The Aesthetics of Anxiety: Making in a Time of Environmental Collapse

A Thesis

Presented in Partial Fulfillment of the Requirements for the Degree Master of Fine Arts in the Graduate School of The Ohio State University

By
Laura L. Murphy, B.F.A.
Graduate Program in Fine Art, Sculpture

The Ohio State University
2012

Thesis Committee:
Alison Crocetta, Advisor
Ann Hamilton
Ken Rinaldo
Amanda Gluibizzi
ABSTRACT

My fellowship at The Ohio State University coincided with a marked shift in my work from abstraction to research-based artwork that reflects my ecological and political concerns. Through working with honeybees and investigating the issues surrounding nuclear power following the tsunami-induced collapse of Fukushima, I have expanded my practice to something that resonates more deeply with my moral imperative to communicate about urgent issues of concern. By employing references to the souvenir and the miniature, the abject and the uncanny, I have endeavored to make ideas and materiality meet by working with living systems, new technologies and socio-politically charged materials and imagery. In this paper, I will outline my attempt to give voice to my concerns about radiation contamination and Colony Collapse Disorder, while also addressing more abstracted formal issues via sculpture, collage, and photography.
Dedicated to my Mom, who has always believed in me, and to all who fight to protect our environment.
ACKNOWLEDGMENTS

I would like to thank Alison Crocetta, Ann Hamilton, Ken Rinaldo and Amanda Gluibizzi for pushing me, supporting me, and all of the many hours of wonderful conversation. Your rigor and commitment were appreciated more than you will ever know. I would like to thank Carmel Buckley, Malcolm Cochran, and Todd Slaughter for their tough questions, honest critiques, and magnificent dinners. I would also like to thank Mary Jo Bole, Amy Youngs, Michael Mercil, Richard Harned, Ardine Nelson, and Shane Mecklenberger for their companionship, excellent feedback, and stimulating conversations. I owe a special debt of thanks to Nate Riccuito for his patience and willingness to answer any question, no matter how stupid. And finally, I would like to thank Chris Purdie, Austin Stewart, Sarah O Donnell, Evan Dawson, Philip Spangler, Flo Gouvrit, Undine Brod, and Dan Jarvis for their friendship, laughter, insights and on more than one occasion, bailing me out. This experience would not have been the same without you.
VITA

1996…B.F.A., Fine Arts, Women’s Studies, Metropolitan State College of Denver

2011………………………….School of Visual Arts Summer Residency, New York

2011 – 2012……………………………….. Graduate Teaching Associate,
The Ohio State University

PUBLICATIONS

Comix Compendium Anthology, 1992, Edited by Ich Neuman, Mangajin Books, Toronto, Ontario, Canada
Formaline, 1995, Edited by Peter Van Laarhoven, Bronzen Adhemar Stichting, Belgium
American Dream: Portraits of Things, 2009, Lauri Lynnxe Murphy, Blurb Books
Plus Gallery Artists, 2009, Blurb Books

FIELDS OF STUDY

Major Field: Fine Art, Sculpture & Painting

Minor Field: Women’s Studies
TABLE OF CONTENTS

Abstract ................................................................................................................................. ii
Dedication .......................................................................................................................... iii
Acknowledgments ............................................................................................................. iv
Vita .................................................................................................................................... v
List of Figures ....................................................................................................................... vii
Introduction ......................................................................................................................... 9
Chapter 1: Doilies of Imminent Destruction ................................................................. 11
Chapter 2: Wreckage ......................................................................................................... 21
Chapter 3: Mutations and Souvenirs ........................................................................... 24
Chapter 4: Argument ......................................................................................................... 32
Chapter 5: Hindsight, Parts One and Two ................................................................. 38
Chapter 6: Accretions, Aggregations, and Mash-ups .............................................. 45
Chapter 7: The Beef Chicken Debacle ......................................................................... 51
Chapter 8: Honeybee Collaborations and Colony Collapse .................................. 56
Chapter 9: Toward Obliteration ..................................................................................... 69
References .......................................................................................................................... 78
LIST OF FIGURES

Fig. 1: Deer in a Cornfield, Digital Photograph, 2012.................................................................10

Fig 2: Ken & Julia Yonetanis, Crystal Palace: The Great Exhibition of the Works of Industry of All
Nuclear Nations (Germany, Japan), 2012.................................................................12

Fig. 3: Fukushima Daiichi, Reactor Number Four.................................................................15

Fig. 4: Doilies of Imminent Destruction: Fukushima, Laser Cut Paper, Spray Paint, 2011.............17

Fig. 5: Doilies of Imminent Destruction: Chernobyl, Laser Cut Paper, Spray Paint 2011...........19

Fig. 6: Wreckage, Copper Plated Paper, 2012.................................................................21

Fig. 7: Wreckage: Detail of Shadow, Copper Plated Paper, 2012............................................23

Fig. 8: Paul Fusco, from Chernobyl Legacy..............................................................................26

Fig. 9: Dicephaloptus Album, Mixed Media, 2008.................................................................27

Fig. 10: Mutations, 3-D Prints, 2011-2012.................................................................29

Fig. 11: Souvenir, 3-D Print, 2012..........................................................................................30

Fig. 12: Cannel Coal Carving from the Kincaid Mounds.......................................................34

Fig. 13: Argument, coal & glass, 2012..................................................................................36

Fig. 14: Hindsight, Laser-Cut Felt, 2012..............................................................................39

Fig. 15: Hindsight 2, Laser Cut Silk Organza, 2012............................................................42

Fig 16: Hindsight 2, Detail....................................................................................................44

Fig. 17: Scissor Sisters, Collage, gouache, ink, 2012............................................................46

Fig. 18: Floating Islands, 2011............................................................................................47

Fig. 19: Spoilage, Rope, Wool, Ceramic Shell, 2012............................................................50
Fig. 21: Transglutaminase: Chiaroscuro, Digital Photograph, 2011……………………………………52

Fig. 22: Transglutaminase: Untitled, Digital Photo, 2012………………………………………………53

Fig. 23: Alina Szapocznikow, Photosculpture, 1971………………………………………………………55

Fig. 24: Honeycomb Through Microscope, 2011…………………………………………………………59

Fig. 25: Hilarie Berseth, Programmed Hive, 2008…………………………………………………………61

Fig. 25: Bee Iceberg, Glass, Wax, Live Honeybees, 2011………………………………………………62

Fig. 26: Untitled, Rooms to Let II, Franklinton, Columbus, OH, 2011…………………………………64

Fig. 27: Crocodile Head, 2011………………………………………………………………………………65

Fig. 28: One Day of Life, Digital Photograph, 2011………………………………………………………68

Fig. 29: Toward Obliteration, Laser cut wood, Glass, Live Honeybees, 2012…………………………...70

Fig. 30: Towards Obliteration, Detail with Bee……………………………………………………………72

Fig. 31: Toward Obliteration: Detail, 2012……………………………………………………………………74
Introduction

Our planet shows signs all around us of extreme distress due to careless disasters and greed-based decision-making. From the gulf oil spill to the disappearance of bees, from the still unfolding disaster of Fukushima to melting ice caps, the evidence of impending environmental doom looms large over all of our lives. It is in this context that I find myself with an urgency to speak, to find a way to channel my sense of panic and concern into objects that might communicate to both the present and the future about these times. I find I can no longer participate in the luxury of a Greenburgian art for its own sake. Formalism feels like a luxury for a less difficult time. I crave meaning.

The disequilibrium faced when trying to square one’s belief system with one’s activities in the world is not new for artists. In the 1970’s, American painter Phillip Guston made a radical shift from making lyrical abstractions, when he “…asked himself what right he had to be making beauty when the world was a scene of horrors…the pursuit of aesthetic purity was not an acceptable option. He needed to find an art that was consistent with his moral disquiet.”

While I feel a deep moral imperative to pursue work that will allow me to communicate this urgency, my natural tendency as a maker leans towards abstraction, and it is a constant struggle for me to balance between the too literal and the complete loss of readable meaning. I find myself walking the tightrope between the didactic and the merely beautiful, trying not to stray into the tropes of propaganda but instead to pose questions instead of providing answers. As Adorno says, “however sublime, thoughts can never be much more than one of the materials for art”.

---

Fig. 1: Deer in a Cornfield, Digital Photograph, 2012
Chapter 1: Doilies of Imminent Destruction

Everything changed in the nuclear era. For the first time in human history, an act of creation could spell the act of the ultimate destruction—planetary annihilation. In 1984, two years before Chernobyl would explode, Jacques Derrida urges those in the humanities to “…concern ourselves seriously with the nuclear issue.” as “…the frontier is more undecidable than ever, as it is between the good and evil of all nuclear technology”.3 It is impossible to view the world the same way once its potential destruction is contemplated. Yet, we all grow up in the shadow of this knowledge, pushing it to the back of our minds so that we can function in the world.

I am not alone in my urgency. Environmental Art is becoming a large enough field to be considered a viable genre, and many artists are finding ways to merge art and activism surrounding the nuclear issues we face. And yet, artists also all face the same challenge: how does one make the invisible visible?

“The visualization of radioactivity becomes political. The challenge for artists indeed resides less in the invisibility of the atom itself, already overcome, than in other spaces of invisibility.”4

In a German exhibition timed to coincide with the one year anniversary of Fukushima, “Keeping Up Appearances”, Sydney, Australia based Ken and Julia Yonetani have created an installation of vintage chandeliers made from green glowing uranium glass. Uranium glass was in common usage in homes prior to the cold war, with the height of its “…popularity being from the 1880’s to the

---

1920’s.\textsuperscript{5} Titled “Crystal Palace: the Great Exhibition of the Works of Industry of All Nuclear Nations”, each chandelier’s size is equal to the nuclear output of the nation being represented.\textsuperscript{6} The nostalgia represented by the chandeliers feels similar to the imagery I have chosen to use as well; perhaps part of the nuclear question still feels as if it is a part of the past, just as the dangerously aging nuclear power plants whose continued decay presents a threat to us all.

2011 also brought the premier of a video installation by Diana Thater at Hauser & Wirth’s London gallery that explored the post-apocalyptic town of Pripyat, home to Chernobyl. Lying in the “Zone of Alienation”, the area has become a rich time capsule for multiple photographers to explore, as objects are left behind where they fell and the crumbling architecture is a time capsule of

\textsuperscript{5} “Uranium Glass”, Wikipedia, 10 May 2012.
Soviet engineering. Thater has chosen to focus on the Przewalski’s horse, a rare wild breed that has an extra chromosome apart from the domestic horse. Ironically, the previously endangered Przewalski’s horse is thriving in the post-human landscape of Chernobyl, and Thater juxtaposes this relationship between culture and nature.  

American artist James Acord, who took his own life in 2011, went so far as to earn an individual license for handling radioactive material and trained in nuclear physics in order to create his art. He spent over a decade fighting to access the reactors at Hanford and Imperial College London in order to create his work, in spite of his stance as pro-nuclear and his extensive training. In the end, most of his ideas went unrealized, although his efforts take on a performative quality that evokes the public review portion of Christo and Jean-Claude’s works. “He was a sculptor with few sculptures, but Acord’s life itself was performance art.”

Following the tsunami-triggered meltdown of the Fukushima Daiichi Nuclear Power Facility on March 11, 2011, the United States news media was quick to flood the newspapers with reassurances that we would be exposed to no more radiation than we ordinarily received from the sun or a routine x-ray, and that Americans would be perfectly safe. The Nuclear Energy industry released an army of P.R., and even CNN’s popular Dr. Sanjay Gupta got in on the act, saying four days after the accident “it is tough to conceive that anyone outside the 20-kilometer evacuation zone would have any long-term health problems.” In spite of these assurances, iodine pills sold out within the week along the West Coast. We live in cognitive dissonance.

---

When faced with facts of horrific proportions, our natural, protective response is disbelief. Of course, to those who would exploit our tendencies, this is a perfect storm for spin and fact distortions — if we are starting at a place of disbelief, then how hard could we be to convince of something we fervently hope to be true? And yet, it is difficult to levy the reassurances against scientific fact. This is why many people engage in “selective exposure” — seeking a state of cognitive equilibrium by searching for facts that reinforce a desired point of view. But those pesky, half-remembered facts from high school physics are burbling right below the surface.

The logical undercurrent of fear we have surrounding nuclear energy belies the banality of our national conversation surrounding it that is driven by misinformation coming from the Nuclear Energy industry itself. Most people don’t understand how nuclear fission works, and ignore the debates around whether it should be used for energy. Our popular culture swarms with imagined mishaps of a vaguely nuclear nature — from radioactive spider bites to Godzilla, the Hulk to Homer Simpson’s bumbling, yet the images we’re shown of nuclear power plants portray them as clean, modern, efficient palaces of industry, safely lighting our homes via the most dangerous method of boiling water ever devised.

A little over a year since the tsunami, Fukushima is still in a state of precarious disaster. Although Buildings Two and Three suffered meltdowns, it is the severely damaged structure of Building 4 that presents, as pronounced by Senator Ron Wyden, a national security issue to the United States, and is being named the “top short-term threat facing humanity.” According to host of Nuked Radio, Christina Consolo,

“[S]itting at the top of [Reactor 4], in a pool that is cracked, leaking, and precarious even without an earthquake, are 1,565 fuel rods (give or take a few), some of them ‘fresh fuel’ that was ready to go

———

into the reactor on the morning of March 11 when the earthquake and tsunami hit... If they are MOX fuel, containing six percent plutonium, one fuel rod has the potential to kill 2.89 billion people."\textsuperscript{11}

Additionally, radiation in the form of Cesium-137 and Iodine-131 has been detected in milk, rain, and drinking water in the U.S. No one is truly safe from the consequences of Fukushima.

Fig. 3: Fukushima Daiichi, Reactor Number Four.

I don’t remember a time in my life when I wasn’t aware of nuclear energy, and it’s bastard stepchild the atomic bomb. I remember walking by the faded metal signs reading “Nuclear Fallout Shelter” on the East Coast. I remember seeing the grainy, over-spliced “Duck and Cover” film while sitting on the cold gymnasium floor of my elementary school when they kept us in for recess on bad

weather days. The first home I lived in as a baby, on Kauffer’s Lane in Fort Lee, New Jersey had a bomb shelter. When I went back to visit as an adult, it was the only part left, a dirty concrete box next to what was left of the foundation. I imagined what life would be like within it. Nuclear was everpresent.

It wasn’t until junior high, though, that I developed a healthy, borderline obsessive fear of it. While visiting my brother’s National Guard base I stumbled across a book that showed the shadows of what remained after Hiroshima. Outlines of bodies, even the fingers crisply detailed like a cut paper silhouette. Fences, dogs, trees…anything organic left its sooty imprint when vaporized, like a leaf trapped in a fossil. Not long after, I began having nightmares. By high school, I was picketing the Rocky Ford Nuclear Power Plant, on a desolate stretch of road between Boulder and Denver, Colorado. It seemed there were always a knot of protestors there, outside the barbed wire and in front of a grubby roadhouse where the plant’s workers gathered after their shifts. We were always ignored, but as futile as the gesture felt, it outweighed the futility of none at all.

The Doilies of Imminent Destruction Series began as a meditation on the banality of our dialogue surrounding this fearsome power, an investigation into the corporately chosen P.R. images of these disaster sites. The images I chose to work with are axonometric, idealized, and shown from above in the stereotypical style for architecture and P.R. firms. These nuclear power plant architectures are removed from their environments and fenced in by the familiar outline of a lace doily, the ultimate symbol of domesticity. But doilies have a function as well – to beautify the ugly. They are meant to cover the water stain on the side table, the worn spot on the chair arm. Conversely, they are also used for protection in this sense, to prevent our furniture from becoming damaged in the first place. To protect the appearances of our domestic space, despite what might be underneath. Doilies speak to an old-fashioned nostalgia. They are
accouterments of another era, and reminders of gendered labor. Tatting and crocheting lace doilies was a domestic task for generations of women, laborious and painstaking. The desired outcome was a perfection of form that would become an heirloom, evidence of a human desire for beautification.

Fig. 4: Doilies of Imminent Destruction: Fukushima, Laser Cut Paper, Spray Paint, 2011
I have depicted Three Mile Island, Chernobyl, and Fukushima, all sites of nuclear disasters of varying proportions. In each, the architecture is depicted before disasters have struck, and the images are frozen in romanticized, lace-framed time. All three plants have since been shut down, although Three Mile Island is simply “shuttered” for the time being. The architecture of both Fukushima and Chernobyl has been destroyed, and worse yet, the surrounding land has been poisoned beyond repair, made uninhabitable for long into the future.

The material choice of paper is a delicate contrast to the heavy industrial imagery. With their positives burned away, leaving nothing but a wispy trace, they leave only a breath of the image, enough for it to be seen in shadow, as in the aftermath of Hiroshima. The fragility of the connections stand as metaphor for the fragility of the natural world and our tenuous, always shifting connection to it. The paper is laser cut, using technology to perform the repetitive actions that were previously done by those generations of women. Just as the repetitive work of sewing has been outsourced to machines, so has the work of the Exacto knife in creating these stencils. Although these are machine cut, there are tiny rough spots, evidence of the hand, even mediated by the computer mouse. Yet, each is a reproducible file, lacking the individuality, or as Walter Benjamin called it, the “aura” of the handmade individual object, while at the same time mimicking an art form that strived for a perfection made possible only by the machine.

“One might generalize by saying: the technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions it substitutes a plurality of copies for a unique existence.”

---

The process of the laser burns the paper, leaving a trace at the edges and lending it a slightly aged appearance. The burn left by the laser suggests a type of violence in the process of coming to this form.

Fig. 5: Doilies of Imminent Destruction: Chernobyl, Laser Cut Paper, Spray Paint 2011
Aside from the obvious juxtaposition of the feminine craft of the doily versus the industrial steel of architecture, the shadow causes an intense push-pull in the visual field, with one’s eye constantly shifting between positive and negative space, attempting to pick out and identify the structure. Adding to this visual confusion is the fact that they are back-painted in florescent colors, causing a deep yellow, orange or pink glow on the wall that they are hung a few inches out from via reflected light. Metaphorically, this fits the image of the nuclear glow, giving a hint to the meaning of the depicted structure. This struggle to “see” the image is akin to our struggle to “see” the problem. Under the constant reassurance of propaganda masquerading as information, we have no scientifically based national conversation, but instead, a circular definition of why we can’t escape nuclear and how we’re wrong to fear it anyway. Yet how can something be “clean”, for example, when its waste product can’t be thrown away for 250,000 years?
Chapter 2: Wreckage

In attempting a new iteration of the form of the doilies, I experimented with different materials and processes. I cut the digital files in wood, Yupo, Plexiglas, fabrics, laminated plastic bags, vintage wallpaper, and glassine. I used the laser cutter to cut kiln blankets for slumping glass in the kiln. I grew Borax crystals on
one. I sifted flour through the stencil onto the floor. I experimented with projecting light through them and on them.

Since Nuclear Energy exists to create electricity, electroplating seemed a resonant technology to explore. Copper, as well, is considered the best material to use that can resist corrosion, and so has been used to create canisters for “disposal” or entombment of radioactive uranium waste. Copper conducts electricity, and often is used for pipes to carry water, both vital activities in both the life of a nuclear power plant and a home.

The process gave this work several new dimensions on top of the aspects previously described in the doilies. In leaving the object in the electroplating bath for a long cycle, bumpy growths begin to form along the edge that seemed analogous to a cancerous growth. Texturally, the bumps gave the appearance of embroidery at the edge, from a distance. They add a dimensionality, thickening the scalloped edge in an irregular pattern.

The natural patina takes on a sheen like an oil slick, with chemical rainbows spreading across the copper the way they spread across spilled gasoline in a rainy parking lot. The surface overall is matte, untreated, as it was when pulled directly from the bath after 48 hours of immersion. The tone shifts from a warm orange to a cool green in iridescent reflection.

The aspect that most defines this iteration was that the paper, below the layer of copper paint, became distorted and misshapen, causing the finished copper form to take on the appearance of twisted metal. It was reminiscent of the wreckage left behind in the exploded remains of Chernobyl and Fukushima, and narrowly avoided at Three Mile Island. Some small wrinkles show, alluding to the original form of paper, but the paper is invisible, entombed in a thin shell of copper, just as the nuclear waste is entombed.

---

By hanging the work high on the wall, the image from the front is completely unreadable, looking like a twisted and distorted sheet of decoratively pierced copper. But if the viewer stepped close enough to look at the shadow behind, the image of Three Mile Island was clearly outlined in the shadow. The wreckage makes the image, but only as shadow.

In Plato’s Allegory of the Cave, Socrates describes people who spend their lives chained facing a blank wall. The shadows they see projected from behind them describe their world, but are not reality. The lesson is that true knowledge exists in knowing the forms themselves, not the silhouette projected on the wall. This is similar to how we understand the nuclear issues facing us in the 21st century. Billions are spent on lobbyists with fancy shadow puppets, and we sit chained facing the wall, oblivious to the looming threats.
Chapter 3: Mutations and Souvenirs

When I came to visit the Ohio State University on Fellowship Day in 2010, I was awaiting a phone call from my Doctor to tell me if the tumors in my thyroid were benign. Since my Mother has had cancer three times, I have always lived with the knowledge that the likelihood of my getting it is high. In reality, it is for everyone now – according to the Cancer Prevention and Education Society, one in three people in the United States get cancer, and by 2020 it will be one in two.14 According to data aggregated by the World Health Organization, over 80% of cancers can be classified as environmentally caused.15 The first time my Mother was diagnosed with cancer was two years after her visit to Russia on December 31, 1986 to participate in the World Instant of Cooperation, a global peace movement. Chernobyl exploded exactly eight months before, but no one knew the consequences yet. Is there a connection between my Mother’s cancers and Chernobyl? We will never know, discovering the source of a cancer is a complicated and controversial task.

“Just as environmental cancers are induced by a wide variety of chemical and physical agents, so the malignant condition itself is manifested in many different and biologically distinct ways.”16

What we know now about the health effects of Chernobyl is chilling.

“(R)esearch estimate(s) that by now close to 1 million people have died of causes linked to the Chernobyl disaster. They perished from cancers, congenital deformities, immune deficiencies, infections, cardiovascular diseases, endocrine abnormalities and radiation-induced factors that increased infant mortality. Studies in Belarus

found that in 2000, 14 years after the Chernobyl disaster, fewer than 20 percent of children were considered “practically healthy,” compared to 90 percent before Chernobyl.”

Iodine-131, a radioactive isotope produced by nuclear fission, migrates to the thyroid gland. “After Chernobyl, the increase of thyroid cancer in Belarus increased 500% from 1997 to 2000.”

In searching the web for images to construct the Doilies of Imminent Destruction series, I kept running across the same image with every search for Chernobyl. The black and white photo shows three boys from the chest down, in baggy, patterned underpants and t-shirts standing on a linoleum floor. The outer two boys appear normal for the most part, although they most likely had some residual defect from Chernobyl, as these boys were being cared for in a home for children from Belarus. The middle boy’s legs, however, are bloated and misshapen. His body leans to the right and his left leg is bent, leaving his enormous toes splayed against the floor. Knobby outgrowths and discoloration mar his legs further.

This haunting image was taken by Paul Fusco between 1997 & 2000 in his trips to Belarus hospitals and orphanages to document the children marked by the Chernobyl disaster. I was struck by the cropping of the photo, as Fusco’s other photographs clearly show this boy’s face. The boys on each side of him provide a stark contrast. His legs are easily three times the size of his friends’, and while he appears to be slightly taller, it is likely that he is a relative age. Cutting the heads of the boys off reminded me of the turn of the century photographs of body deformities, where the heads were covered with a bag, and the later convention of the black band. The convention, while intended for modesty and privacy, appears as dehumanizing, in a sense, or perhaps disembodying. Without reference to a face, the body is freed from the returned

gaze and the grounding in individuality that relies upon facial features and expressions. We are only left with gesture and form, or in this case, deformity.

These isolated body parts are evidence of something gone very wrong, on a mass scale. They make the invisible radiation visible in a horrific way. Yet these children are not real to us, they are perhaps a curiosity or horror, similar to how we paid to see sideshow freaks in the past.

“Often referred to as a ‘freak of nature’, the freak, it must be emphasized, is a freak of culture. His or her anomalous status is articulated by the process of the spectacle as it distances the viewer, and thereby it ‘normalizes’ the viewer as much as it marks the freak as an aberration.”

The sideshow freak as a theme has made repeated appearances in my work for twenty years. One of my earliest shows, titled “On What Divides the Blessed from the Damned”, presented paintings of famous sideshow freaks depicted as Catholic saints. At the time, I saw it as a personal narrative of difference and the other through a subversion of familiar iconography. Throughout the years, the image of the Siamese twin remained in drawings and collages, often as a personal symbol of chaotic binary thinking in my own mind. The chimeric animal made regular appearances too, and my works from 2008 – 2010 emerged fully into this world via the topic of genetic manipulation and transgenic mutation in bio-engineered animals.
The history of the freak show is also an early source of the souvenir, where an image of the experience of the other was sold to be taken home as evidence and reminder.

“The souvenir reduces the public, the monumental, and the three-dimensional into the miniature, that which can be enveloped by the body, or into the two-dimensional representation, that which can be appropriated within the privatized view of the individual subject. The photograph as souvenir is a logical extension of the pressed flower, the preservation of an instant in time through a reduction of physical dimensions and a corresponding increase in significance supplied by means of narrative.”20

My initial idea in drawing from Fusco’s photographs (and others found on the web) was to create a grouping of souvenirs, of tchotchkes, that represented the residue of the invisible poison of radiation. Typically, a three dimensional souvenir is representative of a monument – we take home a model of the Eiffel Tower, for example, as a reminder of an experience. I thought of these tiny, disembodied models as a reference to that monumentality, frozen in time and materiality. The real souvenir, the marking of experience, is left upon the body in the form of scars, cancers, and deformation; human genetics scrambled by radiation while in the womb. The miniaturization of these body parts into an object for display, perhaps in a china cabinet or on a shelf, makes them a distant reminder of the lived experience of the other.

I modeled five individual birth defects from Chernobyl. Two were the legs from the boy in Fusco’s photograph, and three were based on hands from anonymous Internet photos. Each was modeled using the program Sculptris followed by revisions in Geomagic and Cinema 4D. They were printed on a Z-

Corp printer in white plaster, mimicking the kind of commercial object that my grandmother would have displayed on a shelf after a vacation.

Fig. 10: Mutations, 3-D Prints, 2011-2012
The objects are mediated by a double removal from the original source imagery, first as the digital file of the model, then as the physical printed object. In a sense, they are “untouched by human hands” in their making, being formed only by software and the “touch” of the mouse pointer. As the defects in the flesh are rendered via industrial technology in the sculpture, the genetic defects were also crafted by a more sinister industrial technology.

I struggled with how to display these small objects. I attempted to put them on a shelf, or in a cabinet, but each choice felt wrong. The scale was confounding; since they were small enough to be toys, but still delicate and fragile. They seemed to have no place in the world. I ordered two more models from the Z-corp printer at Knowlton Hall, and found that I had accidentally submitted the wrong file, winding up with a leg that was roughly 14” x 5”. I knew instantly that this was the correct scale. It was neither life-sized nor toy sized, but approximated the scale of a newborn baby. It felt both human and alien, alive and dead.

Fig. 11: Souvenir, 3-D Print, 2012.
The evidence of 3-D modeling is apparent in the final form. In some areas, the polygons are left unsmoothed, showing the grid structure that creates the exterior mesh, or skin. The layers of the printer become a topographical map on the surface, showing the path of the machine in building each layer of the object. The surfaces seem soft and malleable, but delicate, and slightly dusty.

I feel somewhat conflicted and uncomfortable with these objects. My concern in this work is that it is perhaps too exploitative, too cold. Without access to the people affected by this tragedy, I am left to approximate with crude representations of the evidence of invisibility. I am not fully satisfied with this form, and feel it is a step on a path rather than a fully completed idea.
Chapter 4: Argument

Following the events of Fukushima, propaganda poured onto the internet proclaiming the safety, efficacy, and cleanliness of nuclear power. The most common argument was that coal, an energy source that is equal in environmental and health devastation is far, far worse. And by some metrics, this argument is truthful – coal fly ash also emits radiation, and the danger to miners and communities is profound. However, similar to the binary presentation of political parties in the United States, presenting a choice between two options that may not be ideal does not further a productive argument or help us find the best solution.

It is often easy to see through the false dichotomy in this red herring of an argument. For example, in an April 2, 2011 graphic in the Washington Post, pink bars compare the air pollution-related effects of coal, oil, biomass and nuclear as an argument for its safety. The sources include CO2 Emissions data from the International Atomic Energy Agency and the U.S. Department of Energy, and includes the note, “serious illnesses include respiratory and cerebrovascular hospital admissions, congestive heart failure and chronic bronchitis. For nuclear power, they include all non-fatal cancers and hereditary effects.” At first glance, any reasonable person would draw the conclusion that coal is more dangerous. However, this is a measure of air pollution-related effects only, which makes sense – one of the arguments in favor of nuclear power is that very “cleanliness” in terms of emissions of greenhouse gasses. Meanwhile, any standard for measuring the number of deaths or ill health effects from a nuclear meltdown is

---

impossible to quantify and thus, always controversial, since it must be viewed from the broader overview of generational impact. It is so difficult to quantify, in fact, that the mortality estimates from Chernobyl range from 4000 to half a million.\textsuperscript{22} This type of apples-to-oranges comparison is disingenuous, and misleads the public.

The other danger in this dichotomy is that it ignores the myriad alternative energy sources, as if nuclear and coal were the only options, despite the recent rise of both natural gas and wind energy. Outside the United States, great strides are being made with a matrix of energy sources created via solar, wave turbines, solar updraft towers, geothermal steam, and even compost. Continuing to focus on these binary choices sets us up for the wrong discussion, one in which the lesser of two frightening evils is our best possible choice.

Post Fukushima, I often found myself trapped in this oppositional argument, both online and in person. In each case, the person I was debating was misinformed that nuclear and coal were the only two options, because they believed that other energy sources wouldn’t work or didn’t exist. Given the advertising dollars and the intense lobbying efforts spent by both industries, along with independent groups like the Heartland Institute, it is no surprise that the majority of Americans would think this way, despite ample evidence to the contrary in other countries that rarely makes it into our mainstream media or national conversation. In fact, on Memorial Day weekend of 2012 Germany set a new record, “…yielding almost half the

country’s energy needs from the renewable resource\textsuperscript{23} of solar. This in the wake of shuttering all of their nuclear power plants less than a year earlier, showing the world that it is, indeed, possible.

These conversations inspired me to try coal as a medium to explore this dichotomy. Research led me to Cannel coal, a hydrogen-rich bituminous coal shale that is mined in Pennsylvania. Soft enough to carve, it was worked by Native Americans and artifacts have been found at the Kincaid Mounds in Southern Illinois. I sourced two large chunks on ebay and set to work.

![Fig. 12: Cannel Coal Carving from the Kincaid Mounds](image)

What I did not count on was the brittleness of the coal and the difficulties it would present in working with it. Starting with a 6 pound chunk that measured approximately 10” across, I cut it down to turn on the lathe into the iconic shape of a nuclear cooling tower, but each attempt failed as the coal would split from the least amount of pressure. Additionally, carving the coal released toxic natural gas fumes that were difficult to endure without a respirator. In frustration, I took a splintered chunk and attempted to make a model of it at miniature size. While my initial plan had been to wind up with a tower approximately four to five inches tall, upon completing this one-inch-tall model I knew instantly that I had yet again stumbled accidentally onto the correct scale.

Employing the decorative and the miniature can be a mechanism to mediate the difficulty of seeing, providing comfort as a distraction from information. Made precious and distant under a glass dome, the familiar image of nuclear power is miniaturized to the size of a thimble, allowing the viewer to peer down at it from above.

“…(l)n the miniature we see spatial closure posited over temporal closure. The miniature offers a world clearly limited in space but frozen and thereby both particularized and generalized in time – particularized in that the miniature concentrates upon the single instance and not upon the abstract rule, but generalized in that that instance comes to transcend, to stand for, a spectrum of other instances. The miniature offers the closure of the tableau, a spatial closure which opens up the vocality of the signs it displays.”

Gazing down at a diminutive form brings a frightening issue into the approachable space of play. It is somewhat imperfect, leaning slightly to one side, and clearly hand made, existing in opposition to the machine-made works it is presented with. The deep velvety black of the coal shows minute sedimentary rings and marks from the tools, marks that are echoed by the shadows in the glass dome crafted by gaffer John Sharvin. Yet, despite its darkness, both formally and ideologically, it is precisely the size of a dollhouse fixture or a model.
It is approachable, yet requires the viewer to lean in and look carefully to see it, just as we must closely examine the issues, to muddle our ways through the propaganda. Careful looking is required.
Chapter 5: Hindsight, Parts One and Two

*Hindsight* asks us to attempt to see the image of Chernobyl delicately framed in the tattered remnants of a collapsed fabric form, as fragmented as our memories, barely discernable in the play of shadow. The image is literally falling apart, distorted, and skewed. Although the image is blown apart, it is framed by a comfortably tranquil patterned border referencing the domestic icon of the doily via a scalloped edge. This locates the industrial environment within the domestic space, but as invisibly as it appears in the form of electricity. Just as the building itself has exploded, the image of the building has as well, only anchored by the still recognizable and omnipresent smokestacks that are instantly recognizable as an industrial environment.

The hard edge of the original graphic has turned soft and collapsed, resembling camouflage netting that is used in jungle war zones. Just as in the debate surrounding nuclear energy, we “can’t see the forest for the trees”, as the sagging and abjected form becomes an abstracted composition. The image, originally comprised of negative space, expands and contracts, pulled out of shape by its own weight. The laser cut burned edge further suggests an image made through a dangerous, potentially violent process.

*Hindsight* exists in a state of entropy, defined by Yve-Alain Bois as

“…the constant and irreversible degradation of energy in every system, a degradation that leads to a continually increasing state of disorder and of nondifferentiation within matter.”\(^{25}\)

The sagging, tangled form barely holds together and creates a push and pull between foreground and background. The image exists as much in the negative space as in the drooping structures. It exists in both shadow and form, yet attempts to create an image are thwarted, the image is too destroyed. As Rosalind Krauss explained,
“(I)n sloughing off the inevitable separations of space as we normally experience it, in which objects stand apart from one another and space is discontinuous with them, this new optical continuum would be the result of what one school would call sublation – as figure and ground achieve a new and higher synthesis.”

In attempting to find the image in the form, we are left with what was there before Chernobyl was built – the landscape. Nuclear plants are nearly always built near bodies of water, so that a source for cooling the reactor is ubiquitous. Chernobyl is no different, sited at a bend in the Pripyat River. In *Hindsight*, the top of the image contains the horizon, suggesting the shoreline of the Priyapat and giving us a way to locate ourselves within the environment. The only familiar form is the omnipresent smokestack, the icon of the industrialized landscape. Georges Bataille analyzed the smokestack by saying it

“…is only very tentatively of a wholly mechanical order. Hardly has it risen toward the first covering cloud, hardly has the smoke coiled round within its throat, than it has already become the oracle of all that is most violent in our present day world.”

The smokestack can bring forth nothing but industry, it has no other association. It is generally thought of as unclean, threatening, looming. It is the strongest hint within the form to locate us within meaning.

The work is sewn together from thirty-six tiled squares of laser-cut wool felt, ending up in a form roughly ten feet wide by eight feet high. The grid

26 Ibid 76.
structure further suggests the domestic sphere in the form of quilting. A buttery yellow color, it appears as something aged and stained with time, much as the evidence of human habitation still left behind in the abandoned Priyapat. Felt is a non-woven material, made via compression and agitation. It is almost an opposite process from the construction of a doily, which is composed of thousands of individually placed stitches.

While felt and wool have both been materials I turn to often, in this case, felt was the wrong fabric. What was meant to appear tattered and torn instead appeared too solid, too hard edged. However, as the collapsed form needed to be constructed on site, and as the right material was not available, it wasn’t until it was hung that I realized this work disappointed my intentions.

Not satisfied to leave my attempt in this form, I resolved to make a second version out of a grey silk organza I ordered from Korea. Silk also had the material resonance of being a fiber historically linked to Asia. I changed the image to Fukushima and eliminated all sense of landscape, while strengthening the vertical elements so that I would get the correct sag and drape. With the sheer lightness of the fabric, I decided to cut the first one the size of the laser cutter’s bed, 24” x 36”, so as to avoid the hard contrast of thread.

While still pulled out of shape by the weight of the fabric, the structures are much more visible, but soft and distorted. The towers hold their form as the most solid structures because of their dense linearity, while the outlines of buildings stretch into distorted perspectives yet are still clearly hinting at being rectilinear, almost the opposite of how they would actually appear. The contrast of the hard edges rendered as bare wisps of fabric is softened by the more organic circular
shape framing the central composition. The edges are roughly burned, almost melted, crispy in places.

In this iteration I have elected to let go of the doily edge, as the delicacy of the fabric made it seem redundant. Instead, the form hangs almost as a flag
from two points, sagging in the center. It feels as if it is the correct balance between abstraction and image, and is still readable, even recognizable as Fukushima Daiichi if one is familiar with how it used to appear. Yet, due to the sheerness of the fabric, the negative space does not have to contend with the doubling of the strong shadow. This assists in reading the image as well, where shapes are more clearly delineated.

This new version is much more satisfying to me. The fact that it is barely held together by mere threads speaks to the same fragility that reactor Four currently faces. The tension between the pulled structures looks as if it is about to pull itself apart, yet is stable enough to hold the form. The shift in scale, too, allowed the image to be more compact, and thus hold together its shape more concretely.
Fig 16: Hindsight 2, Detail
The computer-mediated work and sculptures in general requires a level of forethought and precision that is relatively new to my practice and coming from the desire to infuse new content, something I am still grappling with. There is a frustration for me in the disconnect from the hand, from the direct path of materiality that I am more accustomed to working within. My more natural way of working is highly intuitive and spontaneous. The form that comes most naturally to me is collage and assemblage, reflecting the mash-up culture I was raised in. “…(T)he cutting and pasting of extant things has replaced the act of original creation in the new millennium as the favored creative method.”28 While my background is in painting and printmaking, my earliest works were comics and collages, via a punk rock aesthetic and DIY culture. However, while painting and collage may be a mother tongue I return to for expression and comfort, I struggle with bringing the language I need to it so that I am able to communicate more specifically and precisely.

At this moment in time, my work is shifting between multiple modes of presentation. In a sense this is not new; for many years, I rejected the notion of style and worked how I wanted to, using the organizing principal of congregations of multiples to draw different processes together into a more unified form. I have decided to embrace my somewhat “schizophrenic” practice, and find inspiration in Gerhard Richter’s approach:

“I pursue no objectives, no system, no tendency; I have no programme, no style, no direction...I steer clear of definitions. I don’t know what I want. I am inconsistent, non-committal, passive; I like the indefinite, the boundless; I like continual uncertainty.”

Fig. 17: Scissor Sisters, Collage, gouache, ink, 2012

---

I am intuitively drawn to bright colors, organic forms, a whimsical line. However, embedded within the abstracted imagery are disconcerting objects, dripping and spurting, or sprouting growths or hairs. This unsettling quality, the line between seduction and repulsion, reflects these times in a different way than the more overtly political work, while still having the same concerns embedded within it. As Susan Sontag said, “Ours is indeed an age of extremity. For we live under continual threat of two equally fearful, but seemingly opposed, destinies: unremitting banality and inconceivable terror.”

Fig. 18: Floating Islands, 2011

This aggregation of marks and shapes is a personal language of signs that has developed in my work through the years. Blobs, fluid drips, biomorphic shapes and tumorous forms travel through multiple bodies of work, from drawings, to sculpture, to photography. I have an innate interest in the intersection of artificiality and the natural world, and much of my inspiration comes from the interior spaces of the body, disease, mutation, and otherness. Hidden within the attraction and comfort of color is the unsettling and perverse, disguised by the seduction of rich saturated color. As Mike Kelley said, “Color is thus set at a difficult conjunction between sign and signified.”\textsuperscript{31} I am interested in the beautiful only as a contrast to the grotesque, for, similar to death making life more meaningful, it is in these binary contrasts that we come to know the world we inhabit.

These bodies of works inhabit the realm of the uncanny, “…that class of the frightening which leads back to what is known of old and long familiar.”\textsuperscript{32} At first glance, they appear to be colorful compositions, but embedded within them are indications of corporeality through the processes of the body – dripping, oozing, diseased.

Collage makes its way into sculptural form via the mash-up of disparate materiality – hair, fur, rope, wool, foam, string, wax … whatever is on hand. The one object that most closely mimics the form of the collages is a sculpture entitled \textit{Spoilage} that consists of a 2” thick rope, 20 feet long, with aggregations of colorful felted wool balls on each end. The balls take the form of the teardrop


or drip shape that makes a continued appearance in my drawings and collages. The rope is hung from the ceiling as a drooping form. One end is left colorful, soft, and unadulterated, while the other has been dipped in ceramic mold shell (typically used for lost wax casting) permeated with a sickly green-yellow color. The contaminated end droops onto the floor, inert and stiffly lifeless compared with the other end of the rope still suspended in midair. It speaks to damage as something beautiful coated with a grotesque shell. “There is a certain authority in the idea of the abject… the site of pollution is also a generative one, and it is feared as such.”

The contrast of the wool and the rope, both of them fiber, is the contrast of smooth against rough, chaotic against symmetrically formed, fauna against flora. Where the wool is felted into the rope the two blend softly, seamlessly together into one. The rope evokes ships or boats, and the shape of the wool accretions suggests a visceral fluidity. However, hanging the rope from the ceiling suggests the lynching, or hanging, of a bodily form. Despite the colorful, playful nature, there is a darkness embedded in the mode of presentation. The dichotomy of each end of the rope presents a polarity, with the form clearly visible through the ceramic shell to communicate that at one time, the two ends were similar.

---

33 The Politics of the Signifier II: A Conversation on the "Informe" and the Abject
Hal Foster, Benjamin Buchloh, Rosalind Krauss, Yve-Alain Bois, Denis Hollier and Helen Molesworth
October, Vol. 67, (Winter, 1994), pp. 3-21  Published by: The MIT Press
Fig. 19: Spoilage, Rope, Wool, Ceramic Shell, 2012
Chapter 7: The Beef Chicken Debacle

Working photographically has allowed me to bridge the gap between the more idea-driven works and the intuitive process I am at home in. *Transglutaminase* is a photo series inspired by “meat glue”, a chemical used in the food industry to “glue” together cheaper cuts of meat into a seamless approximation of a steak. I instantly became fascinated with this substance as a medium to experiment with. Given that my work has been rooted in collage and the creation of chimerical and transgenic forms, this seemed a more direct route to a type of “mash-up” than what I had been exploring sculpturally.

I came to these photos through an accident – an attempt to make a mold of a chicken. I had hoped to create a “beef chicken” by using transglutaminase, and during a period of difficulty in creating a viable mold I followed Professor Richard Harned’s advice and first froze the chicken. As I waited for the silicone to cure, it began to bead up and sweat, creating pores on the surface of the silicone and a dazzling, jeweled surface of tiny dots of water. The chicken began to melt as well, creating pools of blood-tinted water. It was both horrific and fascinating.

In my failing mold, I saw the familiar form of the uncanny that I was seeking to recreate sculpturally, and quickly and instinctively reached for my camera. After setting up lights, I took hundreds of pictures, excited by the ongoing transformation before my lens. Although it was an intuitive reaction, I was recognizing in it imagery that was inhabiting a part of my head; imagery that I had been struggling to bring into a physical reality in a way that satisfied me. Although I was constantly creating drips and blobs automatically, even in
doodling, they were cartoony and fake next to the realness of this dripping, oozing blob I had accidentally brought into being.

Mimicking the less savory parts of our industrialized food supply by combining food with a non-food additive, the photos create an unsettling, unappetizing blend indicative of a mood of dis-ease. The pink silicone exudes a sickly sweetness, evocative of both the flesh and something like a pink frosting, similar to Will Cotton’s saccharine painted wonderlands. The viewer comes to understand what they are seeing slowly, with the beaded sweat on the skin suggesting the bumps on the chicken’s skin beneath it. It is only in seeing the yellow fat peeking through the heavy drapes of the pink coated skin, in
recognizing the faint outline of a wing or the silhouette of a drumstick that the form becomes clear, but still it is draped in illogical mystery. As illogical of a mystery as the additives found in Chicken McNuggets for example, which do, indeed, contain silicone.

I have furthered the sense of unknowable in the next iteration of these photos by mirroring and combining them in Photoshop to create impossible objects. This removes them from the realm of documentary action and into a
formally invented sculptural space. They hint at macro-shots of bodies or alien presences, things that don’t exist, but potentially, could. They manage to feel both sexual and medical, yet seem to lose the reconcilability that made them so viscerally disturbing. The symmetry imparts a spatial logic that keeps them from veering too far into fantasy, yet removes the identifying handles on which one could grasp, transforming them into a totally new category of supernatural organisms.

This work is conceptually related to the Photosculptures created in 1971 by Alina Szapocznikow. Utilizing chewed gum, her series of 20 photographs resemble flayed and sculpted skin. “The are radically formless; they do not represent anything.”34 Similar to hers, my photographic objects lack any indication of environment or placement, represented either in chiaroscuro or bathed in bright light. This method of working intrigues me, as it presents possibilities previously unavailable by utilizing ephemeral organic materials. By shooting in macro and shifting the scale, I can present objects that are unfettered by object-ness, existing in a world of their own making.

34 Ernst Van Alphen, Sheer Skin: The dissolution of Sculptural Skin and Sculpted Skin, in Alina Szapocznikow: Akward Objects, Edited by Agata Jakubowska, p. 121
Fig. 23: Alina Szapocznikow, Photosculpture, 1971
Chapter 8: Honeybee Collaborations and Colony Collapse

“But here’s what did happen. My grandfather kept bees, five nests of them. They just stayed in their nests. They were waiting. My grandfather didn’t know about the explosion, he was running all over the yard: what is this? What’s going on? Something’s happened to nature. And their system, as our neighbor told us, he’s a teacher, it’s better than ours, better tuned, because they heard it right away. The radio wasn’t saying anything, and the papers weren’t either, but the bees knew.”35 - Anna Petrovna Badaeva, Re-Settler

As seen in those three days after Chernobyl’s explosion in the above quote, bees share with canaries an ability to warn us of impending doom. Another apocryphal quote, incorrectly attributed to Albert Einstein, states that without bees, humans have four years to survive. While somewhat of an exaggeration, it points to the deep interconnectedness between humans and bees. Bees and humans have been linked since pre-history, with evidence in cave paintings, Egyptian tombs, and Roman texts.36 “According to the UN Food and Agriculture Organization “of the 100 crop species which provide 90% of global food, 71 are pollinated by bees”37 Beyond our dependence on them for food production, it’s possible to also see them as the proverbial canary in the vast coal mine of our industrialized lives.

In 2006, American beekeepers began reporting a strange phenomenon: their bees were disappearing. Entire hives would die off or completely vanish, leaving no clues as to why. Fears of mass bee extinction began to surface, as

36 Crane, Eva, The Archaeology of Beekeeping, Duckworth, University of Minnesota, 1983.
did theories about the bees’ disappearance. Early theories included bee parasites such as Varroa mites or American foulbrood, however, these diseases had been known by beekeepers for many years, and neither had led to vanishing hives before. Migratory beekeeping, environmental stresses, electromagnetic radiation, Genetically Modified Organisms and lack of genetic biodiversity were all suggested as potential causes of this mysterious affliction.

In mid 2011, a series of viral stories began to circulate on the Internet blaming cell phones as the cause of Colony Collapse Disorder. Drawing conclusions from research by Daniel Favre, a scientific collaborator in the Laboratory of Cellular Biotechnology in Lausanne, Switzerland, the articles carried headings like “It’s Official – Cell Phones are Killing Bees”. This headline was reproduced thousands of times, yielding, at this writing, 9600 results in Google. However, when one reads Favre’s study, the proof of a cause for Colony Collapse Disorder is thin, to say the least. In his experiment, he placed cell phones below a beehive, and his findings were that “exposed honeybees were perturbed in their returning behavior to the hive after foraging”. None of the bees in the study, however, were annoyed enough to fail to return to the hive altogether.

The cell phone theory became a popular enough meme to nearly, and perhaps conveniently, obscure the research on a much more likely culprit: Neonicotinoid pesticides such as Imidacloprid and its chemical cousin Clothianidin, both widely used on corn crops. Corn accounts for approximately

---

38 Favre, Daniel, Mobile Phone-Induced Honeybee Worker Piping, Apidologie, 2011 42:270 - 279
40 Favre, 271
25% of the harvested crops in the United States. As opposed to previously used pesticides, which were dusted on the plants or the ground, these pesticides are generally used on the seeds. This is problematic, as “systemic pesticides in particular diffuse throughout all the tissues as plants grow up, eventually contaminating nectar and pollen.” Potentially adding to the issue, some honeybees may be getting a double dose when they are fed high fructose corn syrup, commonly sold to beekeepers for feeding in the spring.

I had followed these issues for several years prior to coming to The Ohio State University, and found that I shared this interest with Daniel Jarvis, who was an undergraduate student in ceramics at the time. He had worked at Ohio State’s Bee Extension before it was closed, and said that he was hoping to have some hives but didn’t have an appropriate place for them. In our conversations, I began to see that the best way to explore the issues that interested me would be with the bees themselves. Professor Malcolm Cochran facilitated a conversation with the University Landscape Architect, Steve Volkmann, about finding a site for the hives behind the Sherman Studio Art Center. We installed them in late spring of 2011 at the edge of the woods, and I began to work with the bees.

---

The question became: how? I was aware of other artist’s work with bees. Canadian artist Aganetha Dyke had worked with honeybees for 23 years, having the bees build comb on found objects, then removing the comb in strategic places. While she is arguably the pre-eminent “bee artist” (if such a genre can be said to exist), simply replicating her process did not interest me.

Fig. 24: Honeycomb Through Microscope, 2011

Hilary Berseth had exhibited brilliant “programmed” hives in 2008 at Eleven Rivington in New York.\textsuperscript{45} By placing a pattern of foundation into the hive, he managed to get the bees to build fantastical geometric structures. Thomas Gabdzil Libertiny had done an observation hive with a human figure at Design/Miami Basel in 2010, although the majority of his work is in a more commercial context, such as bee-built vases.\textsuperscript{46} Most notably, Mark Thompson, in 1989, had created “A House Divided”, wherein he placed his head within an observation hive “…in a series of private, sitting meditations bringing me closer to the beginnings of a new city”.\textsuperscript{47} The performative aspect of his work was interesting, but in an era where the internet is awash with photos of bee beards, the impact fails to hold.

\textsuperscript{45} www.elevenrivington.com/ARTISTS_new/Hilary%20Berseth.html
\textsuperscript{46} premierartscene.com/magazine/desing-miami-basel-2010/
Fig. 25: Hilarie Berseth, Programmed Hive, 2008

I wanted to find my own voice while working with the bees, yet needed to learn what was possible and how to work with them and adapt to their natures. I began introducing objects into the hive after their populations had built and the hives had stabilized in what was an overly wet spring. I had been working with gaffer Linda Diec in the hot shop to make a series of glass icebergs, seeing them as a symbolic stand-in for thoughts about global warming. I had abandoned the
initial project, but the idea of an iceberg filled with honeycomb seemed poetic, so we introduced it to the hive. For a month, the bees ignored it, either rejecting the material or perhaps unhappy with the fact that it would form condensation in the afternoon sun.

Stealing some comb with brood in it and affixing it to the wax that I had painted into the top of the iceberg, the bees more permanently fastened the comb and completed their task in raising the brood, then abandoned the iceberg, but not before gluing it down with propolis, a resin based “glue” the bees use to seal holes in the hive. Clearly, we would be doing things on their terms.
My initial idea for working with the bees was to see if I could enlist them in illustrating the theories of their own demise. My first attempt at doing this was to melt colored wax foundation (meant for rolling candles) to the wax foundation in frames that was given to the bees to pull comb. I stuck down strips of red and yellow crudely drawing representations of the two most prevalent theories, cell phone signals and insecticides. I tried to reduce the representations to the level of simple diagrams, choosing the chemical symbol for Clothianidin for one, and the familiar graphic logo of cell phone signal and antennae for the other. After a month, I was astonished at the bees’ role in our collaboration. They had meticulously picked all of the colored wax off and thrown it out of the hive. It had, however, stained the base foundation, and in a couple of spots they began to pull comb, with the color staining their wax as well. I saw it as a failure, but an interesting failure, probably more interesting than the results had the experiment turned out as I had planned. Just as Nina Katchedourian’s spiders had rejected the patches to their webs and Amy Youngs’ hermit crabs had refused her rapid prototyped shell designs, my bees had discarded my part of the collaboration.

I then created a crude symbolic representation of cancer cells, simply nylon stockings filled with sand and dipped in wax, then emptied. I tied them to a stick in a free-form composition, varying their heights slightly but keeping them touching, thinking the bees would join them together. This time, they did what I expected, but I was still very surprised about by their strategy. They built multiple layers of comb, attached to and between the wax balls, in varying shades of darkness according to how much it was walked upon by the bees. The resulting object is a mysterious mash-up of human and bee interventions. The process left the uncovered fabric stained with orange propolis and yellow wax, with every
portion of it showing marks from from the bees. As an object encountered with no history, it becomes inexplicable.

Fig. 26: Untitled, Rooms to Let II, Franklinton, Columbus, OH, 2011
This untitled work was installed in Rooms to Let II, curated by Melisa Vogley-Woods in a shell of a house in Franklinton, a somewhat blighted neighborhood in Columbus, Ohio. Installed above a doorway and lit from below, the collaboratively built wax structure seemed to have grown there in the darkened wood frame of the house and blended perfectly with its environment. It seemed a more natural environment for it than a white wall, and it was easy to imagine it occurring naturally in an abandoned house.

The next object inserted into the hive yet again yielded unexpected results. Placing part of a taxidermied crocodile head into the hive with wax along the teeth, I had hoped the bees would build structures in the mouth or pull comb from the teeth. Instead, however, they meticulously began to fill every hole – in the skin, around the eyes – with propolis. It was as if they were trying to repair it, to make it perfect. Since it was once part of an animal, it almost looked as if it was being healed.
As mentioned earlier, propolis is a sort of “glue” made from tree resin that the bees use to insulate their homes. They use it to fill holes, repair comb, and seal out the wind. Every time the hive is opened, the beekeeper must break a propolis seal, which the bees then labor to replace. Propolis, however, is also thought to hold incredible antibiotic properties, and is the center of much cancer research. As another area of my research centered around environmental causes of cancer, it was as if the two interests had collided.

Intuitively, I felt that the bees’ fates and our own were linked together in an endless cycle: we toxify the environment, giving ourselves cancer and killing the bees, on which we rely for pollinating our food. I was surprised to find that my intuitive linking of human and environmental disease ran even deeper than suspected when it came to bees. There is growing evidence that bees may hold the potential cure for cancer, both in their propolis\(^{48}\) and venom\(^{49}\). So in killing them, we harm ourselves twice.

Nature has proven to be abundant with chemistry that is useful in curing human disease. Despite the thousands of chemists laboring in drug company labs, at least 70% of new drugs are found in natural compounds derived from plant and animal sources.\(^{50}\) Aspirin, penicillin, and the common chemotherapy treatment Taxol are all derived from natural substances. So far, studies of propolis as a cure for cancer are extremely promising, but work has only just begun – according to Memorial Sloan Kettering Cancer Center, over 300 natural

\(^{48}\) Bee Propolis Stops Tumors from Neurofibromatosis and Cancer, Barbara L. Minton, April 29, 2009
\text{http://www.naturalnews.com/026158_propolis_tumors_cancer.html#ixzz1jSL1mzdN}


compounds are part of propolis. Already, however, “…a study in "Natural Products Communications" in 2010 found that propolis was more effective in destroying cultured cancer cells than an anti-cancer drug.”\textsuperscript{51}

The process with the bees requires patience, but also timing. While the bees build comb very quickly, they have their own agenda that is not always apparent. And it is possible to leave an object for too long – once they have laid brood in the comb, then removing it from the hive means killing those future bees. This happened recently with a frame of old comb I had placed in the hive with the word “Listen” cut into the comb. I knew that the bees would repair the comb, and predicted that the word would be visible because the fresh, white new wax would stand out starkly against the darkness of the old comb. However, yet again I underestimated the bees’ resourcefulness. As opposed to using fresh wax excreted from their bodies, they recycled the old wax and used it for the repair, keeping the honeycomb pattern so seamlessly that the word was only visible in the still open areas. I decided to leave it one more week, but in that time, the comb began to fill with brood. The process of trial and error requires finding a rhythm with the bees and paying close attention to their habitat.

While working with the bees, several times a week I would go out and just watch them. When the hives were open I took video, delighting in witnessing a waggle dance, where the bees communicate directions to food, amongst other things. I was thrilled to witness a bee emerging from the capped comb for the first time, being born to her sisters’ grooming and ministrations. At the end of summer I filmed two bees conversing on top of the hive as they died, having lost

their queen. I began to feel that the best part of this project, the most rewarding for me personally, was observing the bees themselves.
Chapter 9: Toward Obliteration

Dan Jarvis and I began to discuss the possibility of building observation hives as a potential way of working with the bees, in part because my thesis show would be too early in the year to make objects with them for it. I made several trips to the Urban Art Space, desperately looking for an entry or exit point, but there were none to be found. Ethically, this was a quandary, and certainly not ideal. Given that honeybees are shipped in packages, we knew they could survive entrapment for a short time, but five days would be stressful for them. We could bring the bees back to Sherman for the two days the gallery was closed, and decided to take the risk while trying to build as large and comfortable a space as we could for them.

The bees’ entrapment serves as metaphor as well. They are, quite literally, trapped in the world we are making for them and ourselves. The same is true in the hive, although to a greater degree. The visual cacophony of the built environment that we navigate daily is often as invisible to us as the insects on which we depend for our survival. The imagery I chose to laser cut, in five layers, was chosen via two criteria: providing interesting structures on which the bees could build, and elucidating my research regarding Colony Collapse Disorder. The imagery chosen represents the different theories: power lines and nuclear power plants to represent electromagnetic radiation, cell phone towers, corn, and factory farms. To represent the pesticides, I chose the largest manufacturer of Neonicotinoids and supplier to Monsanto, largest consumer of the chemical: Bayer.
Fig. 29: Toward Obliteration, Laser cut wood, Glass, Live Honeybees, 2012
Bayer is known for it’s aspirin, however, Bayer Crop Science “introduced Clothianidin to the U.S. market in spring of 2003,”52 despite the fact that “…EPA scientists…reiterated concerns that widespread use of clothianidin imperils the health of the nation’s honeybees.”

I chose an image of the Bayer Factory at its headquarters, Leverkusen, North Rhine-Westphalia, Germany. In addition to manufacturing aspirin and pesticides, Bayer became the largest profiteer from Hitler’s Germany in the Second World War.53 They also were responsible for manufacturing the Zyklon B pesticide that was modified for use during the holocaust in the gas chambers at Auschwitz-Birkenau.54 The millions of humans killed in the gas chambers of the holocaust is naturally horrifying. How many people will die if the bees are not saved? Is it possible that this 149-year-old corporation will again participate in causing irreparable harm to the human race?

One of the best hopes for the bees was a transnational company called Beeologics, who were working to develop an anti-viral agent called Remembee that they hoped would stem Colony Collapse Disorder. However, on September 28, 2011, Monsanto, the world’s largest seed company and one of the biggest users of Clothianidin, purchased Beeologics. It is thought that they intend to use Beeologics’ research to develop more Genetically Modified Organisms, but it remains to be seen what this will mean for the bees.55 Given Monsanto’s track

53 www.gmwatch.org/gm-firms/11153-bayer-a-history
54 ibid
record and the fact that Beeologics had named Monsanto as a potential cause of bee decline, it is difficult to be hopeful.

In putting together the interior design of the observation hive, I knew the bees would like horizontal lines most and that small holes could potentially be filled with orange propolis. The burned edge of the laser cut Baltic birch is

Fig. 30: Towards Obliteration, Detail with Bee
dark enough to provide an interesting contrast with the comb, and also speaks to a sort of violence in the 2000-megahertz frequency the laser uses to cut through 1/8” material.

The layers are spaced the same distance apart they would be in a regular hive, 3/8” apart at the top. I had wanted to leave the layers unframed, so that people could see through the glass sides to every part of the hive. However, this turned out to be a design flaw in the increased humidity of the Urban Art Space, and the boards unfortunately warped.

I hired Daniel Jarvis to build the cabinetry for the hive, but in the end he had so much design input for the mechanics of the bee’s home, it felt more like a true collaboration. Together we decided that a small inner hive would be the bee’s actual home, hidden inside a pedestal for the removable glass observation hive. Using a queen excluder, we would keep the queen in the lower portion of the hive, so that if and when the bees built comb it would be possible to remove the bees from the hive. We estimated that the lower hive contained approximately 4000 – 6000 bees. The inner hive could be taken out when the bees got their much-deserved break from the gallery. We decided to have a wheeled base, for ease in moving the unit, although this proved impractical in the long run.

We chose White Ash for the cabinetry, a tree that is facing material extinction due to being threatened by an invasive species - the emerald ash borer, which was transported via human involvement from China. Just as the human species threatens bees with our activities, we have also unbalanced the microcosm that the White Ash is dependent on. The Emerald Ash Borer, however, will continue to live on in China; long after all White Ash is extinct in North America. In the legs of the base, there are small scars that are evidence of
the Ash Borer’s presence that would reward the careful and knowledgeable viewer, although it is unexpected that most would notice.

My hope was that the bees would eventually obliterate most of the indicators of human built environment with their own precision architecture, leading to the title *Towards Obliteration*. However, as with all of the projects thus far with the bees, their behavior was not predictable, so we knew there was a possibility that they would not build in the hive while in the gallery. True to form, the bees were too confused by the glass and lights to build. I plan to build another hive to house the interior structures of the observation hive so that the bees can build in peace and quiet over the summer, while still utilizing the queen excluder so that the entire structure can be placed back in the glass case.
There were multiple problems and concerns with experimenting with a living system in the gallery space. I was anxious that the bees be comfortable, in spite of the fact that I knew they would prefer to be elsewhere. They had been furnished with multiple air holes, and the entire bottom of the hive was screened so that they would have ample airflow. We were careful to light the hive somewhat indirectly so as not to heat the glass. Amy Ritter had helped me blow a large glass feeder for the top of the hive, which was fitted into a hole and covered with a layer of fabric held on by a rubber band – the surface tension allows the bees to get a drop of sugar water by poking their tongues against the surface.

The first minor disaster occurred when the bees, natural escape artists, found an exit point on the day the exhibition opened. In an earlier design, Dan had cut a slot in the ends of the exterior plinth so that the bees could get out when we took them home, however, the design changed and he closed that off on the inside, hiding the slot within the wheeled base. In spite of the careful redesign, five bees managed to utilize it as a route to escape, and with the help of the gallery staff we were able to capture a couple of them and release them outdoors. The other escapees were not seen again in the gallery and no further problems ensued after I covered the slots with screen and tape.

The second minor disaster happened the day before the opening. Hoping to refill their feeder, I encountered another design flaw: the rubber band and fabric on the feeder had been glued into the hole by the crystalized sugar water. While standing on a step stool and trying to gently free the feeder, the rubber band broke, flooding the hive and myself. Since all elements in the hive were vertical and the screen at the bottom allowed the liquid to escape, the bee deaths
were minor, although visible to the audience along the bottom of the hive. Although I worked to clean the exterior of the hive and surrounding area as best I could, the interior was inaccessible and a mess. When I returned the next day, the industrious bees had cleaned up most of the sugar water inside and had removed their dead, although the glass was now covered with an unattractive haze.

At the opening, I overheard a man say to the woman he was with, “I want to push it over and free them” (which of course would most likely kill the hive as well). He approached us aggressively, telling Dan and myself that the bees were going to die if we didn’t get them out of there. It was obvious from the bees’ behavior that they were extremely agitated by the activity of the opening and the fact that it was their last day of entrapment. However, we were confident that they were not in danger, only stressed. In talking to the man we found out that he was a beekeeper. This is where Dan’s experience became even more useful, as he had worked with observation hives and spoken to the public in the past at the Bee Extension. In discussing their respective experiences, we discovered that the man had been a migratory beekeeper for many years, which involves both confinement and massive stress for the bees. It also spreads diseases, as migratory beekeepers cover hundreds of miles as they move from farm to farm-pollinating crops. In the end, the beekeeper left without incident, with both of us learning something I believe.

Although I feel the aesthetics of the piece were successful and the public clearly enjoyed observing the bees, I don’t think I would do it again in this way, for the stress on both the bees and myself was great. By the end of the exhibition, the bees had Nozema, a sickness that is indicated by dark brown streaks of diarrhea in the hive. And because the weather was cold when we
brought them back from the gallery, many did not survive being transferred back outdoors, being too cold to make it back into the smaller hive. (In trying to coax them into the smaller hive I sustained four bee stings, which seemed a small price to pay for entrapping them.) The hive did survive, however, in spite of the challenges, and has recovered and thrived despite minor losses in their population. In the end, it is my goal to never harm the bees in our collaborations.

After returning the bees to their home, I made an alarming discovery after having an extreme reaction to my eighth sting: I am allergic to bee stings. Previously unaware of this, I had assumed the reactions I had were normal, however, the fever, swelling, and blistering I experienced on the final sting were enough to send me to the doctor. I find an ironic poesis in this discovery. I plan to proceed carefully with the bees, as I feel this work is extremely important. In order to continue safely, I have invested in a full bee suit so that I can continue our collaborations. I hope to find more ways that audiences can experience live bees in more permanent formats, where the bees will be in a more natural habitat and audiences will benefit from the educational experience of viewing their habits. I intend to continue our rich partnership for as long as my body allows. This work with the bees has led me to explore other natural systems, and I am currently researching Acorn Ant colonies, native grasses, Carpenter Bees and Emerald Ash Borers as potential future partners in the creation of new works.
LIST OF REFERENCES


Ernst Van Alphen, Sheer Skin: The dissolution of Sculptural Skin and Sculpted Skin, in Alina Szapocznikow: Akward Objects, Edited by Agata Jakubowska, p. 121


Crane, Eva, The Archaeology of Beekeeping, Duckworth, University of Minnesota, 1983.


Favre, Daniel, Mobile Phone-Induced Honeybee Worker Piping, Apidologie, 2011 42:270 - 279


www.elevenrivington.com/ARTISTS_new/Hilary%20Berseth.html

premierartscene.com/magazine/desing-miami-basel-2010/


Bee Propolis Stops Tumors from Neurofibromatosis and Cancer, Barbara L. Minton, April 29, 2009
http://www.naturalnews.com/026158_propolis_tumors_cancer.html#ixzz1jSL1mzdN


www.gmwatch.org/gm-firms/11153-bayer-a-history
