

The Fifth Season

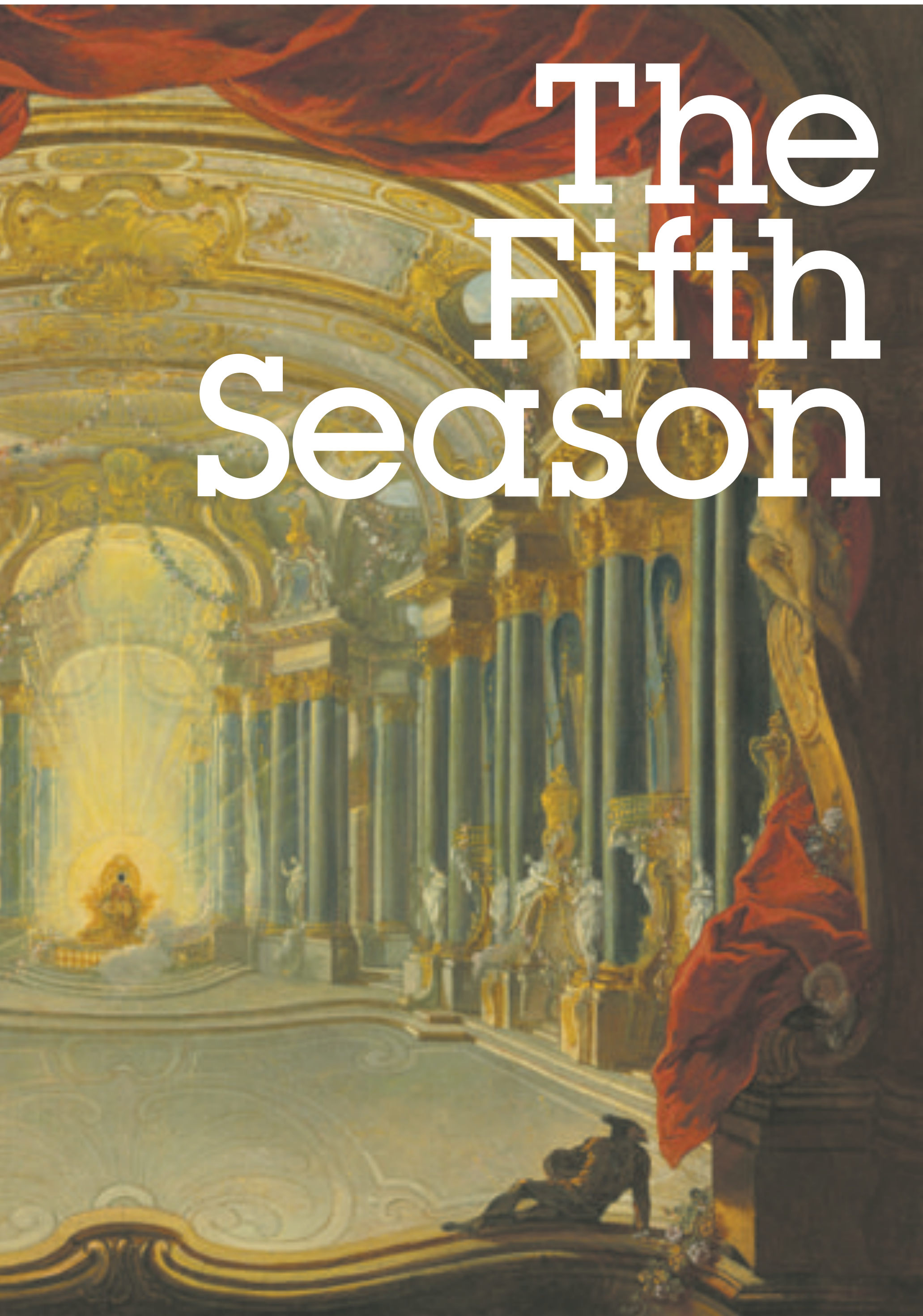




Fig. 1



Fig. 2

Fig. 1: Matthew Brandt, *Moose Falls YIMIC1*, 2013. Courtesy of Yossi Milo Gallery, New York.

Fig. 2: Alison Elizabeth Taylor, *Kelso*, 2013

Fig. 3: Fred Tomaselli, *Untitled*, 2014

THE FIFTH SEASON

The theme of the ‘four seasons’ has inspired countless works of art throughout history. As a subject, the seasons are metaphors for life cycles and transitions. The calendar propels our existence on a regular emotional and physiological schedule. The rhythm of life is inextricably connected to the quartered year.

Ecological and technological changes have created a less defined cycle of life, one that is sped up by the velocity of communication and slowed down by unpredictable environmental behavior, calling into question our long-held notions of how time behaves. One is confronted on a daily basis by unprecedented connectivity and growing awareness of irregular natural patterns, and we as a species are struggling to understand this new reality.

Some of the works in this exhibition thrive on the reassurances of nature, while others reflect on today’s intense technological hybridity and climate change. This publication is a reader and glossary, reaching further into the concerns and backgrounds of the artists on display. From these companion platforms, we have an opportunity to situate ourselves in this fifth season—a highly nuanced, unfamiliar place.



Fig. 3

TWO ARTISTS IN THE AGE OF PESSIMISM

Mark Dion and Alexis Rockman in conversation

Alexis Rockman

Mark, I want to talk about our outlook on art and how it may have changed in terms of things that we care about in our work and in our lives. Do you feel more or less hopeful about ecology, conservation and biodiversity than you did when we both started our careers in the mid 1980s?

Mark Dion:

I fear the trajectories of our thoughts about wild lands and wildlife conservation have been parallel. It is a long train of ideas that terminates in pessimism and melancholy. If I had to categorize my thoughts and feelings about ecology over my development as an artist, it would form a list like this:

- Amazement/Wonder
- Curiosity
- Outrage/Anger
- Hope/Activism
- Disillusionment
- Pessimism/Melancholy

We were both fascinated by a wonder and love for animals and wild places. This became the motivation for reading about natural history and zoology in particular, which led to our understanding of the challenges of wildlife conservation issues. At one point I became convinced that environmental issues were really information problems. I believed that if people knew the damage their way of life caused to the natural world, they would change. I believed that people would opt for environmental sanity over ecological suicide. My early work tended to be quite informational and didactic since I was literally attempting a kind of sculptural documentary practice.

After a while it became apparent that access to knowledge wasn't the problem. Ecological knowledge was readily available. The main issues were questions of political will, ideology,

capitalism and psychology. It is hard to say that people don't know about the crisis in biodiversity because the information is everywhere.

For me it is clear that we will continue our disregard for other living things and the degradation of the environment to suicidal extremes. This leads me to a perspective of pessimism. However, I would love to be proven wrong. Dark conclusions and complex positions that end in ambivalence are difficult to articulate in various forms of culture. You cannot express these sentiments in politics, in activism, perhaps even in journalism. Art is an excellent place to express complexity, paradox, uncertainty, ambivalence and hopelessness. The role of the artist as witness can be as valuable as the artist as catalyst.

Don't you find a great deal of pushback from the environmental community you sometimes work with when it comes to issues of pessimism and doubt?

AR:

Yes, there is a lot of pushback from the scientific and environmental activist community. They might confess privately that they are despairing, but they often feel that if they articulate this in public, people will flee as if from a burning building. Well, it is a building on fire, and it's terrifying. I'm grateful to have art as a way to cope. One of my jobs as an artist is to show how we can't afford to be ambivalent about human activity.

Obviously, it's easy to be confused by what fuels our behavior and motivation. Knowledge just isn't enough. Our behavior has as much to do with the Pleistocene as it does with the 21st Century. What I mean is we are tribal, territorial animals who are afraid of mortality. We really can't imagine what the world will be like one hundred years from now, let alone two years. This is an unfortunate cocktail of paradoxes for everything else alive on this planet. I often try to imagine what the person who cut down the last tree on Easter Island was

thinking around 1600 CE.

Like you, I used to believe that knowledge and information would open our eyes to the environmental issues and create radical change in behavior and save the world. I made art to teach a lesson. But I learned the lesson from Al Gore's *An Inconvenient Truth* that people, if they will listen, just don't have the collective will to do much. The engine of capitalism is just too powerful.

How do you think future generations will perceive this period in history, now that our impact on the planet is an undeniable and acknowledged fact?

MD:

I guess we could look at how we feel about those who made selfish, corrupt and unforgivable choices in the past. How do we feel about those who clear cut the entirety of New England? How do we feel about the agriculturalists who killed the last Carolina Parakeet, or the market hunters who raided the last passenger pigeon nest site? How do we feel about those who administrated the Trail of Tears and other schemes of genocide? How do we judge those who brought buffalo and wolves to the very border of extinction? How do we judge the chemical magnates who attacked Rachel Carson, employing the notion that a woman could not produce good science?

If it is true that we are the last generation that can significantly change the course of environmental degradation and we end up doing little or nothing, then I imagine our place in history, as the enablers of shaping the planet as a crummier place, will not be terribly noble.

I am not sitting on the moral high ground and wagging my finger. I am very much implicated in the problem. I am far from a paragon of environmental sainthood. While we need some leadership and models of a positive culture of nature, it seems to me very much a question of values under capitalism.



Fig. 4



Fig. 5

Where does art fit into this?

AR:

Art is one of the few places where one can have a singular voice that challenges corporate globalism. However, there can be surprises too.

It is possible to find oneself in bizarre professional paradoxes. Over the years art and arts organization that we love have taken financial support from companies or sponsors that would be at direct odds with our conscience and political positions of our work. People like the Koch brothers are very involved in philanthropic activities around the country. The American Museum of Natural History will enjoy a new Dinosaur Wing thanks to David Koch's 20 million dollar donation. They even had their name on the building where I just had surgery.

What does one do when the potential benefactor is at least a symbol of the very problem?

MD:

To paraphrase Vladimir Ilyich Lenin: the Capitalist will sell us the rope with which to hang them. Of course, Lenin never had to deal with the sophisticated greenwashing tactics of multinational corporations—paper companies that portray themselves as defenders of the forest, or oil corporations who sell an image of pioneering alternative energy campaigns.

We live in a world of contradictions and compromises and artists are certainly not immune to the everyday-life conflicts of anyone living under Capitalism. It is hard to participate in the global art world and not have a significant carbon footprint, for example. Some of the staunchest environmentalists I know board a lot of jets.

I guess one has to assess actions on a case-by-case basis. Every opportunity provides fresh challenges and opportunities, but they are each also a gamble, meaning sometimes you win and sometimes you lose. In general,

I think environmental groups overestimate the importance of individual contributions to problems, making it seem like one's choice of light bulbs or household recycling are real solutions. This tends to let the policy wonks, elected leaders, corporations and other masters of the culture of consumption off the hook.

As long as your sponsor does not control your content and you have no intention of changing your work, I say take the money. I don't really know of any clean money in the world. You must be careful and cautions of how you are being used, and be certain that your content cannot be co-opted to contradict your convictions. No greenwashing.

You depict a good deal of trash in your work. What does it mean to you? How does it function in your iconography?

AR:

Trash. It works for me in a number of exciting ways. When I first started to paint natural history landscape paintings in the 1980s, trash was a big thrill. It was something that hadn't really been included in the history of painting and seemed like a taboo. There was something perverse about painting it in a loving and careful way. Trash was also a way to stake out my own territory. I was aware that one can't make a painting about ecology in the 20th or 21st Century and not include it. It's everywhere, whether visible on a beach or on a microscopic level, and it's the reality of the state of the planet.

One of my earliest memories was being in Lima, Peru and seeing what looked like mountains of trash clogging the river. To add insult to injury, it seemed as if the trash was covered in vultures. It terrified me particularly because at home I lived near the East River in New York City and I was afraid that might happen there too.

You have traveled to as many "dream" destinations as anyone I know. Is there a place you have yet to go that is at the top of your list?

MD:

I have been to some remarkable places—both remote and natural, and highly populated and cultured—but what makes traveling fulfilling is the company I've shared. Traveling with people who share my passion for wild places and commitment to conservation but who came with such different sensibilities and strategies was amazing.

Artists and scientists are obvious allies when it comes to environmental justice and wildlife issues, but they speak different languages and employ entirely separate toolboxes in their approach. The GYRE expedition to the trash-strewn beaches of Alaska was a real model of the kind of travel I would like to do more of. The team was relaxed, yet highly committed and remarkably intelligent and thoughtful. I had not imagined that the expedition would be so productive and that we would all get along so well, but of course it makes sense given we all share them same concerns.

Needless to say, there is always a sense of urgency in nature travel today since so many wild places are under pressure. It is easy to get caught up in "the last chance to see" mentality. Places you and I traveled to in the 1990s have become drastically degraded. Many of the forests you visited in Madagascar are gone forever. For me, the importance of travel is that it affirms my connection with wild places and makes me give a damn. It is easy to lose a sense of what we're fighting for, so I find visiting wild places essential to keeping my focus. The idea I mentioned earlier about the artist as a witness is also an important dimension of conservation travel. Artists were important to the process of documenting new animals as they were first identified to science. Now they are equally important in documenting their disappearance.

Fig. 4: Mark Dion, *Harbingers of the Fifth Season*, 2014. Courtesy of Tanya Bonakdar Gallery, New York.

Mark Dion's installations often question methods of museological categorization and blur the lines between natural history, art and science. *Harbingers of the Fifth Season* is an unnamed artist's watercolor studio, a sculptural portrait of a life and practice, which includes representations of animals that are expanding their range due to climate change and other anthropocentric perturbations.

Fig. 5: Alexis Rockman, *Ark*, 2014. Courtesy of Sperone Westwater, New York.

Alexis Rockman's paintings imagine a surreal and apocalyptic vision of the complicated relationship between man and nature. In *Ark*, a container ship is capsizing in trash-infested flood waters, with displaced animals struggling to survive.

"Two Artists in the Age of Pessimism" is adapted from *Gyre: The Plastic Ocean* (Booth Clibborn Editions, 2014), a catalogue for the 2014 exhibition of the same name at the Anchorage Museum.



Figs. 6–9

Pierre Huyghe's *La Saison des fêtes* was conceived for the Palacio de Cristal in Madrid, a majestic greenhouse-like space constructed in 1887 to showcase the flora and fauna of the Philippines, then a Spanish colony. Engaging the history of the space, the artist presented an invented landscape of plants from a variety of festivals and celebrations around the world—from Halloween pumpkins to the red roses of Valentine's Day or cherry blossoms signaling the start of spring. Huyghe made a "bouquet of anniversaries," a simultaneous and strange blooming of life's symbolic moments in different cultures.

Figs. 6–9: Installation views from Pierre Huyghe's *La Saison des fêtes*, 2010, at Palacio de Cristal, Madrid. Courtesy of Marian Goodman Gallery, New York. Photos: Joaquín Cortés / Román Lores.



Figs. 10–12



Katie Paterson's *Future Library* is a large scale public art project commissioned by Bjørnvika Utvikling in Oslo, Norway, and produced by Situations as part of the Slow Space public art program. For the next century it will exist in two forms—as a print, and as 1,000 trees. “A forest in Norway is growing,” the print reads. “In 100 years from now it will become an anthology of books. Every year a writer will contribute a text that will be held in trust, unpublished, until 2114. This certificate entitles the owner to one complete set of the texts printed on the paper made from the trees after they are fully grown and cut down in 2114.” With *Future Library* we wait for a forest to be ready to make a book, we trust today's technology to work long after our lifetimes, and we reflect on stories read by no one for a hundred years. www.futurelibrary.no

Figs. 10–12: Views from the planting of Katie Paterson's *Future Library*, May 2014. Photos: MJC

PICTURING THE PERFECT STORM, AS DRAWN IN A SINGLE LINE

David Brooks

Tropical rainforest ecology is an ongoing history of natural destruction. A common scenario in this history is the opportunistic rise of pioneering species in the undergrowth of the rainforest's canopy through a phenomenon known as "gap ecology." The onslaught of rain and wind during the unrelenting storms of the Amazonian forest's rainy season often results in the natural felling of old-growth emergent trees. When one of these towering hardwood giants topples it usually takes a handful of neighboring trees with it, thus ripping a hole in the forest canopy—a "light gap"—and exposing the understory to uninhibited shafts of light. The felled tree leaves a powerful mark on the forest. This newly formed gap will be quickly colonized by opportunistic species in the undergrowth. Certain types of palms, bamboos and shrubby plants are well adapted to capitalize on such improvisational events. Taking advantage of their brief exposure to light, these pioneering species begin fruiting and flowering at accelerated speeds, attracting numerous bands of animal life to their momentary bursts of growth. It's a veritable bacchanal.

Typically this event has a relatively limited duration as these species are not designed for long-term existence in the rainforest but are designed to take advantage of another's downfall—a rupture in the status quo. Nevertheless, many tree species are dependent on this event to complete their life cycle. Saplings can lay dormant in the understory for decades, awaiting such an event, if it happens at all. These portentous forces of opportunistic life are ever-present but concealed in the hierarchy of the forest's body, waiting to be enacted. By creating such an invasive mark on the forest, the felled tree delineates a discrete territory within the immeasurable plane of the Amazon Basin. It becomes an island of difference in what is otherwise a carpeted sea with invisible boundaries.

A more acute form of delineation occurring on the body of the Amazon, a perverse enactment of gap ecology, is a controversial dirt road in the Brazilian interior called the BR-163. The road draws a much clearer line for us, but its originating forces and implications are far more nebulous than the mere felling of an emergent tree.

What makes the BR-163 exemplary and unique, compared to the innumerable other roads that traverse our landscapes, is its unprecedented length and location. The BR-163 draws a clean line between the capital of the Brazilian state of Mato Grosso and the deep-water port of Santarem on the Amazon River.

As an unpaved road, the BR-163 spends the rainy season, a large part of the year, as a useless path of knee-deep mud. While the rainy season brings the storms that topple those towering hardwood trees of the forest canopy—forming light gaps and engendering accelerated flowering, fruiting and animal frenzy in improvised bursts of growth—the BR-163 lays dormant and unused during this time, like the sapling awaiting its light gap.

But contentious plans are already underway to pave the entire stretch of the road. It will become a superhighway, complete with tollbooths, through the heart of undeveloped regions in the Amazon, dissecting two of the most fragile ecosystems in the hemisphere. It draws an unmistakable meridian down the Amazon, a feat previously unattainable due to the forest's sheer size and inhospitable nature. However, thanks to the unwavering determination and monetary might of luminaries such as Blairo Maggi, the former governor of Mato Grosso, a paved Amazonian highway is now underway. The drawing of a clean and visible line through this impenetrable forest will soon bring growth and opportunity to a big swath of the world's largest wilderness. Developers liken it to the North American Transcontinental Railway, which opened up the West to migration and development in the 19th Century. "Land without people for people without land" is the Brazilian government's mantra to support this manifest destiny. What precisely fuels the desire to construct this superhuman infrastructure is convoluted and leaves me adrift in a sea of statistics.

One of the primary incentives for paving the BR-163, however, and what many people feel is a fair trade for forest that's collectively recognized as the world's lungs, is soy production. Escalating ethanol production has put a premium on the cultivation of corn, causing soy production in North America to abate, while the world's demand for cheap soy increases exponentially. So the market looks to Brazil.

Blairo Maggi, Mato Grosso's recent governor, is also, coincidentally, the owner of Gruppo Maggi, the world's largest soy producer and exporter. This BR-163 superhighway will act as the feeding tube for the world's demand for soy. And the Amazonian interior is fertile ground for bursts of soy cultivation. What was once the world's lungs is fast becoming the world's breadbasket.

The BR-163 makes its mark on the forest. As the road is laid it takes the neighboring trees with it, creating a light gap. Within this gap, opportunistic forces colonize the clearings, well adapted to accelerated growth. So Amazonian history shows that road development leads to deforestation on mass scale, while colonizing destitute village outposts creates unchecked breeding grounds for poverty and opportunistic violence.

It's no mystery why 85% of all deforestation in Brazil has happened within 30km of an official road. Since the Amazon's interior has generally been inaccessible, most of the deforestation has taken place on the perimeter of the forest in what is called the "arc of deforestation." It is predicted that the



Fig. 13

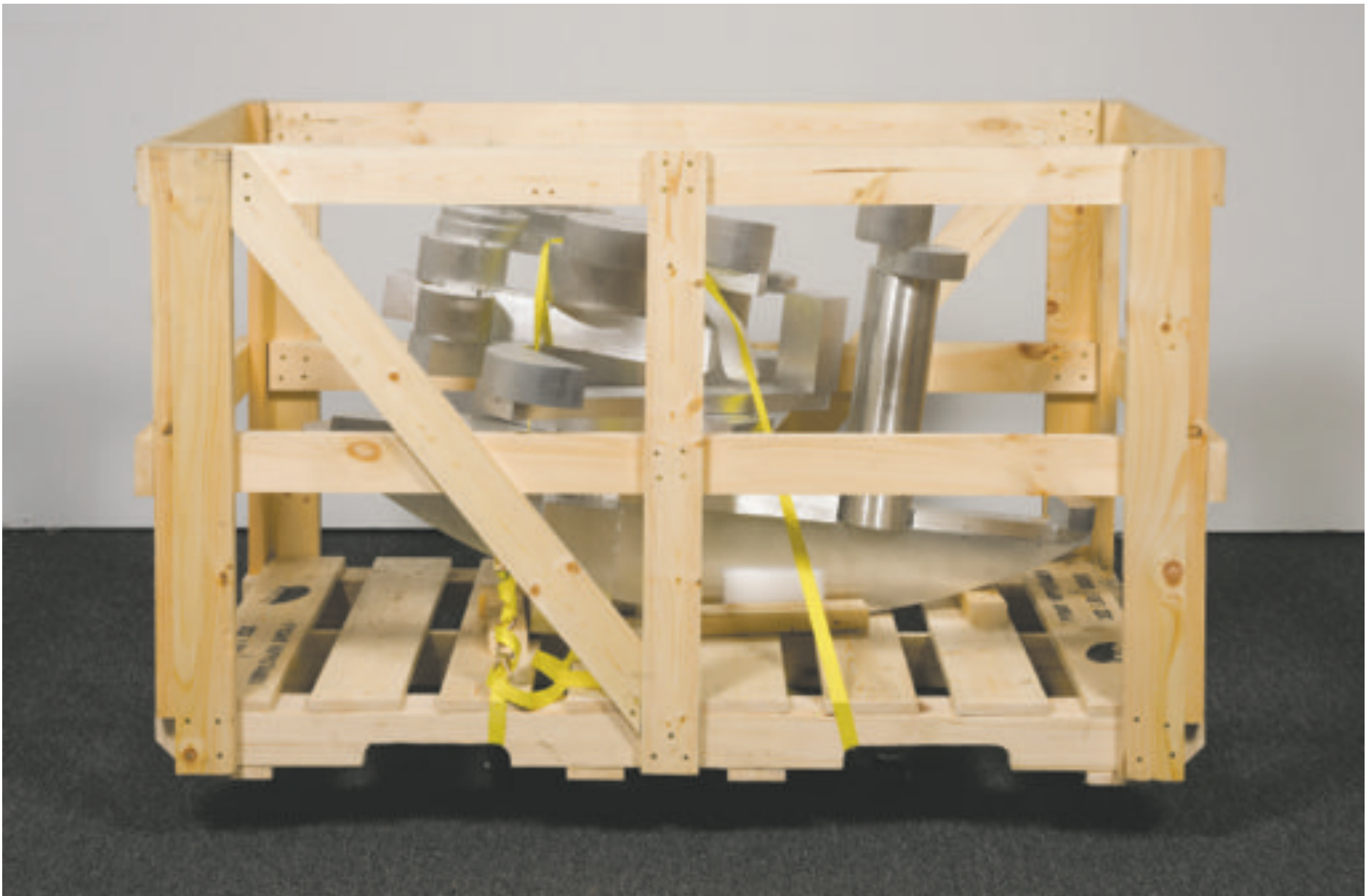
paving of BR-163 will destroy 49,000 square kilometers within the next two decades—envision nine football fields per minute. When the 'Prince of Soy' and now 'Prince of Deforestation' Blairo Maggi was asked about the latest statistic that more than 40% of Amazonian deforestation had occurred in his state of Mato Grosso, he replied that "a 40 percent increase in deforestation doesn't mean anything at all, and I don't feel the slightest guilt over what we are doing here."

But this is not necessarily a new story, nor is its outcome unpredictable. Its urgency is heard, but not felt. Its implications are paralyzing to the personal conscience. Its implications are simply too vast, therefore too abstract, therefore too hypothetical, therefore too invisible, therefore too speculative, and not of the present, and therefore not urgent.

A line like the BR-163 is an existent form, a metaphor, an almost ready-made drawing from which an endless number of other drawings radiate. Paving the road creates a light gap, whose mark on the forest is a line of difference in what is otherwise a carpeted sea with invisible boundaries. The delineating mark makes visible the stormy dynamics of those defining forces that mold the physical world. It gives tangible form to imperatives that would otherwise linger as a sea of incomprehensible statistics.

Ted Nordhaus and Michael Shellenberger point out, in their essay "The Death of Environmentalism," that the conventional distinction between the science of ecology and the politics of poverty means that neither can be properly addressed. They criticize the way environmentalists behave as though some divine state of human nature were the issue. We all lay prey to the castigation of evangelical environmentalists, with their repeated insistence on looking within ourselves for sins against the environment rather than acknowledging the complex nexus of the economic, cultural and the natural.

As the BR-163 phenomenon demonstrates, 64 million years of biological diversification, 10 million years of fluvial orientation, 300 years of colonization, 192 years of national independence, a distraught network of global economics, cultural wants and social ills, as well as an immanent ecological apocalypse will be brought to an accelerated confrontation, an accelerated entropy, as it is contained in a single line.



Figs. 14–16

In solid aluminum and marble, the abstract sculptures of David Brooks' *Crates*, *Blocks* and *Mammals* series loosely recall animal forms before slipping into abstraction. The works are, however, each deeply engaged with some of the most critically endangered mammals on earth: the form of each sculpture is determined by the amount of material needed to mimic the exact weight of the animal it depicts. Brooks has never seen these creatures in person, and based on their impending extinction, it is unlikely that many others will either. These sculptures will outlive the species they reference, rendering them veritable monuments to the unknown and soon-to-be obsolete. The weight of these rare creatures is a verifiable fact. Brooks engages the actual scale of the presence of these beings, while tackling the scope of their elimination.

Fig. 13: The BR-163 under construction. Photo: David Brooks

Fig. 14 (bottom): David Brooks, *Aluminum Blocks - 352 lbs - or Pygmy Hippopotamus (West Africa)*, 2014.

Fig. 15 (left): David Brooks, *Aluminum Blocks - 352 lbs - or Pygmy Hippopotamus (West Africa)* (detail), 2014.

Fig. 16 (right): David Brooks, *Marble Blocks - 280 lbs - or South China Tiger (China)*, 2014.

David Brooks images courtesy of American Contemporary, New York.

WHISTLEBLOWERS

Richard Hamblyn

The figure of the whistleblower—the concerned individual who takes on the vested interests of a corporate consensus—has become something of a fixture in environmental communication, particularly in contested policy areas such as nuclear power, pesticides, and climate change. Bill McKibben has described how climate scientists and activists inhabit ‘one of those strange dreams where the dreamer desperately needs to warn someone about something bad and imminent; but somehow, no matter how hard he shouts, the other person in the dream—standing smiling, perhaps, with his back to an oncoming train—can’t hear him.’¹ For a long time scientists maintained that they have no business making political statements, but climate change has removed such historic inhibitions, and now the course of the debate is led by instances of direct intervention. James E. Hansen’s appearance before the U.S. Senate Committee on Energy and Natural Resources on 23 June 1988 was the first and most high profile such episode, and represents an environmental communications watershed. Hansen, director of NASA’s Goddard Institute of Space Studies, told the Senate that ‘global warming has begun,’ claiming that he was ‘99 percent confident’ that rising temperatures represented a warming trend rather than any kind of natural variability.² Hansen’s vivid warning that ‘we are loading the climate dice’ received unprecedented levels of attention from the media and from policy-makers partly because it coincided with a record-breaking heatwave in the United States. As environmental sociologists have often noted, a single visible event or phenomenon often stands in for something much wider, and the stifling heatwave of 1988 supplied an ideal context for the launch of ‘global warming’ as a public issue in the States.³

As an indirect consequence of Hansen’s testimony, the image of the lone voice has come to occupy a central position at the heart of the global warming story. Historical accounts of the subject tend to hinge on moments of individual testimony, the ‘lone voice in the greenhouse,’ as a headline in *Nature* dubbed the early twentieth-century climate scientist Guy Stewart Callendar.⁴ Callendar tends to be invoked early on in historical accounts of climate change, with Spencer Weart’s *The Discovery of Global Warming*, for example, beginning with an admiring description of Callendar’s 1930s research into the phenomenon of human-enhanced warming. Weart’s account of a lecture delivered by Callendar to the Royal Meteorological Society in 1938 is fascinated by the integrity of the unbiased amateur. ‘One man challenged the consensus of the experts,’ he wrote:

Callendar was out of place, for he was no professional meteorologist, not even a scientist, but an engineer who worked on steam power. He had an amateur interest in climate and had spent many hours of spare time putting together weather statistics as a hobby. He had confirmed (more thoroughly than anyone else) that the numbers indeed showed global warming. Now Callendar told the meteorologists he knew what was responsible. It was us, human industry. Everywhere we

burned fossil fuels we emitted millions of tons of carbon dioxide gas (CO₂), and that was changing the climate.⁵

Weart’s account makes direct appeal to the image of the doughty British engineer as a man whose professional successes derive from defying ‘the consensus of the experts,’ conformists whose only role in the story is to claim that something can’t be said or done. The scope of Callendar’s labours was impressive given his status as an amateur meteorologist (he was by profession a steam engineer attached to the British Electrical Research Association). Another of life’s lonely statistical enthusiasts, Callendar compiled a vast body of global temperature data, including those taken from his own Sussex garden, and applied it to measurements of rising concentrations of atmospheric carbon dioxide since pre-industrial times, as well as to recent and historical accounts of observed glacial retreat. Callendar’s great insight, that recent glacial loss might be connected to increased fossil fuel use, was by far the most influential idea that he introduced—the icon of melting ice having proved the most enduring single climate change image of the past thirty years—though Callendar was unperturbed by the prospect, and ended his paper by expressing the hope that ‘the return of the deadly glaciers should be delayed indefinitely’ by runaway global warming.⁶

Although the last few decades have seen the rise of a near-universal consensus concerning the reality of the threat posed by global climate change, the image of the lone voice remains central to the story, even if the role has changed to one of endorsing rather than defying the consensus view. This is especially the case now that policy makers have started to determine the direction of the climate change debate. In an article published in *Science* in January 2004, for example, Professor Sir David King (at the time the UK government’s Chief Scientific Adviser) famously described climate change as ‘the most severe problem we are facing today—more serious even than the threat of terrorism,’ his comments quickly finding their way into newspaper headlines across the world.⁷ By setting up a direct rhetorical contest between the two leading narratives of the age, King’s soundbite had gifted news editors with a scientifically accredited promise of something more terrifying than terror, and the comparison was quickly established as a fixture of climate discourse. ‘Is it possible that we should prepare against other threats besides terrorists?’, Al Gore asked in the cinema trailer to *An Inconvenient Truth* (2006), the question accompanying a computer generated image of the World Trade Center Memorial Site being engulfed by a rising sea. As one icon of global terror was slowly erased by another, the policy implication was plain to see: where is the corresponding global war on warming? It is a question that has been asked many times since, most directly by the astrophysicist Stephen Hawking, who said: ‘Terror only kills hundreds or thousands of people. Global warming could kill millions. We should have a war on global warming rather than the war on terror.’⁸

What happened a few weeks after the comparison was first published,



Fig. 17

however, overshadowed any kind of policy debate that King might have hoped to initiate. At the American Association for the Advancement of Science conference, held in Seattle in February 2004, a freelance science reporter named Michael Martin happened to pick up a computer disk that had been left behind at the end of a roundtable discussion at which King had been a participant. When he opened the disk Martin found a copy of a memo from Ivan Rogers (Prime Minister Tony Blair’s chief private secretary), which politely but firmly advised King not to make any further statements comparing global warming with global terrorism.⁹ The memo then went on to give detailed instructions on what to say should King find himself being questioned on the matter by American reporters, including scripted answers to 136 anticipated questions (Downing Street researchers work fast). If asked, for example, to compare estimated numbers of future deaths likely to be caused either by climate change or terrorism, King was instructed to say: ‘the value of any comparison would be highly questionable—we are talking about threats that are intrinsically different,’ and if pressed on which of the two he considered the greater risk to life, his answer was to be the noncommittal: ‘both are serious and immediate problems for the world today.’ King’s terrorism comparison was, in effect, to be edited out of the climate change repertoire, since, in Downing Street’s words, it ‘distracts from our wider efforts to engage the U.S. on climate change . . . this kind of discussion does not help us achieve our wider policy aims.’

The story of the accidentally leaked directive was given prominent coverage in the British press, much of which recycled the image of the lone whistleblower, casting King in the role of the dedicated expert who had stumbled across something alarming, only to find himself abruptly silenced by his shadowy political paymasters—‘BLAIR SCIENCE ADVISER ‘GAGGED’ BY NO. 10 AFTER WARNING OF GLOBAL WARMING THREAT’ (The *Independent*); ‘DOWNING ST ‘GAGS CHIEF ADVISER ON GLOBAL WARMING’ (The *Daily Telegraph*)—in a manner reminiscent of the coverage of the

death of the UN weapons inspector David Kelly a few months before.¹⁰ In both cases the press went out of its way to portray the individual scientist as a man of integrity, whose unbiased reading of ‘the evidence’ had forced a dramatic confrontation with the political machine, an image long familiar from classic whistleblower narratives such as James Bridges’s *The China Syndrome* (1979), Mike Nichols’s *Silkwood* (1983) or Michael Mann’s *The Insider* (1999). King has described the aftermath of the ‘gagging’ episode as ‘exactly what we hoped for—multiplied by 100’, his original dig at U.S. climate change policy having gone on to become a globally familiar soundbite as a result of the press furore, though he was (perhaps not surprisingly) never invited back to the White House.¹¹

The iconography of the whistleblower continues to be a feature of climate change narratives, whether supportive of the consensus view or not. In fact, many leading climate change sceptics such as the Danish statistician Bjørn Lomborg, or the American physicist S. Fred Singer, have sought to appropriate and repurpose the role, portraying themselves as lone, sane voices pitted against the unthinking consensus promoted by self-interested scientists. William Ruddiman, in his *Plows, Plagues and Petroleum*, has described this reversal as ‘the “white knight” or “hero” syndrome,’ the conviction that only heroic action in uncovering the truth will save humanity from disaster or folly:

many contrarians appear to see mainstream scientists as dull-witted sheep following piles of federal grant money doled out by obliging federal program managers. In this view, only those who toe the party line that the global-warming problem is real, large, and threatening will get their hands on federal money. And of course only the lone visionary with clear vision can save the day.¹²



Fig. 18

Notes on Whistleblowers:

1. Bill McKibben, 'Worried? Us?', *Granta* 83 (2003), p. 8. (The whistleblower is not the train, by the way).

2 For the full text of Hansen's deposition see *The Greenhouse Effect and Global Climate Change: Hearing of the Committee on Energy and Natural Resources, U.S. Senate, 100th Congress, June 23, 1988* (Washington D.C.: U.S. Government Printing Office, 1988), II, 39-41.

3 See Robert Cox, 'Visual Rhetorics: Portraying Nature', in *Environmental Communication and the Public Sphere*, 62-67; J. Shanahan and J. Good, 'Heat and hot air: influence of local temperature on journalists' coverage of global warming', *Public Understanding of Science* 9:3 (2000), 285-95.

4 Robert J. Charlson, 'A lone voice in the greenhouse', *Nature* 448 (19 July 2007), 254.

5 Spencer Weart, *The Discovery of Global Warming*, 2nd edn (Cambridge, Mass.: Harvard University Press, 2008), 2; see also James R. Fleming, *The Callendar Effect: The Life and Work of Guy Stewart Callendar (1898-1964), the Scientist who Established the Carbon Dioxide Theory of Climate Change* (Boston, Mass.: American Meteorological Society, 2007).

6 Guy S. Callendar, 'The Artificial Production of Carbon Dioxide and its Influence on Climate', *Quarterly Journal of the Royal Meteorological Society* 64 (1938), 223-40.

7 David A. King, 'Climate Change Science: Adapt, Mitigate, or Ignore?', *Science* 303 (2004), 176-77. King's terrorism quotation was reproduced in lieu of a pre-publication blurb on the front cover of Kristin Dow and Thomas

E. Downing's *The Atlas of Climate Change: Mapping the World's Greatest Challenge* (London: Earthscan, 2007).

8 'US must win the war on climate change, says Charles', *Guardian*, 29 January 2007; Hawking quoted in the *Times*, 31 January 2007, 3.

9 Michael Martin, 'Cooler Heads on Climate Change', *ScienceNow* 217 (2004), 2 (sciencemag.org/cgi/content/full/2004/217/2).

10 Andrew Grice and Steve Connor, 'Blair Science Adviser 'gagged' by No 10 after warning of global warming threat', *Independent*, 8 March 2004; Roger Highfield, 'Downing St 'gags' chief adviser on global warming', *The Telegraph*, 8 March 2004. Like King, David Kelly had been reprimanded by Downing Street officials after straying off-message over a key policy issue, having voiced doubts over the legitimacy of the evidence being assembled to justify the imminent invasion of Iraq.

11 Telephone interview with RH, 10 February 2009. In the same conversation King also disclosed that he had turned down the role that was subsequently taken by Al Gore in *An Inconvenient Truth*.

12 Ruddiman, *Plows, Plagues, and Petroleum*, 187.

This text is an excerpt from *Data Soliloquies*, by Martin John Callanan and Richard Hamblyn (UCL Environment Institute, 2009).

Richard Hamblyn is a British environmental writer and historian. He is the author of the recent publications *The Art of Science* (Picador, 2011), *Extraordinary Weather* (D&C/Met Office, 2012), and *Tsunami: Nature and Culture* (Reaktion, 2014).

Fig. 17: Martin John Callanan, *Departure of All*, 2013. Courtesy of the artist.

Martin John Callanan's *Departure of All* is a flight departure board displaying live flight information for every departure happening from all international airports around the world. The familiar wait in front of the departure board is replaced with an accelerated stream, given poignancy by the fact they are real flights that can be mapped to real places in real time. "In this artwork I am interested in what the information is representing," says Callanan. "The 58 flights each minute represent about 400,000 people making airborne journeys in different parts of the world to different places using roughly 320 billion GBP worth of aircraft."

Fig. 18: **Finger Pointing Worker**, *Pointing at Fukushima Live Cam*, 2011. Courtesy of the artist and SNOW Contemporary, Tokyo.

In the wake of the Fukushima Daiichi nuclear disaster in March 2011, a period of great uncertainty and suspicion about the transparency of the cleanup effort, the Tokyo Electric Power Company set up live camera feeds of the Fukushima I plant, viewable by anyone on the web. In August 2011, a worker in full-body protective gear walked across the roof of the plant and pointed a finger, for fifteen minutes, into the lens. This is the **Finger Pointing Worker**, a figure whose ambiguous accusation encapsulates the alienation of technology, the confusion of collective grief, and the prismatic nature of responsibility and blame in contemporary culture.



THE SUN SET IN TYPE USING MATTER FALLEN FROM THE SKY

Amy Franceschini

Fig. 19

A friend of mine is a geophysicist who travels to the edges of the planet to study small particles in lake and ocean sediments and the great ice sheets of Greenland and Antarctica. These particles, deeply embedded in the ice, hold data that helps him understand how landscape and climate have changed through time. Pollen records in lake-sediment cores, for example, document the botanical recolonization of New York and New England as the last ice age began drawing to a close some 18,000 years ago. Dust records of pollen, charcoal, soot and dung-fungus spores have been used to understand the ecological path to extinction for mammoths, mastodons, and other large animals that once dominated North America.¹

To study climate change, scientists must often travel to extremely remote places, but in 2007 a group of scientists at the National Observatory of Athens conducted their research by looking only at paintings, specifically those representing sunsets throughout the period 1500–1900. Over 500 paintings by Edgar Degas, Peter Paul Rubens, Claude Lorrain, Joseph Mallord William Turner, John Singleton Copley, Caspar David Friedrich, Jules Breton, Alexander Cozens and Gustav Klimt formed the source observational material to study the amount of natural pollution emitted into the skies by eruptions such as Mount Krakatoa in 1883. Reports from the time describe stunning sunsets for several years afterward, as the retreating light was scattered by reflective particles thrown high into the atmosphere. By studying the color of sunsets painted before and after such eruptions, the researchers say they can calculate the amount of material in the sky at the time.²

There are written records of eruptions stretching way back, but technology did not exist to precisely log the timing and extent of these volcanic events. The oil-paint-based method of deduction provides a new way of studying the history of aerosols, according to the Athens research team. A computer program was used to work out the relative amounts of red and green along the horizon in each picture. Sunlight scattered by airborne particles appears more red than green, so the reddest sunsets indicate the skies most impacted by volcanic particulate matter. The researchers found most pictures with the highest red/green ratios were painted in the three years following a documented eruption. There were 54 of these “volcanic sunset” pictures.³

Professor Zerefos, lead scientist, said five artists had lived at the right time to paint sunsets before, during and after eruptions. Turner witnessed the effects of three: Tambora, Indonesia, in 1815; Babuyan, Philippines, in 1831; and Cosiguina, Nicaragua, in 1835. In each case the scientists found a sharp change in the red/green ratio of the sunsets Turner painted up to three years afterward. The results of the red/green ratios study are remarkably similar to estimates prepared from historical observations, early measurements and material found in ice cores.

In his essay *Dust Lingers*, the geobiologist Albert Colman discusses something closer to home: dust.

Away from arid lands and remote environments and toward lands claimed for agriculture, mining and cities, the human dust print overwhelms the natural. This includes the enhanced lofting of mineral dust following the tilling of fields and excavation at construction sites. Pollen profiles reflect cultivated species and groomed landscapes. The power of destruction has left its mark, too. Aboveground nuclear weapons testing has left a coating of radioactive dust around the world. And the towers that once stood above Ground Zero are now their own dust horizon, a tragic marker layer in the sediments of New York Harbor.

Today, much of the dust we experience in developed regions

owes its existence to automobiles. Small bits of soot emitted from tailpipes join with miniscule fragments of rubber, brake-pad linings, asphalt, road salt and sand, and concrete that are tossed or swept into the air as cars and trucks zoom along. These tend to dominate the atmospheric dust load in urban environments. The soot released in exhaust is unintended—it is the carbon-rich residue and the organic-rich condensate that result from the incomplete combustion of a fuel. This soot leaves a grimy stain on buildings, foliage, and any surface on which it deposits and accumulates. Their dark intransience commends soot and char for ink making. They have been used in powdered form as pigments, which when mixed with water and a binder, have recorded brushstrokes and pen strokes for more than two millennia.

Nature's tales and human tales—both are written in dust.

My artwork *The Sun Set in Type Using Matter Fallen from the Sky* is a list of the titles of over 100 paintings studied by the Greek scientists in 2007. Drawn from a paper entitled “Atmospheric effects of volcanic eruptions as seen by famous artists and depicted in their paintings,”⁴ these titles create a text-based portrait of a moment in time. This study and the process used to create this work brings into question the quest and methods we use to truthfully represent what we see in front of us or how a history is told. The titles given to each painting came to be legible in *The Sun Set in Type* through a process of accumulating atmospheric fallout or particulate matter. Over a course of days, particles of dust, pollen, skin, meteorite particles, salt from sea spray, tiny particles of rubber from cars, unburnt fuel from our vehicles and the decomposition of organic matter fell upon a piece of paper placed on my rooftop in San Francisco. *The Sun Set in Type* is made visible through the accumulation of this ecology of natural and human-made bits. The gravitational pull of the Earth brought this complex blend of ingredients down onto the paper where it settled as evidence of our collaboration with nature, evidence of the fallout of production, evidence of life and evidence of its inevitable decomposition into dust. As Rebecca Solnit puts it:

You eat dust all your life. We are all said to eat a peck of dust before we die, dirt from the earth that Ian Hamilton Finlay remarked is carnivorous. For we always walk in circles, especially if we go the whole way, as everything does. The creation that rises up out of the earth falls back into it and is eaten again by all those walkers and slitherers, dust to wanderer to dust, words I want to say for this project, whose ink is likewise distilled from dust, so that you understand better that walking and writing and reading and following a storyline always were the same activity. All ink is dust because all words are tracks, and to read is to track the mind of the author, scurrying along like a hare on the snowfield of the page, white page marred by the black tracks of thought, and around every word is the white of silence, around every idea the penumbra of unknowing, and behind the paper, trees, and behind the trees—forests that fall to their knees and are pulped into the paper on which the forest of ideas marches into your mind, that other fertile soil in which all things compost in your own imagination and then into forgetting en route to your own dissolution back into the soil on which others will walk in circles while musing and digressing.⁶

Sidenote:

“A large portion of NY apartments heat themselves using residual oil (aka No. 2 oil). A black smoke emits from smoke stacks and coats Manhattan with a dark particulate matter. Interestingly, many of these remaining oil heated apartments are in the Upper West Side (one of the highest economic brackets) and the effects of their smoke are felt on the periphery of New York City where there are high rates of asthma, cardiovascular disease and over 150 related deaths per year. It is said that the amount these apartments spend on fresh flowers in their hallways costs more than it would to replace their heating systems with cleaner systems.”
—Institute for Policy Integrity.



Fig. 20

PLANET GRATITUDE Rory Rowan

The iPhone 3G, this innocuous and already outmoded little cluster of minerals and marketing, is an emblematic meeting point for the material and symbolic processes shaping the contemporary entanglement of social and geologic stratifications: both product and engine of those great geopolitical fractures in the global economy that Marxist critics euphemistically refer to as ‘uneven development’; a treasured possession bound up with resource wars and environmentally destructive extraction practices driven by a rapacious global system of neo-colonial corporate-feudalism; the consumer excretion of a world where exhausted Chinese factory workers are driven to suicide satisfying the herd instincts of those queuing around the block of landmark retail spaces, hoping to be the first to dissect the latest cosmetic innovations in the myopic navel of the *Yelposphere*; a Trojan horse for the ever-increasing marketization of all areas of life and a key instrument in the ongoing erosion of the distinction between work and everything else; a vital tracking device in the fiction that endlessly curating one’s life as a surveillance-ready editorial spread will bear fruit in coherent self-realization rather than exponential alienation, no matter how many tinting apps are used to create a *trompe l’oeil* of ‘authentic experience.’

It’s perhaps fitting then that the ubiquitous Apple-infused aesthetics of today’s ‘post-internet art’—pastel palettes set off against the sterile, *Café Gratitude* transcendence of white plastics; social media sculptures; high-gloss-clean-edged-biomorphic-desk-top ‘objects’—are trending on the art world’s Richter scale (Contemporary Art

Daily, e-flux, etc) with almost synchronized frequency and intensity as the concept of the Anthropocene. This concept—which claims that the human impact on the planetary environment has been so great that it constitutes a new geological epoch legible in the earths’ stratigraphic record—has become something of a curatorial meme, adding a dash of deep-time drama and geological grandeur to the pervasive, if vague, claim that ours is a ‘post-human’ era, when the conceptual and material boundaries between the human and the non-human are in breach.

Almost every discussion of the Anthropocene evokes the image of the earth shot from space, and likewise the default screen of the iPhone 3G is one of NASA’s famous ‘Blue Marble’ images. It would be easy to spin this as the perfect symbol of a hubristic era failing to heed the dire warning written in the rocks: the earth, totally enframed in technological systems and reduced to a ‘world picture,’ can be slipped into any pocket with cocksure confidence that Man has mastered Nature. A planet domesticated on an interface. However, it seems unlikely that many today would believe this as they scroll past the latest numbing reports proving what they are already bored of knowing: climate change. However, perhaps the image is better understood as a reassuring totem of a pre-Anthropocene belief in the human capacity to manage a harmonious earth, a sort of civilizational pacifier for the anxious subjects of late liberalism—those who are exhausted from having so much on their plates, and are pretty sure we are fucked anyway.

Notes on *The Sun Set in Type Using Matter Fallen from the Sky*:

1. Albert Colman, Assistant Professor, Geobiology, University of Chicago. Excerpt from his essay, “Dust Lingers” in *Futurefarmers: Soul Sermons*, 2011.
2. *How old masters are helping study of global warming*, David Adam, *The Guardian*, 30 September, 2007.
3. “Atmospheric effects of volcanic eruptions as seen by famous artists and depicted in their paintings,” C. S. Zerefos, V. T. Gerogianni, D. Balis, S. C. Zerefos, and A. Kazantzidis respectively from the National Observatory of Athens, the Academy of Athens, the National Meteorological Service, the Laboratory of Atmospheric Physics, Aristotle University of Thessaloniki, and the School of Architecture, National Technical University of Athens, Greece, 2007.

In order to characterize the redness of the sunset sky, the chromatic ratio R/G was calculated from the RGB values measured on the digitized paintings and when possible, also the solar zenith angle (position of the sun)

pertaining to each painting. For the calculation of the R/G ratio they averaged the measured values over the field of view of the artist near the horizon. Red, so as green, yellow and blue, is a unique hue and by definition it cannot be described by the other unique hue alone or in combination (Wyszecki and Stiles, 1982). Each unique hue refers to the perceptual experience of that hue alone. Perceptual opponency of red/green forms the conceptual basis for quantifying the redness of monochromatic light. In a classic study, Jameson and Hurvich (Jameson and Hurvich, 1955) reasoned that the amount of redness in a monochromatic light can be measured by combining it with a second light that appears green when viewed alone (Shevell, 2003).

4. Albert Colman, op. cit.
5. C. S. Zerefos et al., op. cit.

6. Rebecca Solnit, “The Road Made by Walking: Steps of an Inquiry”, in *Futurefarmers: Soul Sermons*, 2011.

Fig. 19: Joseph Mallord William Turner, *Sunset*, c. 1830-5. Collection of the Tate Gallery, London.

Fig. 20: Erik Wysocan, *Untitled (iPhone Mine)*, 2014. Courtesy of Laurel Gitten Gallery, New York.

The mineral configuration in Erik Wysocan’s *Untitled (iPhone Mine)* is determined by what is known as a Life Cycle Assessment, an engineering technique which traces a product’s raw materials’ supply chains to their source, through geological deposits precipitated over millions of years to mines deep in the earth. The unassuming scatter of rocks and dust that forms the piece in fact describes a natural history that reaches back through stratified chronology, layer by layer, to the beginning of time. The work precisely replicates the amounts of organic minerals required to build an iPhone, and the work may be considered as a portrait of that ubiquitous device.



Fig. 21



Fig. 22



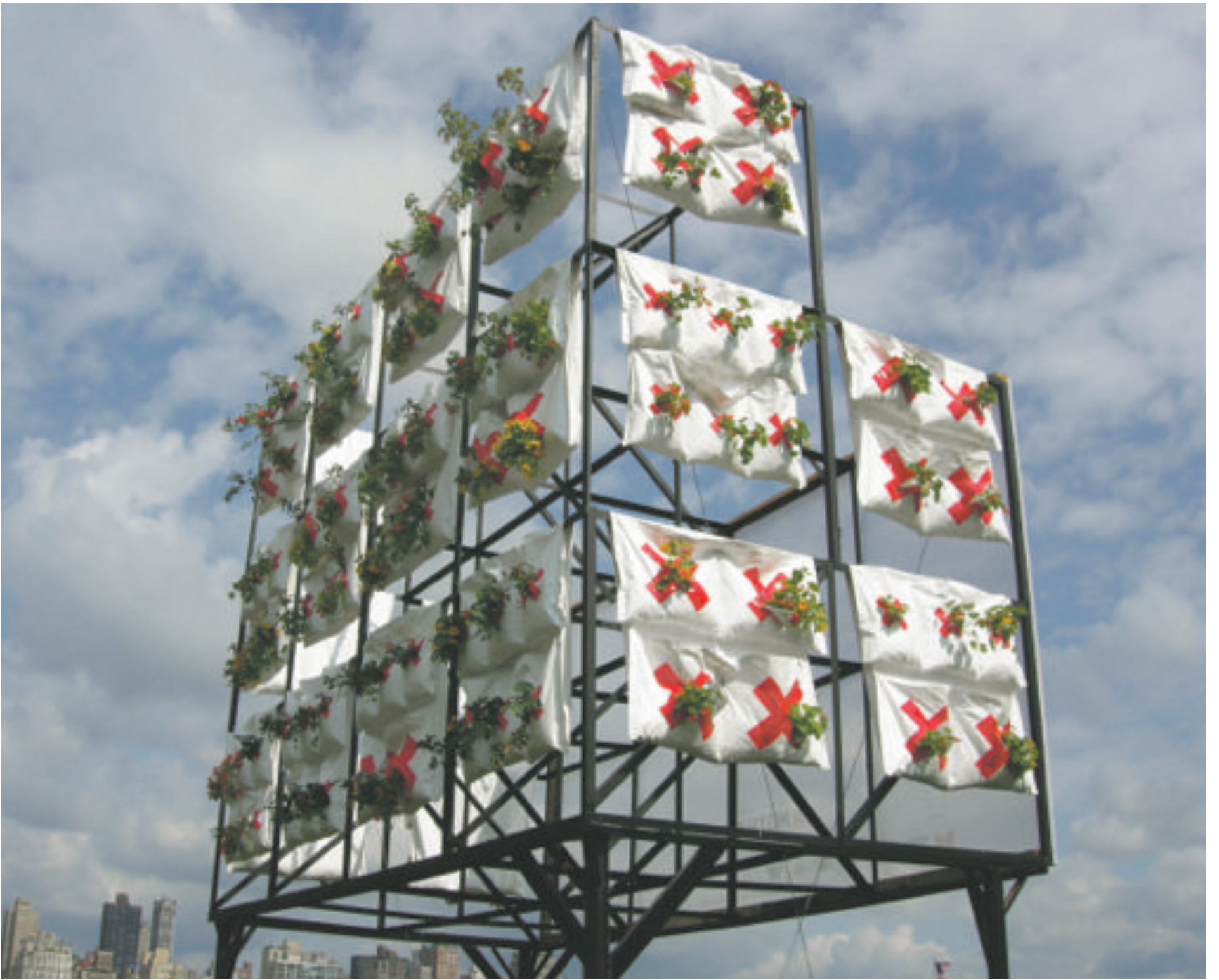
Fig. 23



Fig. 24

Fig. 21: Beatriz Milhazes, *O Paraíso* (The Paradise), 2011.
 Fig. 22: Carsten Höller, *Reindeer*, 2008. Courtesy of Gagosian Gallery.
 Fig. 23: Charles Burchfield, *Summer Sun*, 1920. Courtesy of DC Moore Gallery, New York. Reproduced with permission of the Charles E. Burchfield Foundation.
 Fig. 24: Claude Louis Chatélet, *View of Mount Etna Seen from Trecastagni*, 1778. Private collection.

Beatriz Milhazes' *O Paraíso* ("The Paradise") is a collage the artist made based on a suggestion by the French mathematician Cedric Villani. Milhazes has composed a landscape in which plants, animals and natural phenomena are interspersed with triangles, circles and other geometrical forms inspired by *sangaku*, the wooden tablets inscribed with sacred geometry found in Japanese temples from as early as the 15th Century. A set of equations is added to this landscape to show how the illustrated natural phenomena can be described using mathematics: the continuity of light (the sun's rays), the Bernoulli Principle (birds in flight), iridescence (the peacock's tail), electromagnetism (lightning), waves (sea waves), diffusion of heat (fire) and morphogenesis (the jaguar's spots). *O Paraíso* was the starting point for a film, *Mathematical Paradises*, produced in collaboration with BUF, which will be seen for the first time in the United States in *The Fifth Season*.



Figs. 25–27

Figs. 25–27: Installation views of Natalie Jeremijenko's *xClinicFarmacy*, 2011, including (top) at Socrates Sculpture Park, for the exhibition *Civic Action: A Vision for Long Island City*, Summer 2012. Courtesy of the artist and Postmasters Gallery, New York.

DEPARTMENT OF ART AND ART PROFESSIONS

27 May 2014

Dear neighbor:

I am writing to invite your participation in a public experiment to improve our local air quality, in addition to supporting diverse local pollinators and fostering the development of highly nutritive urban flower products. Specifically, I am seeking your collaboration in placing AgBags filled with flowering perennials in your window and/or on your railings. AgBags are low maintenance, require no permanent fixtures, and are an inexpensive soil-based closed system (which means no run-off or leaks) that provides an inexpensive way to add significant leafage to the block—potentially doubling the leaf area index (LAI).

Recent research published in *The American Journal of Preventative Health* has quantified the extent to which LAI affects human health. Comparing cardiovascular hospitalization rates before and after the recent emerald ash borer invasions killed urban ash trees—which involved approximately a 7% decrease in LAI of the urban canopy—revealed a reliable and significant increase in cardiovascular and lower-respiratory-related hospitalization and mortality proportional to the extent of ash tree loss. This sort of natural experiment is very persuasive because other variables, such as diet, income and education, held constant. The tree canopy simply changed slightly as people went about their lives, probably unaware of the presence of these devastating borers or their effect on human health.

As we have learned when they are removed from our urban environment, leaves are the only proven and viable technology available to significantly improve air quality. Despite this and other evidence, the deliberate use of LAI in targeted urban contexts to improve air quality has not been supported. In lower Manhattan, New York City's most densely populated neighborhood, we are exposed to the worst air quality in the city, particularly fine and ultrafine particulate exposure. Yet the characteristic street canyons that trap particulate pollution also provide us with structures for potentially intensified, more complex and effective urban canopy, where the beneficial health effects of many people can be leveraged.

There are a very limited number of tree pits in the urban context, and these have relatively high installation and maintenance costs, but by using existing urban structures—railings, windows, parapets and commercial sign space—we have 10x the potential canopy. Furthermore, while trees take years to develop full foliage, we expect to see significant effects from the AgBag plantings this season. The plants we will use have lots of flowers, maximizing the habitat provisions for pollinators, and have high shoot-to-root ratio to maximize LAI with limited root space. This means that these plants put much of their energy into shoot and leaves rather than lignin, cellulose and woody material, thus supporting the development of highly nutritional foods and adding an economic incentive to consistently incorporate flowering perennials into the urban environment. Adding to LAI using the AgBag methods diversifies the canopy structure, and since ecosystem function is not just dependent on more but on more diverse LAI, we can potentially gain a many-fold increase in the environmental services. Organisms, including us, work better in healthy and diverse ecosystems, and this can be reflected in human health effects. This is a focus of my research: what can we do (inexpensively, practically) to improve our shared human and environmental health.

In order to investigate both indoor and outdoor air quality improvements we might achieve, I am requesting access to an indoor air sample before and after the installation. I will be monitoring ultrafine particulate (UFP) pollution because it is the biggest pollutant by mass, particle number and surface area, and is otherwise unmonitored. UFPs are devastating to human health: they are small enough to enter your blood stream passing through your lungs, and carry many other pollutants on their surface. Moist hairy leaves in an urban environment effectively compete with your epithelium, capturing and immobilizing the UFPs. Leaves are like lungs turned inside out and upside down, not only generating oxygen but also trapping many harmful substances.

I would like to address any concerns regarding safety and cost. Please consider the following:

- a) Tyvek is probably familiar to you from FedEx envelopes, which aside from the tremendous tensile strength are waterproof and breathable. This creates a soil-based closed system, with no leaking, no run-off, no loss of nutrients, and no degradation of the watershed. The polyacrylamide gel we mix into the soil absorbs and re-releases moisture as required so we reduce plant stress by damping wet-dry cycles. We have seen fourfold increase in root density because of the breathability of the Tyvek. The active root zone is all around the bag, not just the inch or so at the top. This is reflected in the shoot growth or total leaf area.
- b) There are no fixtures necessary and AgBags do not interfere with window closure or sealing. They can also be removed at any time. No equipment is required and because of the closed-system design they require lower maintenance and less watering than conventional houseplants.
- c) The extraordinary tensile strength and durability of this "soft architecture" approach differs significantly from flowerboxes and the paradigm of rigid structures. Most significantly they have no catastrophic failure mode. That is, they cannot fall and injure anyone. In the worst case a tear would spminkle dirt. This is, however, unlikely—try tearing a Tyvek envelope. AgBag Tyvek is 100 times stronger.

Regarding the costs involved, my work in the Environmental Health Clinic addresses environmental issues as health issues and vice versa, and asks what we can do to improve our shared environment. Neither federal agencies nor local governments support this research. Cities and municipalities are focused on maintaining existing systems, so they have little capacity to support innovative projects or public experiments of this sort. At the moment your contribution is the only way to make this research possible. Consequently, I am requesting that participants cover the costs of the materials involved. Less expensive than traditional planters, an AgBag will cost from approximately \$30 for a large window to \$60 for a balcony. And of course the AgBags are yours to keep once the experiment is complete. We know there is benefit, and this work will help us evaluate the extent to which we can improve air quality, among other benefits, via an extremely low cost strategy. The aggregated effect of many AgBags will be significant remediative impact, and of course the visual impact of a hosted AgBag signals significant civic contribution and support. This is perhaps the most important part of this project—to display willing participation to explore shared environmental health benefits.

Given that air quality is implicated in obesity, asthma, diabetes and breast cancer epidemics, and considering that the proximity of your home to a major arterial road is a better predictor of your life expectancy than your genes, it is in everyone's interest to develop ways to maximize leaf area index and integrate living material into our built environment.

In summary, I am requesting your considered participation to a) host an AgBag on your window or railing or other structure; b) allow access before and after for air sample (2-3mins); c) contribute to the material costs of your AgBags and plants; and, d) to engage your civic consciousness and shared interest in exploring how we can collectively improve our local human and environmental health.

Many thanks for your consideration and please feel welcome to write (nj6@nyu.edu), Skype ([njeremjenko](https://www.skype.com/en/contacts/people/njeremjenko)) or call (917 443-2179) with any questions, suggestions or clarifications.

Respectfully,



Natalie Jeremijenko
Associate Professor,
Department of Art & Art Professions



Fig. 28

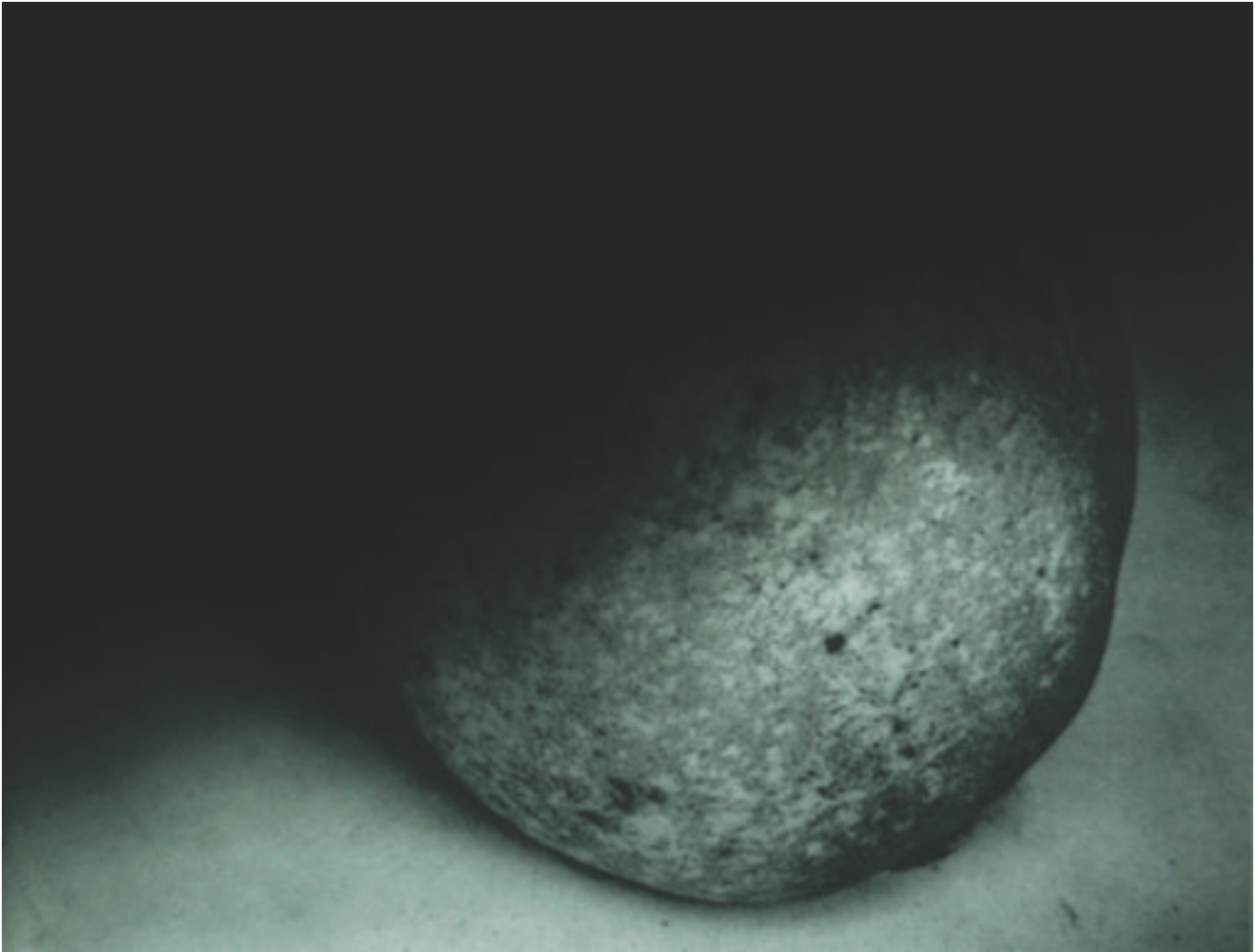


Fig. 29

Fig. 28: **Spencer Finch**, *Peripheral Error (After Moritake)*, *Julia Heliconian*, 2004.

Fig. 29: **Erin Shirreff**, *Apple, 1921, 2014*. Courtesy of the artist and Sikkema Jenkins & Co., New York.

The abstract shapes that appear in Spencer Finch's series *Peripheral Error (After Moritake)* depict butterflies painted from photographs which the artist placed at the edge of his peripheral vision. If the viewer stands at a distance of 18 inches and looks at the center of the page, he or she can replicate the artist's original experience when making the work. The eye and the mind attempt to capture nature, but can only go so far. The series was originally inspired by a poem by the 16th-Century master of Haiku, Moritake: *The falling flower / I saw drift back to the branch / was a butterfly*

EXHIBITION CHECKLIST

Matthew Brandt

Moose Falls YIM1C1, 2013
Multi-layered duraclear prints processed with Moose Falls water, in LED lightbox frame
65 1/4 x 46 1/4 x 2 inches (165.7 x 117.5 x 5 cm)
Courtesy of Yossi Milo Gallery, New York

David Brooks

Aluminum Blocks - 352 lbs - or Pygmy Hippopotamus (West Africa), 2014
Aluminum, stainless steel pins, wood slat crate, stencil paint, packing material, hardware
39 x 60 x 34 inches (99 x 152.4 x 86.4 cm)
Courtesy of the artist and American Contemporary, New York

David Brooks

Marble Blocks - 218 lbs - or Sumatran Orangutan (Indonesia), 2014
Verde Antique marble, stainless steel pins, wood crate, stencil paint, Tyvek, hardware, packing material
27 x 35 x 24 inches (68.6 x 88.9 x 61 cm)
Courtesy of the artist and American Contemporary, New York

David Brooks

Marble Blocks - 280 lbs - or South China Tiger (China), 2014
Danby marble, stainless steel pins, MDO and wood crate, stencil paint, hardware, packing material
30 x 54 x 25 inches (76.2 x 137.2 x 63.5 cm)
Courtesy of the artist and American Contemporary, New York

Charles Burchfield

Summer Sun, 1920
Watercolor, charcoal, and gouache on joined paper
21 x 26 3/8 inches (53.3 x 67 cm)
Courtesy of DC Moore Gallery, New York

Charles Burchfield

Bird Wing Twilight, 1951
Watercolor, charcoal and chalk on paper, mounted
29 7/8 x 25 inches (75.9 x 63.5 cm)
Courtesy of DC Moore Gallery, New York

Charles Burchfield

Summer, 1926
Watercolor, gouache, charcoal, and pencil on joined paper, mounted to board
24 1/2 x 29 1/2 inches (62.2 x 74.9 cm)
Courtesy of DC Moore Gallery, New York

Martin John Callanan

Departure of All, 2013
LCD display, computer and computer program
Dimensions variable
Courtesy of the artist

Claude Louis Châtelet

View of Mount Etna Seen from Trecastagni, 1778
Wash and brown ink on paper
8 1/4 x 15 3/8 inches (21 x 39 cm)
Private collection

Mark Dion

Harbingers of the Fifth Season, 2014
Mixed media
Dimensions variable
Courtesy of the artist and Tanya Bonakdar Gallery, New York

Finger Pointing Worker

Pointing at Fukuichi Live Cam, 2011
Single channel video with audio, DVD, 24:40 minutes
Edition of 10
Courtesy of the artist and SNOW Contemporary, Tokyo

Futurefarmers, Amy Franceschini

The Sun Set in Type Using Matter Fallen from the Sky, 2014
Particulate matter and volcanic ash on paper
39 5/16 x 39 5/16 inches (100 x 100 cm)
Courtesy of the artist

Spencer Finch

Peripheral Error (After Moritake), Agrias Claudina, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Mylothris Rhodope, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Gonepteryx Rhanni, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Morpho Anaxibia, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Cymothoe Coccinata, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Archaeoprepona Demophon, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Phoebis Sennae, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Julia Heliconian, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Callophrys Augustinus, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Graphium Weiski, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Greta Andromica, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Spencer Finch

Peripheral Error (After Moritake), Apatura Iris, 2004
Watercolor on paper
22 x 30 inches (55.9 x 76.2 cm)

Carsten Höller

Reindeer, 2008
Green biresin, blue glass eyes, horn
3 7/8 x 20 1/2 x 11 inches (9.8 x 52 x 28 cm)
Edition 1 of 5
Courtesy of the artist and Gagosian Gallery

Pierre Huyghe

La Saison des fêtes, 2010
Digital pigment print, four panels
16 1/4 x 16 1/4 inches (41.2 x 41.2 cm)
Edition of 11
Courtesy of the artist and Marian Goodman Gallery, New York

Natalie Jeremijenko

FLOWERxFACADE, an xClinicFarmacy project to inflorescence the barren urban structures, 2011
Tyvek, soil, polyacrylmide gel, nasturtiums (Tropaeolum majus, T. polyphyllum), day lilies (Hemerocallis lilioasphodelus), visiting urban pollinators
Dimensions variable
Courtesy of the artist and Postmasters Gallery, New York

Natalie Jeremijenko

Phenological Clock, 2014
Phenological data on blooming, budding, migration and emergence events in the local environment printed on paper
Dimensions variable
Courtesy of the artist and Postmasters Gallery, New York

Jacques de Lajoüe

Le Palais de Soleil, 1734
Oil on canvas
21 1/4 x 25 5/8 inches (54 x 65 cm)
Private collection

Beatriz Milhazes + BUF

Mathematical Paradises, 2011
Animated film, 15:28 minutes
Filming and production: BUF
Artistic Director: Beatriz Milhazes
Courtesy of the artist and Collection Fondation Cartier pour l’art contemporain, Paris

Katie Paterson

Future Library (certificate), 2014
Foil block on paper
16 1/2 x 11 11/16 inches (42 x 30 cm)
Edition of 1000
Commissioned by Bjørvika Utvikling and produced by Situations as part of the Slow Space public art program

Alexis Rockman

ARK, 2014
Oil and alkyd on wood panel
44 x 56 inches (112 x 142.2 cm)
Courtesy of the artist and Sperone Westwater Gallery, New York

Erin Shirreff

Apple, 1921, 2014
16-mm film, loop, silent
Courtesy of the artist and Sikkema Jenkins & Co., New York

Kota Takeuchi

From the moment of Recording, it became Peeping, 2011
Single channel video with audio, HDD, 91:50 minutes
Edition of 20
Courtesy of the artist and SNOW Contemporary, Tokyo

Alison Elizabeth Taylor

Kitchen, 2014
Wood veneer, shellac and acrylic on panel
91 1/4 x 115 x 1 3/4 inches (231.8 x 292.1 x 3.2 cm)

Fred Tomaselli

Untitled, 2014
Photo-collage, leaves, acrylic, and resin on wood panel
30 x 24 inches (76.2 x 61 cm)

Erik Wysocan

Untitled (iPhone Mine),2014
Wood, halite, chalcopyrite, bauxite, colemanite, chromite, peridotite, quartz, sphalerite, crude oil, dolomite, graphite ore, limestone, magnesite, gold ore, silver ore, pyrolusite, celestite, hematite
Dimensions variable
Courtesy of the artist and Laurel Gitlen, New York

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(cover image)

Jacques de Lajoüe, *Le Palais de Soleil*,
1734. Private collection.

The French painter and
draftsman Jacques de Lajoüe
specialized in paintings of
architecture and park scenes
animated with figures, bridging
the gap between the mythological
and contemporary in a style most
closely associated with Antoine
Watteau's *fête galante*. *Le Palais
de Soleil* depicts an elaborate
salle des machines, a mechanized
system for changing opera scenery
and backdrops. The sun god, at
the center of the composition,
illuminates the architecturally
precise but infinitely mutable
chamber—a version of our world.



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