LITTLE MOVING WINDOWS

A thesis submitted to the
Kent State University Honors College
in partial fulfillment of the requirements
for University Honors

by

Natalie Petrosky

August, 2012
Thesis written by

Natalie Petrosky

Approved by

____________________________________________________, Advisor

____________________________________________________, Director, School of Art

Accepted by

____________________________________________________, Dean, Honors College
TABLE OF CONTENTS

LIST OF FIGURES ........................................................................ iv

ACKNOWLEDGMENTS ................................................................. v

CHAPTER

I. INTRODUCTION ............................................................... 1

II. DEVELOPMENT ............................................................... 3

III. MATERIALS ................................................................. 6

IV. PROCESS ................................................................. 9

V. CONCLUSION ........................................................... 18

FIGURES ........................................................................ 20
LIST OF FIGURES

Figure

1  Installation Shot 1 ................................................................. 20

2.1  Installation Shot 2 ................................................................. 21

2.2  Installation Shot 3 ................................................................. 21

3.1  Installation Shot 4 ................................................................. 22

3.2  Installation Shot 5 ................................................................. 22

4.1  Installation Shot 6 ................................................................. 23

4.2  Installation Shot 7 ................................................................. 23

5.1  Installation Shot 8 ................................................................. 24

5.2  Installation Shot 9 ................................................................. 24

6.1  Installation Shot 10 ............................................................... 25

6.2  Installation Shot 11 ............................................................... 25
ACKNOWLEDGMENTS

I would like to thank my advisor, Sean Mercer, who guided and supported me through my endeavors to complete an honors thesis. I would also like to say thank you for the wonderful feedback from the members of my oral defense committee: Gianna Commity, Kathleen Browne, and Paul O’Keeffe. I would like to mention my parents, Ron and Sylvia Petrosky. They have always been my personal cheerleaders and I hope I make them proud everyday. Last but not least I want to thank Agustin Sanchez. He kept me sane and was always there to help.
CHAPTER I
INTRODUCTION

The original idea for my thesis stemmed from a fascination with a chipmunk taxidermy form. I was very intrigued by the idea of an individual stuffing such a small creature and displaying it as a prize or trophy. Starting with that form, I set out to make multiples out of cast glass, which would include different pieces of copper inside of them. My initial goal was to have a freestanding, three-dimensional installation piece. I wanted to make a significant visual impact due to the amount and size of the multiples. Since I was working with an animal form, it was a natural step to start working towards creating a large herd. Through the process of making the multiples, I began to think about what the herd meant as a whole.

I worked in a detached manner on each of the multiples, but there was always a sense of cohesiveness. I was making them all for the same purpose: to be a member of a herd that shared a common goal. When I installed the entirety of the herd in the gallery, I had a realization of the futility of any common goal they could possibly have. Due to the way I constructed them and the close proximity I placed them to one another, they could never function as a real moving herd. Their long straight legs would tangle with any movement and cause them to come crashing down. I enjoyed that any embodiment of them becoming a real herd was destroyed, which gave way to other underlying meanings. There was a rigid series of processes that I followed for making each multiple. In dealing with that monotony, it became apparent to me that the importance of my work was not
just in creating a large herd, but also in each individual piece. Any break in the monotony became of heightened interest to me, such as the differences in each piece resulting from the copper inclusions. The copper acted like special packages that each one was protectively carrying somewhere. Each chipmunk body became a protector of an unidentifiable object contained within itself.

As I was making the herd, I was thinking about the idea of progressing. I am finishing one stage of my life and I have to decide what to do next. I wanted this installation to reflect an insecurity of change and a struggle to move forward. The copper inclusions represent the things in my life that I can no longer hold on to, but so badly want. They are the comforts of home, childhood, and even physical possessions that I will have to let go.
CHAPTER II

DEVELOPMENT

For the presentation of each piece I did not want to utilize a fixed display pedestal. The elongated wooden supports, or legs, also serve to bring the chipmunk body closer to the viewer’s level. I wanted to make the multiples approachable and relatable to the human body. To avoid a static display where all of the pieces were at one level, I gave a minor variation to the height of the legs. This created a slight undulation amongst the herd. When the pieces are all together, they create an appearance of a moving landscape instead of a level plane of bodies. I gave additional movement to each piece with how the legs were positioned on the glass pieces. Some of them have front legs that hover slightly above the ground, while others have back legs that do the same. This shows how they could be moving together by widely swinging their stiff legs.

I planned the appendage structures to be sanded from a normal wooden dowel rod shape down to a taper. I thought this was an important element to ground the form in which they supported. The legs also created multiple line elements that had a solid form at the top. There became a forest of lines with fewer solid objects floating above. The visual weight or visual mass of the legs is greater than the visual mass of the bodies. Even though this is physically the case, the focus is not taken away from the glass bodies. Both elements share an equal visual
interest due to the detail of the glass pieces. I also planned the appendage structures so as to create a sense of tension in the viewer. The pointed legs served to precariously perch the glass objects and draw the attention back down to the floor.

I found it difficult to plan what the finished herd would look like, how it would be presented, and how it would present itself. I tried to envision what they would look like in the gallery space, keeping in mind that there were infinite ways to display the collection. I tried a dry run of a limited number of pieces in a non-gallery room. The total effect was not obtained until installation in the gallery. When they were installed in the gallery they looked like they were frozen in time, caught in a moment of peace. They communicated individually, with each other, and with the space.

I experimented with opposites, attributing characteristics to an animal that it did not normally have. In this case my creatures were not quick as most rodents would normally be. They were slow and lumbering. I further considered that normally chipmunks do not exist or move in herds at all. I had transformed the rodents into an ambiguous grouping. Their original purpose had been destroyed and replaced with my needs.

Contained within the herd were a few anomalies to the cohesiveness of all the pieces. These few inconsistencies are included because they reemphasize the importance of each piece as an individual. There is a significantly shorter piece placed in the center of the herd that reads as an infant comparatively to the others. The small one is the most protected of the group and becomes a focal point. I thought it was important to include
this piece to reference a support system within the crowd of creatures. It brings in the understood knowledge of protecting the young.

Another anomaly is my decision to include two pieces that have the chipmunk body cast out of opaque colored glass. One of them is the same red/brown color that the copper turns during the casting process. I think of this piece being at the heart of the herd. It was placed in the upper right side of the group, where a heart would be. Its color takes what is on the inside of the others and wears it on the outside. It could be the black sheep of the herd, or the most honest. The other opaque body is in the back of the herd and is an almond color with the blue from the copper oxidizing. It looks sickly and references the futility of the group’s journey. Planting the idea that there could be something wrong with all of them and they will never make it to where they are going.
CHAPTER III

MATERIALS

The primary materials selected were glass, copper, wood, and brass. I wanted to use each material for its natural characteristics. Mainly I did not want to alter their standard qualities besides certain sustainment treatments. The glass is clear. The copper was only altered during the casting process, which was out of my hands. The wood was left natural, just treated with linseed oil. And finally the brass was only altered by heat.

Glass was selected because of its transparency and translucency – for the ability to see what is inside an object made from the glass. This was important because the pieces were going to include scrap copper wire and sheeting that were intended to be seen. The clear glass also allowed blue colored oxidation that occurred from the copper to be visible. The pieces were going to be subjected to polishing, in part, to make the glass have even greater transparency in certain areas.

I chose to use copper because of the color in its natural and oxidized state as well as for the textural effect. During the casting process, the copper moves slightly and a color trail of blue, or halo, is formed. Additionally, copper has a similar coefficient of expansion as glass. This means that they tend to heat up and cool down at the same rate. This causes less cracking in the glass when the two are combined. Scrap copper wire and sheeting of different gauges (thicknesses) was used due to its varying textural interest. I used a large amount of copper in each piece given the size of the casting. This created a
severe amount of cracking in many of the casting, especially when the copper was very close to or on the surface of the casting.

A light colored wood was selected as a contrasting material to the glass. The natural color of the wood was maintained to compliment the clear glass and not overpower it. A darker wood or stain on the wood would have taken a significant amount of visual weight away from the glass pieces.

Brass tubing was selected to sleeve and support the joint between the glass and the wood attachments. The new brass was heat treated slightly to tone down its naturally bright patina. An exciting secret was also hidden inside of the brass tubing. I placed extra strong magnets, called rare earth magnets, within the brass sleeves. I had also attached metal washers to the tops of the dowel rods. This enabled the appendages to be removable. The washers on the dowel rods stick to the magnet inside of the brass, which holds the wooden attachments in place.

It is intended that through the use of polished glass windows and copper inclusions the viewer will notice that each creature has an obvious internal structure; and upon closer inspection that the creature carries something. The creature is a vessel for a non-discernable object – perhaps something precious or perhaps something else left to the viewer’s imagination. Or maybe it is just and organ. It is also intended when viewing the herd as a group that there is a connection among them due to a certain movement that can be discerned from the visual interaction of the copper inclusions.

The use of long wood pieces was intended to elevate the bodies rather than the pieces being displayed on fixed pedestals. The long wood pieces are cut to different
lengths to provide a landscape of creatures that undulate, and create further movement. The wood pieces were also intended to provide a transportable work that could be easily disassembled, moved, and reinstalled in different locations. The use of long wood pieces as elongated legs with glass atop – a potentially unstable support for the precariously perched and fragile glass - is intended to create a tension in the audience.
CHAPTER IV

PROCESS

A major part of this installation was the process of how I made each piece. It all started with the original foam taxidermy form of a small rodent. From there I had to make a three part plaster mold around the foam rodent in order to obtain a wax that I could alter to suit my needs. Plaster comes as a powdery substance that will harden after it is mixed with water. It is ideal for mold making due to its rigidity and ability to pick up detail. When making a three-part plaster mold, it is important to divide the three sections so that there are no undercuts on the original form for the plaster to get caught on. An undercut is an area on a three-dimensional object that slices under a plane on the form. I also had to attach a pour cup onto the rodent’s behind end. A pour cup is an opening in the mold that is used to get the material for making a positive form in and out of the mold material (surrounding mold shell).

Once I created my wax positive, I altered the rodent’s legs. I removed the tiny feet and replaced them with small pieces of half inch steel round stock. The half-inch stock was important because the idea was to have the rodent’s leg stubs the same size as the half inch dowel rod legs which would be added later. The two would be sleeved by 17/32 brass tubing and join perfectly.

Now that I had my altered rodent form, it was time to make a mold from which I could pull or create multiple waxes. I needed as many multiple wax forms as I would be making glass pieces – seventy-two in all. A plaster mold would not be able to withstand
the amount of waxes I would be pulling, so I decided to hand build a silicone mold. A silicone mold functions very similarly to a two-part rubber mold, as it is a flexible material. In order to touch silicone with your bare hands, you need to squirt it into a bucket of soapy water and get your hands real soapy too. It is then possible to ball the silicone up and push it onto the form, in this case the altered rodent, without it sticking to you.

After waiting twenty-four hours for the silicone to stiffen, it is time to slice it open and take out the original form. When I built the silicone mold, I made sure to add a thicker area down the backside of the rodent called a seam line. I knew that I would be cutting the mold open down that line, so I wanted a little extra material there. Adding the extra material to the seam line was helpful when I went to seal the mold back up. I used sewing pins to hold the seam together, which was strong enough to hold the hot wax I poured into the mold. Since I wanted the wax positives to be hollow, I waited until the wax had a chance to cool down along the outer edges and then poured the excess out. This created a shell of the altered chipmunk form, which was repeated seventy-two times.

Once I had my wax positives, it was time to prep them for making casting molds. Silicone molds do not make perfect wax positives, so there were some minor distortions in the positives to clean up. I used an electric wax-working pen to help smooth out any undesirable lines and to fill in any pockets created by air bubbles. When making wax positives, it is important to be aware of the temperature of the wax being poured into the mold. If it is too hot, it is more likely to have air bubbles trapped inside and it takes much longer for the outer edges to cool down because the silicone acts
as an insulator. On the other side, if it is too cold, the wax has a more difficult time picking up detail in the form and striated pour lines can occur. The final step to prepare the waxes was to wipe them down with Goo Gone®, which gives them a smooth surface.

With the waxes prepped, it was time to make the molds I would use to cast the glass positives. I used a mixture of plaster and silica as the material for my molds. Silica is also a powdery substance like plaster is, and it can also be mixed with water. Unlike plaster, however, it can better withstand the heat necessary to cast glass. Plaster/silica molds can either be hand built or poured. I chose to pour my molds due to the large amount I was making. I started by attaching the pour cup of the wax form flat onto a table with clay so that the nose of the chipmunk was pointed upwards. I then used tarpaper rolled into cylinders and duct taped shut as the form I would use to pour the plaster/silica mixture into. Tarpaper was an ideal material because it does not stick to the plaster/silica once it hardens. The tarpaper was held in place around the wax with a little bit of plaster on the outside to seal the bottom.

Before I poured the plaster/silica, I needed to attach air vents to the legs of the chipmunk. These air vents, also known as sprues, are tiny holes that reach to the outside of the mold. They allow air to escape during the glass casting process. Without them, air would be trapped inside of the mold as the molten glass flowed into it, prohibiting the form to cast properly. The sprues were made by poking thin wire through the tarpaper and into the wax legs. The wire would then be removed after the plaster/silica was set.
When making a plaster/silica mold, it is important to always wear a fine particulate respirator. Silica is extremely bad to breathe in and prolonged exposure can result in the lung disease silicosis. With that in mind, I would always start the process of making my plaster/silica mixture by putting on my respirator. From there I would measure out the proper ratios of water to plaster to silica by weight. Before mixing them all together I would also shred fiberglass strands into the water bucket. The fiberglass acts as an extra binder in the mold to make it stronger and less likely to fail during the casting process. Once all of these things were mixed together, they were poured into the tarpaper form. After the plaster/silica was hard, I would unwrap the new molds from the tarpaper.

Now that I had plaster/silica molds, it was time to steam out the wax positives inside of them. I used a pressure cooker sitting on a hot plate. There was a tube attached at one end to a tiny hole in the lid of the pressure cooker that was stuffed into my plaster/silica mold at the other end. As the water boiled inside of the pressure cooker, the steam escaped through the tiny hole in the lid and traveled through the tube and into my mold. The steam would slowly melt the wax positive out of the plaster/silica mold, leaving a hollow cavity to cast glass into. This whole process of making wax positives and then steaming them out of new molds is called a lost wax process. It is perfect for making multiples of the same object.

Glass needs to be brought up to casting temperature at a certain rate and then brought back down to room temperature at a specific rate. The most important part of this is how fast the glass cools down. This cool down is at an extremely slow rate and is
known as the annealing process. It has to do with removing any internal stress the glass might have after it has been in a molten state. If the stress is not removed, it could result in severe cracking of the glass even to the point of exploding.

The first step of going into a kiln to cast glass is writing an annealing schedule. A program must be written for the electronic controller that regulates the temperature of the kiln. These programs vary based on the kind of glass used and on the thickness of the piece being casted. The thicker the piece, the longer it will take to anneal. Since the glass pieces I was casting were on the small side, I had a relatively short program of one hundred and twenty hours.

There are three main parts of a kiln-casting program. The first section, referred to as the ramp up, is how fast the kiln reaches casting temperature, which for me, was 1560°F. The plaster/silica molds need to be slowly brought up to 1000°F and sit there for a while. During this time, the kiln’s lid is cracked open slightly. This allows for any excess moisture in the molds to escape and evaporate. From here, the kiln is brought up to 1560°F as fast as possible. In this second section, the kiln will stay at casting temperate for as long as it takes the glass to fully melt into the mold.

Once the mold is full, the kiln is programmed to drop to 1200°F as fast as possible. This temperature zone is known as the anti-shrink zone and is the beginning of the long third section of the program. In some cases, castings appear to shrivel in some areas. Writing a program through the anti-shrink zone helps eliminate that. After this zone, the kiln will slowly go through the annealing temperature, which for me was 930°F.
It will sit there for a while and then drop slowly down to 750°F and then down to room temperature.

Once the annealing schedule was written, it was time to start loading the kiln with my molds. The kiln I used had the capacity to hold thirty-two molds at once. Before placing the molds inside of the kiln, I covered its floor with sand. The sand helps in making the molds level and also acts as a barrier for the kiln bricks just incase some molten glass spills outside of the molds. After the molds were in place inside of the kiln, I placed a piece of copper inside of each one. I had to bend and cut the copper so it could fit through the small opening in the pour cup.

When the copper was positioned in the right place, I had to add the glass that would melt around it. Instead of piling glass into the molds, I used the flowerpot method. This method consists of placing a terra cotta flowerpot that is elevated by small kiln bricks over each mold. I drilled out a large hole in the bottom of the pots that was then lined up with each mold’s pour cup. I measured out the amount of glass I needed to fill each mold, 1.2 pounds per casting, and placed it into the pots. The terra cotta pots act like an extended pour cup. As the glass melts, it will flow through the hole in the bottom of the pot and into the mold.

Most of the glass I used was an optically clear glass called crystal clear. I used it in the form of cullet, which is a term used for medium sized shards of glass. The size of the chunks of glass used for casting dictates the amount of air bubbles that get trapped inside of the casting. Small chunks create many bubbles while oppositely; large chunks
create very few bubbles. The size of chunks I used created a middle range of bubbling that was increased by the copper inclusions releasing gases as the glass melted around it.

I did experiment with colored glass in a few castings. I was interested to see how the blue oxidation from the copper reacted with different colors. All of the colored glass was transparent before being cast, but many of the colors turned opaque after the fact. Most of the colored results were strange and unsatisfying, so I decided to edit them out. Compared to the amount of clear castings I had, the colored ones seemed arbitrary.

Once the kiln is completely prepared, it can cycle through the casting program. When the molds reach room temperature again, it is time to remove the glass castings. The plaster/silica molds have become very brittle after going through a firing in a kiln. It is easy enough to crack them apart, making sure to be careful not to smash the actual glass piece inside. After the glass is freed, it needs a good scrub and something to knock off the flashing. Flashing is when the mold starts to fail slightly around the glass form and it creates flat, extended lines all around the piece. These undesirable lines can be tapped off easily.

In the first group of thirty-two castings I made, only half casted properly. The other half only casted partially due to a number of reasons. The castings that failed were located in the center of the kiln. This lead me to believe that they did not have a chance to heat up as much as the molds on the outside of the grouping that were right next to the heating elements. In order to fix this problem I had to do a few things differently in my second round of thirty-two. I started by raising the molds off of the bottom floor of the kiln on a shelf. This would allow the heat in the kiln to better circulate throughout all the
molds. I also held the kiln at casting temperature for a longer period of time. These two extra steps would make it easier for the heat to penetrate the walls of the molds in the center. All thirty-two chipmunks casted properly in the second firing.

With all of my chipmunk bodies casted, the final step was to cold work them. This final process is called cold working because it is a way of manipulating glass in its solid state. This is when various cuts are made to remove material and then surfaces can be brought up to a polish. Water is also a major component in cold working. It is necessary to have water flowing over the glass piece when making any cuts or polishing. This prevents friction from heating up the glass, causing it to crack. It also dampens the powdered dust created when cold working, which is harmful to breathe. It is yet another extremely time consuming step.

I started my cold working process by using a tile saw to cut off the pour cup, now solid with glass, from the chipmunk’s behind end. I then moved to the belt sander to round out the backside form again. I progressed through four different grits of belts, starting from course to fine, in order to get the surface of the behind to match the surface of the rest of the casting.

The last cold working step was to make sure that the glass stubby legs still fit snugly into the brass tubing. In many cases there was flashing and other irregularities that prevented that from happening. I used a pneumatic die grinder to clean up the stubs. The glass components were now ready for assemblage.

I had two separate assemblage sections; the body, and then the legs. For the body I needed the glass casting, brass tubing and magnets. I had already cut the brass tubing to
size and sanded the ends. I had also previously given them a heat patina and sealed them with a clear lacquer spray. I used UV glue along with a UV light to adhere the brass to the glass stubs. UV glue sets when it is exposed to ultraviolet light. It is ideal to use when attaching things to transparent glass due to its ability to let light shine through it. Once the brass was set in place, I glued the magnets to the bottom of the stubs inside of the brass.

The legs were straightforward to make. I roughly sanded each birch dowel rod down to a taper on a course belt sanded. I then had to move to an electric palm sander to do the finishing sanding. Once I obtained the desired form, I sealed them all with linseed oil. This finish kept the naturally light look of the wood, but gave it some luster. I then used an extremely strong super glue to attach metal washers to the top of each dowel. With the two assemblage sections complete, all I had to do was to snap the legs into the brass tubing.
CHAPTER V

CONCLUSION

I was cooped up in one location working on all of the members of the herd. I had become very familiar with each of the pieces. At times they were just numbers to me, but I knew each one for its differences. I did not know exactly how I would present the herd or how the herd would present itself when collected together. I did a dry run in a non-gallery room where I gathered and displayed some of the pieces. I was unsure of the impact of the herd from that gathering. There was too much background noise and clutter surrounding them. I knew they would be different against white walls.

The day of installation I found it interesting that after the months of work on the 46 plus pieces they all fit – unassembled – into three boxes. They all snapped together and were standing in the gallery with only an hour of assembly time. Once they were all assembled it was a matter of deciding how to group them. I had to decide if I wanted to corral them into one large grouping, or have them dispersed in multiple groups. Due to their fragility I could rope them off from the viewer or I could be brave and allow complete interaction. All of this needed to be decided with the knowledge of how the herd would interact with the space I was given and how I wanted the viewer to approach them.

After some experimentation with placement, I was pleased with how the pieces related to each other and how they related to the space. I had succeeded in giving movement to the original lifeless form – movement within the pieces themselves;
movement as weight appears to shift from the legs of the pieces; movement created from the differing heights of the wooden legs. There is seen a forest of lines with bodies floating above. One can imagine that these creatures are slowly moving with some purpose, on a common journey.

This is my first attempt at an installation piece. I am still trying to understand the impact that this piece has. I am still struck by it. I have only known the herd for a short time. I plan to take the herd to different venues to be photographed e.g., a field, an industrial park, the woods, a river, or a greenhouse. I envision that the herd will have different meanings and will encounter different experiences in these varied spaces.
FIGURES

Figure 1 Installation Shot 1
Figure 2.1 Installation Shot 2

Figure 2.2 Installation Shot 3
Figure 4.1 *Installation Shot 6*

Figure 4.2 *Installation Shot 7*
Figure 5.1 Installation Shot 8

Figure 5.2 Installation Shot 9