NOVATION

Masters of Fine Arts Research & Exhibition by Paul Van Atta
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Abstract

This thesis project commenced as a form of study. The work involved derives from these points of exploration and manifested itself into a dichotomy between primitivism and modernism. Its commentary builds upon our reliance on technology, though it regretfully represents only a small, but significant collection of objects.

The first form of study gave way to intriguing finds, such as the dielectric paper. This paper became the primary material used in this thesis project, as its ambiguity can result in various interpretations. The second form of study came about while researching local and national electronic recycling centers. This provided the history of the waste's contamination. The second form of study directly influenced the third form of study, in which more emphasis was given to international recycling centers. Some of these centers were stationed in areas where electronic waste had the most effect on the people's lives. In turn, the project delved into researching the culture around these centers, and sought to recognize those who try to resolve and/or reduce the waste's impact on ecology.

This thesis came from a personal affiliation with electronics, which stems as far back as childhood. This reflection arose as a means to recognize a household that collected and recycled obsolete electronics. Even some of the material used within this thesis came from this household, in which the materials became a window into a world in need of recycling electronic waste.
First Form of Study: Material Exploration

A capacitor contains ethylene-glycol as an electrolyte, which becomes corrosive once introduced to chlorine, copper, and iron: all of which are common water contaminants.¹ These capacitors that remain on the shelf, stored away, or even dumped in a landfill have the tendency to corrode the aluminum film within the capacitor. The ethylene-glycol is a coolant fluid, and works well when absorbed into the dielectric paper.² This paper is also coiled and placed in between the aluminum foil. Within multiple decades, the process of etching takes place, in which sections of the dielectric paper become adhered to the corroded metal. Much like in printmaking, artists use nitric acid or ferric chloride acid to etch into a zinc or copper plate.³ The capacitor goes through the same process, but requires the means for slow decay.

This slow decay creates its own statement. The material used as the substrate within the thesis work demonstrates a fragility and a primal means to create art. Furthermore, using the corroded material as a matrix to print on the dielectric substrate adds to the texture of the overall work. As most notably shown in figure 1 and 2, the impressions from the corroded material emphasize and expand upon the results of the contamination occupying the space within a composition. The process of letting

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the capacitors decompose gives a truth to the paper’s fragility and lets the viewer reflect on the fragility of their surroundings.

Each strip of dielectric paper also creates its own message. The singular strip can represent a means of fixing, much like strips of gauze. Though the staining from the paper is a result of chemical reactions, the staining could also imply visceral conditions, like that of damage. Therefore, the means to weave the dielectric paper could imply security. As shown in figure 2, the looseness of the collage gives more emphasis to a single strip of dielectric paper. The viewer can then focus much more on the individual strip than on the entirety of the image.

Much of this dielectric paper originated in various countries. Some were produced in the United States, while others were produced in Asian countries. The search for various capacitors came from the help of multiple recycling centers, such as P&T Surplus, the Saugerties landfill, and the scraping center in Kingston and the Kuusakoski recycling center in Philadelphia.
Second Form of Study: Fieldwork

At first, searching started locally within the Hudson Valley. The one main producer of capacitors during the middle 1970s was General Electric. Within this time, General Electric contaminated the Hudson River with their disposal of polychlorinated biphenyls, a coolant fluid. The pollution caused a range of harmful effects to wildlife and people who eat fish from the river or drink the water. According to the U.S. Environmental Protection Agency, direct contact with these chemicals can cause cancer in animals and are probable human carcinogens. General Electric produced some of the capacitors used in the thesis exhibition. Most of these capacitors came from P&T Surplus, while others were still found within computers at the Saugerties landfill site.

Later fieldwork came out of the Kuusakoski recycling center in Philadelphia, where photographs taken from the site uncovered current processes for recycling electronics. The most important equipment currently at the recycling center’s disposal is the SSI shredder. This electronic shredder uses a flat, inclined belt to transport electronic waste before separating the waste into plastics and metals. As shown in figure 3, the image printed on the dielectric paper for the thesis exhibition depicts this belt, along with the electronic, recycling workers siphoning through the debris.

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4 Environmental Protection Agency. ‘Hudson River PCBs: Background and Site Information’. http://www.epa.gov/hudson/background.htm

5 Environmental Protection Agency. ‘Polychlorinated Biphenyls’. http://www.epa.gov/epawaste/hazard/tsd/pcbs/about.htm
There are two ways of interpreting this image taken from the Kuusakoski recycling center. One depiction is that of a belt carrying electronic waste, but it could also convey a more generalized image of a body of ambiguous objects. The belt could give suggestion to a river through the use of cross-hatching on Plexiglas with a box cutting blade. This documentation of the engraved Plexiglas is presented in figure 4. The image, though engraved with immense detail, does not give true form to any specific object. Each object becomes muddled, and results in the depiction of an unified form. The manipulated image shows how specific chemicals, such as those found in polychloride biphenyls, can fully immerse themselves into an environment. The issue is not the waste we see, but the chemicals hidden in components of the electronic waste.

The image of a shredding belt and the recycling workers repeats itself within each collage. This repetition implies production, but also disintegration, as can be seen in figure 5. The manipulation of the image throughout each collage further emphasizes the discomfort in how polychloride biphenyls can cause cellular mutations in animals and possible cancers in humans. It also demonstrates our current desires to combat the negative implications of these chemicals through electronic recycling. Though we have made progress in reducing the effects of electronic waste, efforts to reduce the waste have only begun in other countries over the last decade.6

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Third Form of Study: Cultural Examination

Specifically in India, the city of Karnataka made strides in addressing electronic waste. 2014 marked the year in which a government-funded group from India, called the Centre for Materials for Electronics Today, developed expertise to initiate research and develop plants in processing electronic materials for industrial use. This would be the first plant in India to use eco-friendly means to recycle electronics without throwing much of the electronics away into waste streams.\(^7\) Karnataka has also enacted notices to companies like Apple and Samsung from violating their e-waste facilitation regulations. The e-waste rules demand that the producers of electrical and electronic equipment manage the removal of toxic materials, such as lead, PCBs, ethylene-glycol, etc. before disposing those electronics. Thirty-two producers have not complied to those notifications, and instead, continue to irresponsibly deposit e-waste.\(^8\)

In further researching Karnataka, one group that resides near and in the city has dealt with the issues resulting from electronic waste. This group, called Siddis, has strong ties in the tradition of recycling as a means to provide for the family. Their fabric weaving became an influence on the design of the collages found within the thesis exhibit.\(^9\) They cut used fabric in strips and wove together each strip to form

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asymmetrical quilts, called kawandi. The mother who creates a quilt gives one to each of her children, with each family producing three to five quilts.

The kawandi can serve as a storytelling device, in which each piece of cloth represents a memory. The siddis usually lay pieces of cloth together that contrast in color as a means to preserve and glorify each recycled piece. The quilts sometimes incorporate religious symbols, or images that represent a saving grace.\(^\text{10}\) The entirety of each quilt relates to the strength in acknowledging renewal, and giving that warmth to emerging generations.

This idea of renewal became such an interesting topic which contrasts in working with the obsolete, because the journey leads back to its roots. The research for the thesis came about as a means for personal engagement and influence in one’s childhood. To see how families from differing countries can share ideas of recycling should give those who live in the Hudson hope that community efforts will rebuild a devastated ecology. This thesis should show how even with the contamination from the production of capacitors, we will participate in renewal. Eventually, we will provide for newer generations just as much as how Karnataka will do what it can to provide for the generations of their families.

The piece shown in both figures 6 and 7 also result in the weaving of dielectric paper, in which the paper is then molded to form a facade. The piece shows the connection created between countries that have all needed to reduce electronic waste. We have been called in this digital generation to provide the means to recycle. What

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you see now is the tools that may have caused ecological impairment, but also can aid in relieving distress. The lenticulated screen in figures 6 and 7 provide the visual impairment, while we are closer to reaching a unified discourse. It is that moment where we can almost grasp at an answer, yet a glaring scene blinds us from reaching a solution.
The Installation

The thesis exhibition came about in a site specific manner, in which a hanging system made of construction wood hung each of the collaged prints. This hanging system, along with the pieces, are shown in figure 8. The location gave each suspended piece enough space to create very significant shadows, as shown in Figure 9. The shadows give even more emphasis as to how each collage can manipulate its environment. The use of direct lighting on the collages creates a sharp atmosphere that travels beyond the printed surface. Without the suspension of the work, the printed materials could not contaminate the walls and floor of the museum. In this instance, the space around the work becomes the art as well. It shows the permeation of an object to its surroundings, much like the chemicals diffusing out of the capacitor and into bodies of water.

The direct lighting also affected the dielectric paper in other ways as well. This paper provided a translucency for light to pass through, except when layers of paper were pasted together using methylcellulose. This adhesive called methylcellulose is a complex carbohydrate that dries clear and slightly stiffens the dielectric paper. It also provides an organic way of sealing and preserving the paper during its installation process. When light passes through the paper, in addition with the methylcellulose, the paper gives off a slight glow. This effect shows a brief liveliness in certain sections of the collage. The exhibition lights also show the range of depth within each collage, which gives more variety and contrast.
The entire portrayal of the site does reflect an abstract structure of a living room, because all of the research first came from first exploring one’s environment. The thesis lets the viewer explore a reflection of this environment as well. It gives the viewer an opportunity to raise questions and create dialogue, just as how the research had begun. Therefore, the thesis becomes this living space for the viewer as well. It takes the obsolete, and reuses it to create a new space. It provides novation, which is considered an obsolete word in and of itself\textsuperscript{11}, yet now has meaning again. Everything presented has meaning again.

\textsuperscript{11} \url{http://dictionary.reference.com/browse/novation}. Definition of novation includes: (law) the substitution of a new obligation for an old one by mutual agreement between the parties, esp of one debtor or creditor for another, and an obsolete word for innovation.
Works Cited


Figure 1.
**Dielectric Kawandia #4**
drypoint on dielectric paper from capacitors
Figure 2.
*Dielectric Kwandia #1*
drypoint on dielectric paper from capacitors
Figure 3.
**Dielectric Kawandia #3**
drypoint on dielectric paper from capacitors
Figure 4.
Pedestal Holding Matrix #1, Matrix #2, and Matrix #3
engraved and previously inked Plexiglas
Figure 5.
**Dielectric Kawandia #2**
drypoint on dielectric paper from capacitors
Figure 6  
**Electronic Aura (Turned Off)**  
dielectric paper from capacitors, lenticulated screen,  
circuit boards, flood light, wires, and an SPDT switch
Figure 7

Electronic Aura (Turned On)
dielectric paper from capacitors, lenticulated screen, circuit boards, flood light, wires, and an SPDT switch
Figure 8.
Thesis exhibit in its entirety.
Figure 9.

**Dielectric Kawandia #5**

drypoint on dielectric paper from capacitors
Show Cards (Edition of 200)

200 show cards were screen printed, front and back, to continue with the variables shown in the collaged prints and in the interactive computer monitor.