on risk management to the science of climate warming to student symposia on “cli-fi” and on green design to invited speakers on models of ocean level rise to ecocriticism.

### **PPEH 2014-15 Overview**

Seven undergraduate research fellows were selected in early October 2014 based on the strength of their research proposals and academic record. Fellows immediately began weekly meetings with Wiggin on Friday afternoons in the Kislak Center. In addition to work on the individual research projects, we established an array of collaborative research projects with partners on campus and off, from Philadelphia to Madison to Munich to Sydney.

### **Completed Projects 2014-15**

- PPEH website**, built on Squarespace, @ ppehlab.org (January 2015)
- “On the Edge”** panel on environmental art on a changing planet at the Schuylkill Center for Environmental Education (January 2015, attended by 100+)
- Free for All** event, at the Institute for Contemporary Art on Nature in the City (February 2015, attended by 580+)
- “Urban Nature/Natural City,”** a performance and lecture at Penn on art actions and the built and natural environment as well as a roundtable of Penn and regional experts on “What Is Nature in the Age of the Human” (April 2015, co-sponsored by the Penn Humanities Forum, Green Campus Partnership, Art in the Open/City Park Association)

### **Ongoing Projects**

May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn24  
Humanities Forum  
Leah Davidson, Wharton 2016, University of Pennsylvania

-7 PPEH Program **Fellows** Individual Research Projects, ranging from the launch of the Environ Group, an eco-friendly consulting program with national and international hubs on college campuses, to the production of a documentary on urban design in West Philadelphia (see ppehlab.org/fellows for project details)

-**“The Earth Is...,”** a community involvement and publicity project designed to be published on our social media outlets (Facebook and Twitter) and archived as a photo gallery on the program website. Since January, we publish at least two photos weekly and have received photo submissions from across campus and the globe (San Francisco, Germany, Australia, Spain, etc.).

-**Faces and Spaces of Sustainability**, interview and essay series, published on the website. To date, we have published five longer and several short essays in this series.

-**EH Lexicon**, an A to Z primer of video shorts available via the website. To date, one video short, on “Anthropocene,” featuring EES Associate Professor Alain Plante, has been published on the website.

-**PPEH Lab at WetLand**, a collaboration between PPEH and the artist Mary Mattingly, the Schuylkill Banks, and Bartram’s Garden. Programming already booked for the lab includes SAS research and teaching projects by faculty from Penn Theater Arts (Marcia Ferguson), Biology (Paul Schmidt), German (Bethany Wiggin), HSS (Etienne Benson); from Penn Design (Daniel Barber); the Integrating Sustainability Across the Curriculum program; artists’/makers’ talks with the ICA; Penn student club workshops and events (SSAP, Impact magazine, Penn Appetit, American Academy of Environmental Engineers and Scientists at Penn, Penn Eco-Reps, etc). Regional collaborators who have asked to use the PPEH Lab@WetLand include Bartram’s Gardens, the Franklin Institute’s CUSP

initiative, the Schuylkill Center for Environmental Education, the Slought Foundation, the City Parks Association, and the Center for Emerging Artists.

-**EH Film Festival**, PPEH and Penn Cinema Studies run a four-part film festival with screenings, directors' talks and related events, and a show of student shorts, planned for late November 2015

-**Theater at the End of the World**, a collaboration between PPEH and Pig Iron Theater Company to produce a series of etudes in the PPEH Lab@WetLand exploring the role of comedy and absurdist theater in communicating climate change. This project is the first of a planned larger project including a major conference with Theater Arts at Penn on experimental theater and climate communication.

-**Toolkit for the Anthropocene**, an illustrated catalogue of creative and practical tools to survive and thrive in the age of the human.

PPEH received initial startup funding (\$10,000) from the Penn Green Campus Partnership and \$40,000 for AY2015-16 from the SAS Dean's Office for continued operations and expansion. The eventual goal is to hire permanent faculty specializing in the EH. PPEH will enroll fellows in a credit-bearing interdisciplinary seminar. We will also hire eight undergrad fellows and four grad student mentors, host a four-part speaker series, and curate an end-of-year research symposium.

## **VI. Profiles of Philadelphia Artists**

For my personal project with PPEH, I created a digital gallery of work of students and artists in the Philadelphia area. For this purpose, "art" is broadly defined to

encompass academic research, traditional literary and visual art, and entrepreneurship/design. Below is a selection of featured profiles:

### **A. Kaitlin Pomerantz, Visual Artist**

#### **Education through Nature Transformation**

*Kaitlin Pomerantz graduated from the University of Chicago with a BA in Art History and Visual Art. After earning a Post-Baccalaureate Certificate in Painting from the Pennsylvania Academy of the Fine Arts, she is now working toward an MFA in Interdisciplinary Art and a Certificate in Landscape Studies at the University of Pennsylvania's School of Design.*

#### **Early Beginnings**

Pomerantz described how she got started: “I grew up on the river and from a very early age was sensitive to natural areas like parks and waterways.” Her father worked in oyster aquaculture and restored marine habitats, so Pomerantz spent a lot of time outdoors as a child exploring his projects.

Pomerantz started creating materials from traditional methods, like making pigments from soil or dirt or making dye or ink from plants. She derives inspiration from artists who are subtler in their incorporation of sustainability, such as John Cage, a famous composer and naturalist, who founded the New York Mycological Society dedicated to mushrooms, and Abbott Thayer, the father of camouflage patterning.

Pomerantz said, “Knowing that these artists are involved in conservation makes me see their work differently.”

#### **Integration with the City of Philadelphia**

May 2015 Final Paper, 2014–2015 Andrew W. Mellon Undergraduate Fellow, Penn27  
Humanities Forum  
Leah Davidson, Wharton 2016, University of Pennsylvania

Since moving to Philadelphia six years ago, Pomerantz has become interested in vegetation and started doing projects on plant ecology in the urban space with botanist Zya Levy. This led to the foundation of We the Weeds, an outreach project which includes ethnobotanical tours, art installations, science experiments, culinary events, and more, targeted at schools and the general public. We the Weeds has partnered with many local institutions, including Philadelphia Mural Arts, the Asian Arts Initiative, Art in the Open, and the Schuylkill Center of Environmental Education.

Last summer, Pomerantz received the RAIR (Recycled Artist in Residency) fellowship. “Getting access to infinite waste material that could be transformed was an amazing experience,” said Pomerantz. “I think RARE is one of the best initiatives in Philadelphia and I hope it will get more institutional support in the future.” On her own art journey, Pomerantz reflected, “Opportunities have arisen from one to the next because Philadelphia’s art community is small and tight-knit.”

### **Art for Change**

When asked whether her work is contextual or aligned on a common theme, Pomerantz replied that she likes to respond to space: “I like to think about humans’ relationship with the environment. I try to zoom in on under-recognized phenomena, whether that be weed species that come here from across the world or the polluted surfaces of local rivers.”

Some of her work tangibly restores the physical environment. For example, Pomerantz conducted a remediation project in the Chesapeake Bay that involved creating underwater reef and oyster sculptures. She also does art that is more aesthetic in nature

and aims to change people's perspectives. Pomerantz stated, "I am interested in making art that helps people see their behavior in different ways."

As a former teacher at the Germantown Friends School, Pomerantz enjoys regularly engaging with the public and plans to teach a drawing class at Penn. She believes that "if you can bring [environmental] concepts and ideas into a traditional art class, it is just as effective [as leading a class in environmental art]." For example, the teacher she is currently working with brings in organic material instead of having people buy paint at the store and encourages them to do all their drawings on a single sheet of paper.

Pomerantz loves how the environmental movement is becoming more interdisciplinary and is creating more support networks, academic programs, and residencies for artists. She explained, "I think you can integrate sustainability into any topic."

## **B. Senior Thesis Showcase: Gabrielle Meltzer**

### **A Manufactured Global Health Crisis: Electronic Waste in Accra, Ghana**

*Gabrielle Meltzer, a senior studying Health and Societies, received a CURF*

*Undergraduate Climate Action Plan Grant in summer 2013 to travel to Accra, Ghana to study e-waste.*

### **From Reading, Pennsylvania to Accra, Ghana**

"My research project found me," reflected Meltzer. "I originally became interested in e-waste during my sophomore year when I was taking an ABCS class and BFS seminar with Richard Pepino, [a lecturer in Earth and Environmental Science],

called Community-Based Environmental Health.” In the class, Meltzer studied how lead poisoning perpetuated cyclical poverty in West Philadelphia and developed policy recommendations to mitigate health risks. “I became interested in social circumstances (e.g. gender, socioeconomic status, where you live, etc.) and how they interact to determine your health outcomes. I went up to Prof. Pepino after class to see how I could learn more and he told me to Google ‘electronic waste’ in China.” Meltzer found it impossible to get the photos of mounds of discarded electronic equipment clogging the streets out of her head. Although Gabrielle initially wanted to study in China, she chose to travel to Ghana for fieldwork because she could communicate with the locals in English, which would allow her to conduct ethnographic research based on qualitative experiences.

Meltzer said, “My advice for anyone getting involved in research would be to find something that sticks - that makes you curious, upsets you, inspires you – something that triggers an emotion!”

### **E-waste as a public health disaster**

“My project took both a historical and contemporary approach,” explained Meltzer. From the historical perspective, she came to realize that Ghana, as a post-colonial state, had a very weak government, which was unable to implement effective environmental policies. From the contemporary side, she studied the dynamics of the Basel Convention, which are the bylaws that govern the international transport of waste.

In Ghana, the northern regions are very agricultural and tribal. Unequal distribution of natural resources and food insecurity are causing southward migration to more lucrative coastal regions like Accra. “People in Accra are taking on illegal jobs in



electronic waste recycling because people need to sustain themselves and are not given alternative sources of employment from the government,” explained Meltzer. E-waste in slums leads to chronic health problems and infectious diseases, as workers receive constant exposure to lead, mercury, and cadmium. In the US and Ghana, Meltzer spoke with many stakeholders, including the Accra Metropolitan Assembly Department of Waste Management, Environmental Protection Agency, and Department of Public Health to discover the economic and political barriers to addressing e-waste and realized the necessity of global co-operation.

### **Plan for continued engagement**

“Ever since doing this project, I’ve become really interested in sustainability, the effects of climate change, and how this intersects with health.... Whenever people are telling me that they have a broken computer or cell phone, I now tell them to throw it out. So much of our waste is illegally exported to developing countries. I always tell people to find a responsible electronic recycler,” said Meltzer, who recommends getting involved in the Electronic Takeback Coalition, Basel Action Network, and Greenpeace.

Meltzer plans to make her thesis findings accessible to the people she met in Ghana. “There’s something to be said about social justice research. It’s not a sexy topic, but we are very much responsible for [e-waste accumulation]. I want to keep being an advocate for environmental action.”

## **C. Entrepreneurship Spotlight: Jason Choi**

### **Conserving Energy on College Campuses**

*Jason Choi is a sophomore in Wharton originally from Hong Kong who started PennOrb, an eco-friendly startup that runs on a simple premise: If the glowing ball turns green, the building is energy efficient. If it light ups red, the building is wasting energy.*

### **Beginning an entrepreneurial journey**

Choi said, “The fall of my freshman year, my friend Nathaniel Chan and I realized that there hasn’t been a huge student effort in leading energy conservation.” After coming up with the idea of creating a ball to help people visualize their environmental footprint, Choi entered PennSustains competition and ended up winning the grand prize of \$3,000. At that point, Choi started onboarding friends with experience in marketing and engineering.

PennOrb collects historical consumption level statistics, given the day’s weather, temperature, and access to sunlight, comparing them with historical records. The red color was chosen to prompt feelings of warning and danger. Choi elaborated, “We went through several iterations of the design to try to make it as simple and effective as possible. We had the idea of putting numbers on the orbs, but that’s too complex. We’re experimenting to fully automate this because we’re still manually calculating the numbers and the expected values.”

This past semester, the team expanded to the London School of Economics through student collaborations and started pilots of their prototype in the Harrison high-rise dorm in conjunction with the Power Down Challenge, a one-month challenge between College House Residences to reduce energy consumption. Choi explained, “We’ve seen energy usage by 13%. Last year, they didn’t have an orb and their energy

usage went all the way up during the challenge. We still are running tests to figure out how much of the reduction is attributable to the orb.”

### **Passion for impact**

Choi doesn't have current plans to monetize the project and says that it is all about impact. “I was always interested in social entrepreneurship. Back in high school, many children in my community could not afford books, so I asked a local book retailer to sell books at our school at half the retail price. Last summer, I went to Peru to work for an economic development collaborative,” explained Choi, who hopes to one day pursue a for-purpose career.

### **Plans for expansion**

Lately, Choi has been working on building brand awareness among the Penn student body through features in *The Huffington Post* and *The Daily Pennsylvanian*, as well as an active website and Facebook page. “Originally, people thought the orbs were Christmas lights because they were red and green. Marketing was very important,” said Choi. Now that he has raised awareness about the purposes of the orb, Choi wants to concentrate on improving the design before pursuing further implementation on Penn's campus.

Choi continued, “Our exit strategy is to pilot the orbs in the three High Rises because they are very similar from an infrastructure standpoint and it is easy to compare their performance. We are also looking into expanding to other universities.”

As for final takeaways, Choi reiterated the complexity of energy sustainability: “I had the opportunity to work closely with Penn Facilities and I learned how complex it is to solve the energy crisis. Penn is big on green initiatives and spending a lot of energy,

but there is bureaucracy and the school isn't ready to publish their private data set. Last year alone, we had four Snow Days and I think we lost \$10 million because we didn't hedge the right sources. What I've learned is that the problem requires both top-down research and student-led initiatives to solve."

#### **D. Research Showcase: Elizabeth Dresselhaus**

##### **A Study of Renewable Energy in Iceland**

*Elizabeth Dresselhaus is a sophomore and University Scholar from Boulder, Colorado studying Mechanical Engineering.*

##### **Summer of a lifetime**

Elizabeth Dresselhaus spent summer 2014 in Iceland studying the effects of government energy policy and the availability of renewable technologies. Renowned for its geothermal energy and deep drilling project, Iceland was an ideal laboratory for Dresselhaus whose interests lie in the intersection of Earth sciences and social policy. Immersion in the breathtaking country of Iceland took Dresselhaus's research from a 2-D to 3-D experience, as she was able to tour actual power plants and have conversations with the people who programmed the turbines.

Dresselhaus's favorite actual experience was interviewing the project director for the Iceland Deep Drilling Project (IDDP), Bjarni Palsson. "I just walked in to the national power company and we talked for two hours. It's amazing how open people are," said Dresselhaus.

##### **Lessons learned**

In Iceland, Dresselhaus learned that the country is particularly suited for geothermal energy because the wells that they drill to access supercritical fluid are 2.5 km deep, which is not as deep as in other places; therefore, making it cheaper and more practical for drilling. Supercritical geothermal power has the potential to generate 10 times more power than regular power.

Dresselhaus has examined the potential for deep drilling in other parts of the world and the economic implications. “Australia has a lot of potential,” said Dresselhaus. “The government is investing a lot in renewables goal is 30% by 2030. None of the countries have done much geological research. There is also a California salt trough between LA and San Diego with an existing geothermal field, which could be a good experimental zone.”

Her work in Iceland helped her gain context on the potential of renewable energy. “[Icelanders] are proud of their resources. People assume that it’s sustainable because it’s marketed by governments as something that’s good,” said Dresselhaus, “but there are negative consequences and threats.” Iceland began producing an excess of renewable energy in 1995. They decided to sell energy to the highest bidder, and over 9% is used to fuel aluminum smelting industry, which heavily consumes carbon and is not environmentally friendly. Aluminum plants need to expand and this necessitates the construction of new power plants. Iceland has consented to foreign building new hydroelectric dams and flooding the land, which causes the loss of key areas of cultural heritage. “

### **Bringing it back to Penn**

Dresselhaus's experience in the field encouraged her to pursue an engineering major and take more classes outside of my comfort zone, such as geophysics. She currently manages the Biosphere Residential Program in Kings Court English College House and has been involved with Eco-Reps and the American Association of Engineering Societies (AAES). She also enjoys conducting independent research on semi-conductors and solar panels. Although still unsure of future career pursuits, Dresselhaus is considering solar energy and working in a government energy research field.

Dresselhaus reflected, "I now know that the solution to sustainable energy sources, such as solar, wind, hydro, tidal, and geothermal, is not straightforward. It's going to need to be a smart and thoughtful transition where policymakers, businesses, and governments work together."

## **VII. Conclusion**

The purpose of this paper was to explore the purposes served by environmental art and to evaluate its potential for future impact. Clive Adams, Director of the Centre for Contemporary Art and the Natural World, stated the following:

*Since the turn of the Millennium, world concern over environmental issues such as pollution and global warming, species depletion, new genetic technologies, AIDS, BSE and foot-and - mouth epidemics has increased. Artists, in turn, are responding by answering collective cultural needs and developing active and practical roles in environmental and social issues<sup>20</sup>.*

As we consider the optimal response to climate change, it is important to reflect on the role of artists, designers, and creators to answer collective cultural needs and develop active and practical roles in environmental and social issues.

Art has a unique ability to synthesize and reinterpret knowledge, speak across cultures, and generate emotional impact, which should not be ignored as we think our place in history and the need to transition the way we communicate about sustainability issues.

---

<sup>1</sup> De Young, R. "Environmental psychology overview." *S. R. Klein and A. H. Huffman (Eds.) Green Organizations: Driving Change with IO Psychology*. New York: Routledge. (2013): 17-33. Print.

<sup>2</sup> Jokela, Timo. "From Environmental Art to Environmental Education." *Image of the Earth: Writings on Arts-Based Environmental Education*. (1995): 18-28. Print.

<sup>3</sup> <http://www.ecologicalart.org/cogmag20what.html>

<sup>4</sup> Thornes, John. "A Rough Guide to Environmental Art." *Annual Rev. Environ. Resourc.* 33 (2008): 391-411. Print.

<sup>5</sup> Barry, A (2006). "Perceptual Aesthetics: Transcendent Emotion, Neurological Image". *Visual Communication Quarterly* 13 (3): 134–151.

<sup>6</sup> Noy, P. and Noy-Sharav, D. "Art and Emotions". *Int. J. Appl. Psychoanal. Studies*, 10 (2013): 100–107. doi: 10.1002/aps.1352

<sup>7</sup> "CDSea." *Bruce Munro*. Web. 26 Apr. 2015.

<<http://www.brucemunro.co.uk/installations/cdsea/>>

<sup>8</sup> King, Elaine A. "Artists & Environmental Change: The Elusive Power of Contemporary Art." *Artes Magazine*. 14 Oct. 2011. Web.

<<http://www.artesmagazine.com/2011/10/artists-environmental-change-the-elusive-power-of-contemporary-art/>>.

<sup>9</sup> O'Neill, Saffron, and Sophie Nicholson-Cole. "Fear Won't Do It": Promoting Positive Engagement With Climate Change Through Visual and Iconic Representations. *Science Communication*. (2009) 30: 355-79. Print.

<sup>10</sup> Depoe, Stephen, et al. *Communication and Public Participation in Environmental Decision Making*. Albany: State University of New York Press, 2011. Print.

<sup>11</sup> Lavars, Nick. "Interview: Environmental Artist Chris Jordan Talks Sustainability." *Gizmag*. 18 Feb. 2014. Web. <<http://www.gizmag.com/environmental-artwork-phones-protest-consumerism-e-waste/30860/>>.

<sup>12</sup> Toomey, Diane. "Maya Lin: A Memorial to A Vanishing Natural World." *Environment* 360. 25 June 2012. Web.

---

<[http://e360.yale.edu/feature/maya\\_lin\\_a\\_memorial\\_to\\_a\\_vanishing\\_natural\\_world/2545/](http://e360.yale.edu/feature/maya_lin_a_memorial_to_a_vanishing_natural_world/2545/)>.

<sup>13</sup> Allison, Stuart. *Ecological Restoration and Environmental Change: Renewing Damaged Ecosystems*. London: Routledge, 2012. Print.

<sup>14</sup> Glueck, Grace. "Christo Drapes Miami Isles in Pink." *Art & Design*. The New York Times, 5 May 1983. Web.

<<http://www.nytimes.com/1983/05/05/arts/design/05chri.html>>.

<sup>15</sup> DeWeerd, Sarah. "Restorative Art." *Conservation*. University of Washington, 8 Mar. 2013. Web. <<http://conservationmagazine.org/2013/03/restorative-art/>>.

<sup>16</sup> Tufnell, Ben. *Land Art*. Britain, Tate, 2007. Print.

<sup>17</sup> Thornes, John. "A Rough Guide to Environmental Art." *Annual Rev. Environ. Resour.* 33 (2008): 391-411. Print.

<sup>18</sup> Alexenberg, Mel. "Semiotic Redefinition of Art in a Digital Age." *Semiotics and Visual Culture: Sights, Signs, and Significance*, 2004. Web.

<<http://www.melalexenberg.com/paper.php?id=17>>.

<sup>19</sup> Pascoe, Simon, and Caitlin Easterby. "DOORS INTO THE NEOLITHIC MIND: Experiential Interpretations of the Prehistoric Landscape." *Total Art*. Web. 5 May 2015.

<<http://totalartjournal.com/archives/3208/redearth/>>.

<sup>20</sup> Adams, Clive. "A Brief Introduction." *Green Museum*. Web.

<[http://greenmuseum.org/generic\\_content.php?ct\\_id=60](http://greenmuseum.org/generic_content.php?ct_id=60)>.