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Design and Construction of the Audrey II Puppet Series

For the Play *Little Shop of Horrors*

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A thesis

presented to

the faculty of the Department of Communication

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Arts in Professional Communications

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by

Chad D. Fraley

December 2007

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Keywords: Puppet, Sculpture, Theatre, Construction, Design

## ABSTRACT

Design and Construction of the Audrey II Puppet Series

For the Play *Little Shop of Horrors*

by

Chad D. Fraley

This project's objective was to design and build 4 stages of the Audrey II puppet for the East Tennessee State University production of *Little Shop of Horrors* (Ashman, 1982). The puppets were to be created with consideration for the production space, budget, and operator ease, along with audience impact. This paper will present the design and construction in a step by step-by-step fashion using illustrations and photographic examples.

Each puppet in the series was originally conceived using references to living plants and animals combined with an artistic vision of the designer. The puppets were built with light, modern materials using new and traditional techniques for puppet construction. Construction techniques and materials resulted in light, maneuverable puppets that can be manipulated with ease and with high audience impact.

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## CHAPTER 1

### INTRODUCTION

Being a sculptor and a fan of musical theatre, I found this project to be a challenge and a pleasure. The challenge of designing functioning puppets ranging in size from a hand puppet to a full body puppet was daunting to say the least, but well received.

I have a Bachelors of Fine Arts degree in sculpture and have worked with all of the materials used in the construction of the puppets before, but the new and inventive combination of these materials in the construction process was a learning experience for me. The design process took many months and resulted in numerous permutations, ideas, and sketches of the four variations of puppets.

#### Design

The design process began with a few simple sketches based on my understanding of both the play and various plants and animals. Color schemes and styles were explored in varying detail and were somewhat influenced by the availability of latex paint colors for some of the bulk applications on the larger puppets, but with an influence of some of the tropical plant colors of the more predatory species. In this chapter I will explore the design alone; I will explore the construction of the designs in a later chapter. Each puppet in the series needed to be designed to be functional to specific movements and actions within the script. Collaboration with the director, scenic designer and costume designer also influenced the final designs. I needed to collaborate with the director to ensure that his vision of the play and of the puppets was met. I also needed to make sure that the puppets could be moved, stored and operated correctly, so I consulted the scenic designer to make sure that this happened. I worked with the costume designer on several areas including the underlying costume that the puppeteer was to wear and

with the melding of the puppet and wardrobe involved in the making of Puppet 2. All of these collaborations and design decisions also needed to take place within the budget that was allotted to me in the beginning of the process of making the show happen. Working in theatre takes a great deal of communication between the designer and director to make sure of a smooth opening night and this show was no exception.

To make things clear about the design of each puppet we will examine the design and function of each of the four puppets individually.

### Puppet 1

The first puppet had several key functions that had to be taken into account when initially designing it. I will go over a few of these functions and illustrate where possible.

Taken that this is a stage production, the first consideration is that it must be visible from the back of the house in both movement and style. This means that it needs to be big enough to be visible from a distance, but small enough to convey a sense of vulnerability.

Puppet 1 also had to be animated in some manner from a hidden location onstage. The effect needed to appear “magical”, as if the plant were moving independently. In collaboration with the scenic designer, I determined an appropriate location for the hidden operator of Puppet 1. The issues of visibility and the “magical” movements were solved by designing the plant to be large enough to be used as a full hand puppet and placed over a hidden trap in the cashier’s counter on the set.

In Figure 1 you can see that the pod-like design has been sized to fit a puppeteer’s hand with little extra room. Not only does this design allow an easy route for the puppeteer to manipulate the puppet, but it also disguises the method of operation by not being oversized or revealing the mode of operation.





Figure 1. Design Sketch of Puppet 1.

Another aspect of Puppet 1 seen in Figure 1 is the wilting leaves called for in Act 1, Scene 1 where it calls for “The Plant wilts.” (Ashman, 1982) The leaves needed to be upright and partially obscuring the pod itself and articulated in such a way that the actor could inconspicuously cause them to wilt. Through a series of nylon cords and a pull ring a pulley system was used to lower the leaves with the upstage thumb.

The final function that needed to be designed into Puppet 1 is the ability to “grow” on cue at the end of the song “Grow For Me” (Ashman, 1982). In order to allow the puppet to grow a long elbow length glove “stem” was attached to the puppet. This attachment allowed the puppeteer to slowly push up through the attached “potting can” and simulate growth. As seen in Figure 1, the puppet is stabilized with an elastic strap attached to the “potting can” and pulled through the puppeteer’s access point.

## Puppet 2

I approached Puppet 2 with a similar design to Puppet 1. Puppet 2 is the adolescent version of Puppet 1 and needed some specific functions and larger size as dictated in the script notes, “Seymour runs in from L., wearing a jacket and carrying Audrey Two. The Plant-pod #2- is now almost two feet tall”. (Ashman, 1982) Both puppets were manipulated with one arm and had the same leaf and potted plant motif. I started to anthropomorphize the plant theme a bit with this version as I felt that the interactions called for in the script (Ashman) warranted a more human element. This was intended to let the audience identify with the puppet as a sentient being and witness it’s maturation as it became more and more animated and interactive. This was achieved by adding more human lips to the pod section of the puppet and to make the stem or neck of the plant more flexible and substantial. The lips were also colored in a more human palette as opposed to the more green plant palette used in Puppet 1.

In Figure 2 it can be seen that this stage of puppet required a fake arm and a hidden access point for the puppeteer (in this case the lead actor and not the main puppeteer). Several access points were considered in the design phase, but while the size, shape, and general function of the hidden access point could be explored the actual location of the hidden access point would be determined through a fitting with the actor that would be cast in the role.

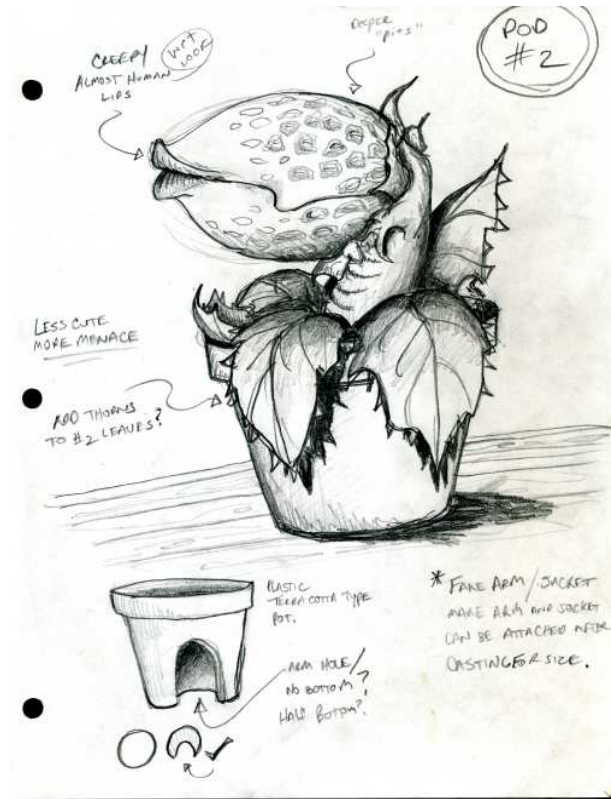


Figure 2. Design Sketch of Puppet 2.

The illusion with Puppet 2 is that the lead actor will be holding the plant under an arm with seemingly both arms visible and the plant mysteriously moving on its own. Collaborating with the costume designer, a fitting was scheduled with the actor that would be working the puppet, and a location for the arm access was nailed down. The costume designer and I then discussed the actor's costume and general concerns involved in the fake arm and costume arrangement needed to complete the illusion and fully integrate Puppet 2 and the costume. This illusion is the reason for the fake arm and the hidden access point located (as seen in Figure 2) in the pot. I will go into more detail of the actual function of this puppet in the construction chapter.

### Puppet 3

The third puppet in the series posed some new design problems. This puppet needed to be a full body puppet so it had to be designed with the puppeteer in mind. This was especially true when it came to dimensions and function. One difficulty in modeling this stage of puppet around the puppeteer was that, due to the casting process and the early start in the design process, a puppeteer has not yet been officially cast. There were two puppeteers who were in consideration by the director, so I took the measurements of the larger of the two and used those as a rough guideline for the early design and production of the puppet.

As you can see in Figure 3 the design concept was for a reinforced “pod” section that could be manipulated in an overhand-underhand method while standing within the “stalk” section of the puppet. This led to a couple of considerations in the materials that could be used to construct the puppet, as it needed to be light and pliable enough to be manipulated for an extended period of time by the puppeteer, yet still able to stand up to wide movements and stresses during operation.

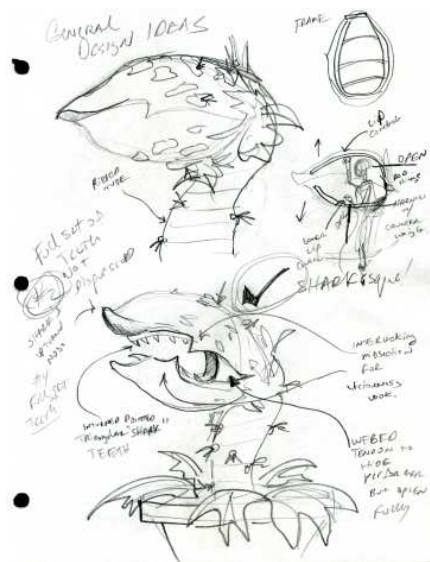


Figure 3. Design Sketch on Puppet 3.

This is the point in the design process where I decided on using a thin membrane of polyurethane foam sheeting stretched over a lightweight pencil rod steel frame as materials to construct Puppet 3. A trial run of these materials proved them to be flexible and light, while adding a lifelike bounce to the puppet while being manipulated.

I was designing this puppet to be full body yet there were long periods during the play that the puppeteer would be forced to be completely still. So, I had to work the design to both hide the human form and to allow the actor to sit comfortably for long periods of time.

In the top of Figure 4 you see that the design allowed the puppeteer to sit (on a hidden stool contained within the puppet's leafy pot). The puppeteer would rest the "pod" on his or her lap with the legs hidden by being colored green to match the leaves and tentacles. The costume designer was consulted and a design for a green body suit was decided upon to achieve the desired effect.

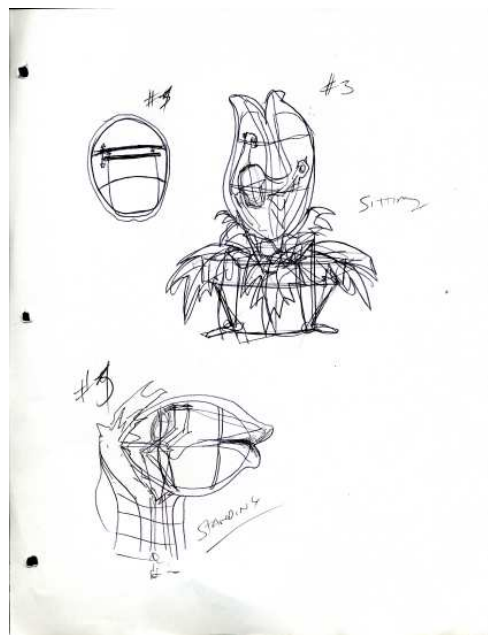


Figure 4. Design Sketch of Puppeteer Placement.

This design allowed the puppeteer to also manipulate the mouth of the plant while seated and to then (when deemed most dramatic) stand up and manipulate the “pod” in the standing position as seen in the bottom half of Figure 4. This dramatic change in size, movement, and anthropomorphic qualities of Puppet 3 gave a dynamic life to the puppet, allowing it to dance, sing and look around the stage.

As seen in Figure 5, I had originally wanted to put a fully articulated lip mechanic into Puppet 3, but due to time restraints and budget concerns I had to drop the idea in exchange for static lips.

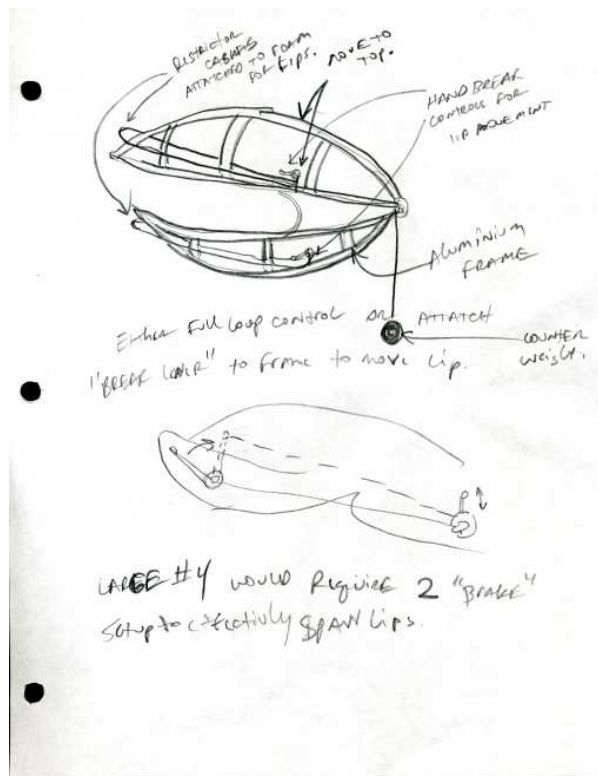


Figure 5. Lip Mechanics Sketch.

In the end it was a good choice, as the puppet’s working complexity and puppeteer involvement were already high. The addition of this mechanic would have hurt the ability of the

puppeteer to keep all the movements lifelike. While the director was disappointed in the loss of the lip mechanics, he agreed in the need to remove it from the design.

After I had designed the construction of the third puppet and had decided on the movement mechanics I turned to the aesthetics of the puppet. I continued the theme that I had used in the first two puppets and tried to combine tropical carnivorous plants and the more menacing sea creatures like the shark as is seen in Figure 6.



Figure 6. Color Scheme of Puppet 3.

The color scheme of the third puppet followed the theme of the first two puppets closely, but I took it into a more dramatic and primary palette as seen in Figure 6. I felt that this shift to a more vibrant and contrasting palette demonstrated the growing threat that the plant presented in

the play. The addition of a few “baby” teeth to this model also started to reveal the growing menace that the play should convey at this time in the production. This would carry on into Puppet 4 as my design ideas continued.

#### Puppet 4

In designing puppet 4 there were quite a few logistical problems to overcome. First and foremost was the mere size of the puppet itself. As the plant grows in the play it should get exponentially larger. The third puppet was 4 feet by 3 feet in the “pod” section alone, so this meant that, in order to keep this trend, that puppet 4 would have to at least be 8 foot by 6 foot in the “pod” dimensions. This was the final size of the “pod” section of the plant.

Yet another functionality that needed to be designed into this puppet stage was the ability to “consume” multiple actors at various times in the production. I achieved this in a couple of different areas of the puppet. The first consideration was in how the actors would both enter and exit the plant. Entering the plant was achieved by merely opening the “mouth” of the puppet and allowing the actors to insert themselves in a safe yet dramatic manner. During the weekly meetings the director let me know that one of the actors in the production to be consumed was close to 300 pounds. Because of this I designed the bottom lip of the “pod” section to be reinforced enough to support the weight of the actor. I achieved this by designing in steel reinforcements in the underlying pencil rod frame. For safety, as well as added support, I covered the area in expandable foam. I then carved the foam reinforcement into a “slide” of sorts that lead to the exit in the bottom of the pod, which led to the next difficulty.

Another of the logistical problems was the transportation and storage of this puppet. In order to remove this puppet from the construction area and into the theatre space it had to be modular in design. I achieved this by hinging the two clamshell halves of the “pod” section. The



hinge pins could be removed and the each half of the “pod” was designed to measure in at least one dimension to the standard width of a door frame. This allowed the plant to be broken down and moved out of and into virtually any space needed. This size convention translated to all other parts of the puppet as well.

The true difficulty in designing this puppet was how to let the actors exit the puppet without being seen by the audience. Working with the set designer we designed a “trap door” located in the back wall of the set in which the actors could escape to the backstage area. The puppet was designed to allow the actors to enter the “mouth” and slide down through a hole between the puppeteer’s legs and through the “trap door” into the backstage area. In order to make enough room for the actors to accomplish this I added a support platform under the “pod” to lift it enough to allow each performer to slip through to the backstage area between the puppeteer’s legs. This will become clear in the following construction chapter, but for now you can see this in Figure 7 with the “trap door” located behind the “pod”.

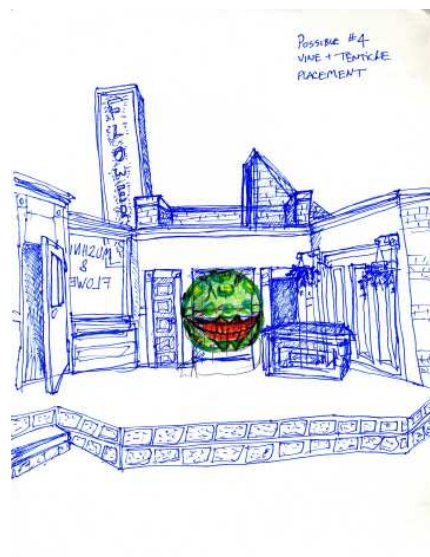


Figure 7. Tentacle Placement Sketch.

Figure 7 also shows the beginning of the tentacle design element. Tentacles or “arms” were added to the puppet to increase the lifelike movement and anthropomorphic qualities of the puppet. As seen in Figure 8, they were designed to be worked by a secondary puppeteer (one of the actors not in the current scene), located directly backstage from the puppet, and accessed through the same “trap door” used to extract the consumed actors. The tentacles was made of steel pencil rod just like the underlying framework, but were attached to ½ inch conduit at the working end. The curve in the pipe allowed the secondary puppeteer to use leverage to lift and move the tentacles around and the pencil rod construction allowed for a snakelike fluid movement, while retaining their original shape. The outside of the tentacles were surfaced in the same 1 inch foam sheeting as the rest of the puppet.

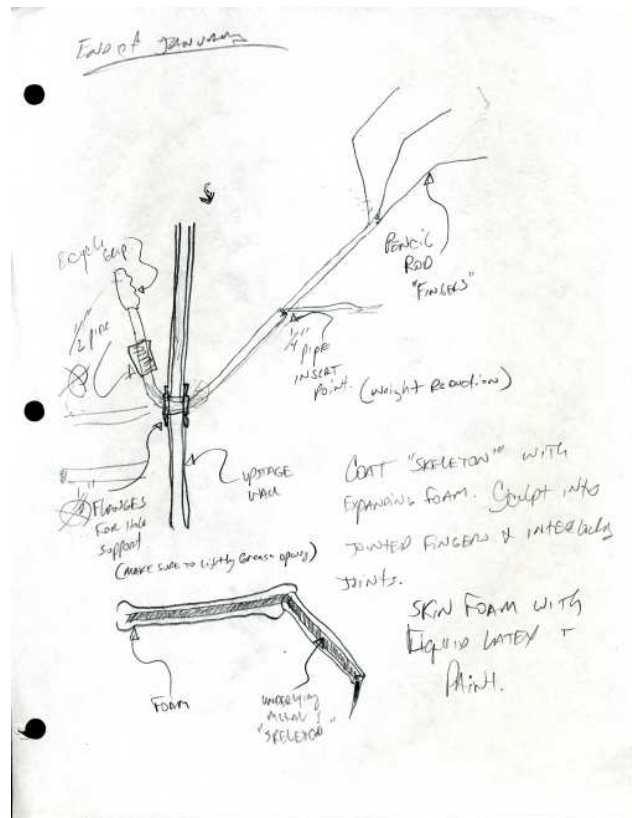


Figure 8. Sketch of Arm Mechanics.

During the design process it became apparent that more support was needed in the “pod” itself to keep it from moving side to side and misaligning the top and bottom halves during manipulation. This was discovered during the initial construction of puppet 4 when the puppeteer was being fitted for handle placement and positioning within the framework. I came up with a design for a “shock absorber” to be placed on the inside framework on each side of the “pod” to help steady side to side movement without hindering the up and down movement needed for the “mouth” of the “pod” as can be seen in Figure 9. The nested pipes allowed up and down movement of the “mouth”, while the retaining strap prevented side to side motion. This kept the lips centered, while allowing free up and down motion.

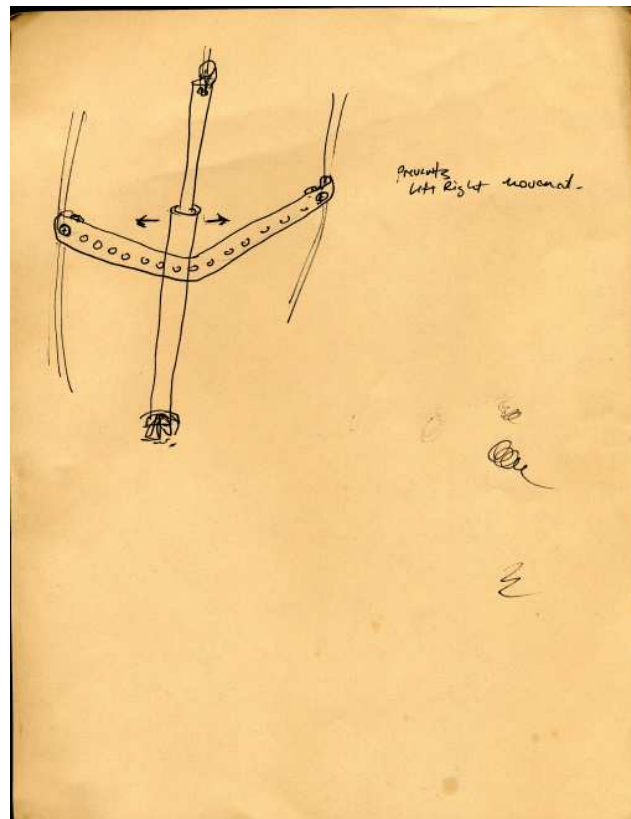


Figure 9. Support Arm Sketch.

The upper jaw of Puppet 4 was attached to the smaller of the nested pipes in Figure 9 and the lower jaw of Puppet 4 was attached to the larger of the nested pipes. The retaining strap shown in Figure 9 was fastened to the steel ribbing of the lower jaw preventing the nested pipe “shock absorber” from moving stage left or stage right, thus keeping the upper “moveable” jaw in alignment with the lower jaw. This was mirrored on both sides of the interior of Puppet 4’s mouth.

In Figure 10 the overall design idea of puppet 4 can be seen, along with a general color scheme that is based on the former designs for the other 3 puppets in the series.



Figure 10. Puppet 4 Design Sketch.

While the color scheme is based on the same palette as the former puppets, this puppet is shaded a bit more with darker blues and greens. This added a darker more ominous tonal quality to the colors. In addition to the darker palette other additions were added to the design such as large “warts” complete with hair (florescent weed eater line) and a full set of shark like teeth to further the menacing appearance of the puppet.

After all the design and preparation it was time for construction to begin. Now while I tried to think of everything during this phase there were changes to the design that arose during the construction itself and will be pointed out during the following chapter on the actual construction.

## CHAPTER 2

### FROM DESIGN TO REALITY

Bringing my designs to life required every skill and resource I had acquired while obtaining my B.F.A. in sculpture and a few skills I had to master during the construction itself. Many of the sculpting techniques I had learned such as mold making, clay sculpting, color theory, and extensive materials knowledge were used for this project. For the purposes of this process study I will assume that these basic skills are understood, as explaining each process individually would result in full papers in themselves. If needed for clarification I will go into further detail about a process, but primary emphasis will be placed in the actual production of the puppets and not the underlying processes themselves. I will also be arranging the photographic references into a format that I feel best shows the continuity of production.

#### Construction

Materials used in the process and actual construction of the puppets will be embedded in each paragraph rather than listed as an appendage at the end of the chapter, as I feel this is more beneficial to understanding the process.

When I began the actual construction phase of the project I ordered a number of materials that I needed for the production of Puppets 1 and 2, as they used the same general techniques for production. Puppets 3 and 4 used different building techniques and will be explained in future sections of this chapter. The main materials ordered consisted of an exterior mix airbrush (needed because of the thickness of latex based mask paints), a set of latex based mask paints, a large quantity of sulfur-free oil based clay, various clay sculpting tools, a 5 gallon supply of liquid latex, and a gallon of two-part expanding foam. These items can be ordered from any special effects supply warehouse. For the molding process I acquired two large bags of Plaster

of Paris, some burlap (to strengthen the mother molds), and a can of clear coat (to coat the oil clay original, a few tension mold straps and a jar of petroleum jelly for a release agent.

Containers and various other needed supplies such as rags, stir sticks, and such were acquired when needed from local standard household supply stores.

### Puppet 1

Figure 11 shows the appearance of Puppet 1 in use during the production. I show this as a reference so that the direction of the construction process will be clear. The construction pictures will be treated as one large figure reference instead of individual figures to keep a tight visual continuity in this and all following sections of this chapter. If needed for clarity I will reference the figure and specify the referred picture by the assigned letter.



Figure 11. Production Picture of Puppet 1.

As shown in Figure 12a, I began the process of building Puppet 1 by sculpting the “pod” section of the puppet in oil based clay. For casting purposes I chose to sculpt it with a closed mouth with the intentions of later opening the mouth and doing a separate cast as shown in



Figure 12f. The casting was done with a standard burlap reinforced plaster of Paris mother mold, as can be seen in Figure 12b. After extracting the clay sculpture from the mother mold, I reassembled the mold and used a slush mold technique to make a thin layer of latex skin in the mold. After the skin cured I then measured and filled the inside of the mold with expanding two-part foam to give the puppet a solid yet lightweight structure. In Figure 12c we can see the raw puppet after extraction from the mold. At this point in the process, I removed the flashing from the raw puppet and cut along the lip line to open the mouth of the “pod” as can be seen in Figure 12d. I then removed an appropriate amount of the interior foam to allow a pocket for the hand to enter the puppet.

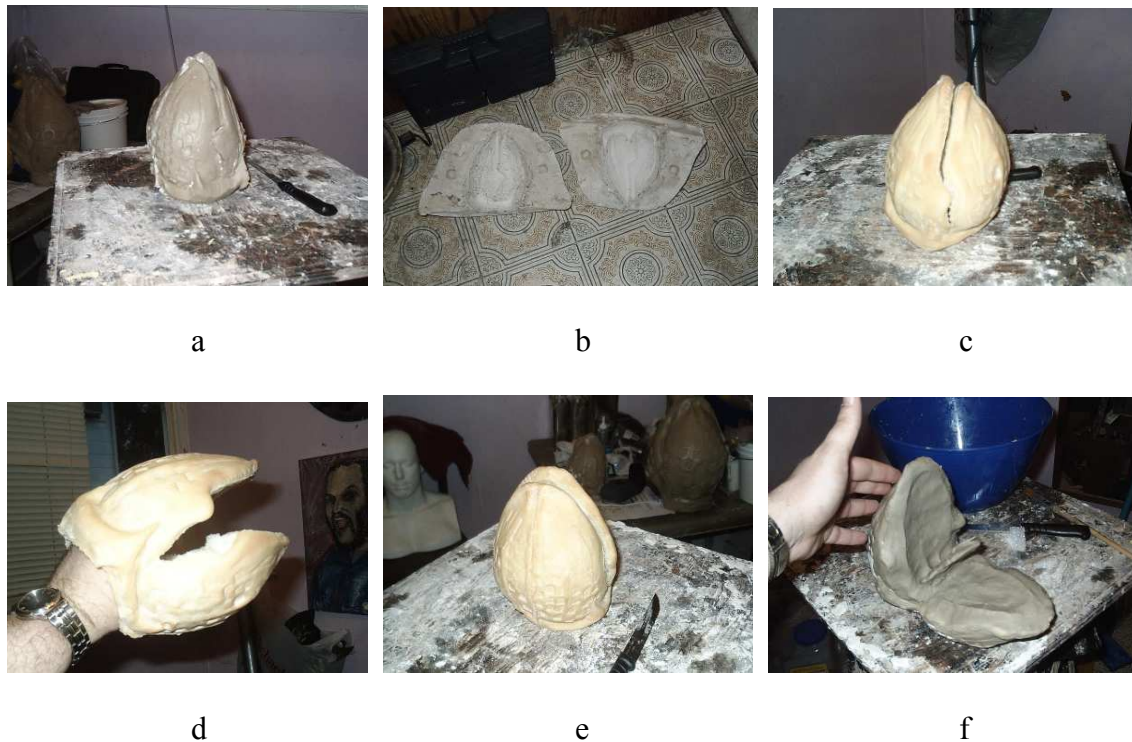


Figure 12. Puppet 1 Construction Series.

Now that the raw form of the puppet was finished, I used the original oil clay sculpture to form the interior of the puppet’s mouth. I accomplished this by cutting along the lip separation of



the sculpture and prying it apart and sculpting a tongue in the resulting throat area as can be seen in Figure 12f. Once the mouth and tongue were sculptured I used a layering technique to build up a layer of latex on the inside of the mouth as can be seen in Figure 13a, Figure 13b and Figure 13c. I chose to do this technique to avoid making another full mold of the sculpture because the inside of the mouth did not need the same detail as the outside of the “pod” itself. Once the inside of the mouth had cured, I removed it from the sculpture and, using liquid latex as a glue, attached it to the inside of the main puppet as can be seen in Figure 13e and Figure 13f. The puppet was then airbrushed with latex based mask paints following the color palette decided upon in the design phase. At this point in the construction the main casting and latex work was completed and I moved on to the preparation and construction of the can and the mechanics for the required “leaf wilt”.

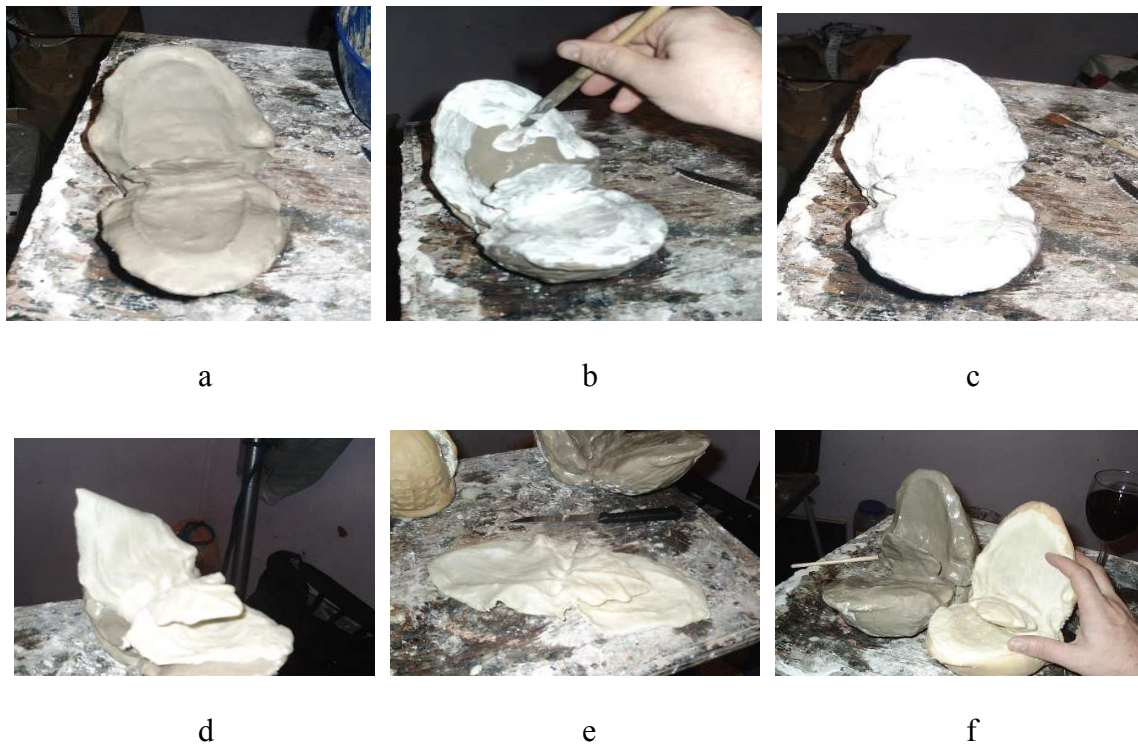


Figure 13. Puppet 1 Mouth Construction.

The leaves used for the puppet were bought at a local florist and are silk with a small wire insert in the middle for shaping. The can was bought at a local grocery store and emptied as can be seen in Figure 14a. The top and bottom of the can were removed with a can opener to form a tube. A ring of foam was hot glued into the inside rim of the top of the can to support both the puppet and to give the leaves a support area as can be seen in Figure 14b. At this point I rigged the leaves with some fishing line and connected them into a single line that could be operated with the thumb in order to pull the leaves down into a wilting position as shown in the production notes of the play. (Ashman, 1982)

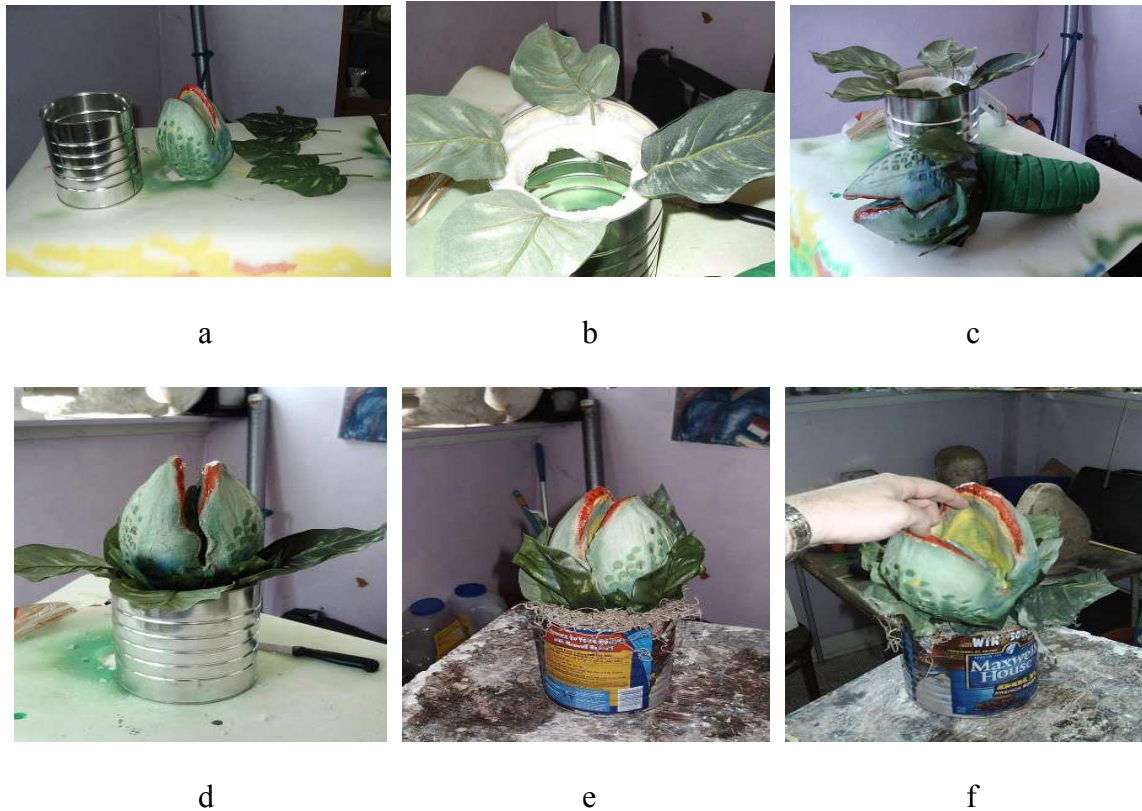


Figure 14. Puppet 1 Final Construction Series.

Figure 14c shows the “stem” that was attached to the “pod” section of the puppet in order to allow the growing scene. It was constructed of some left over fabric I had in my studio from past projects but can be made of almost any material that is flexible and able to be glued or sewn into a tube and glued to the main body of the puppet. As can be seen in Figure 14d, Figure 14e, and Figure 14f the puppet was refined and accents were added such as some Spanish moss to hide the foam support and some small strips of latex to simulate small tentacles.

### Puppet 2

The construction materials and techniques used in the construction of Puppet 2 were almost identical to the materials and techniques used in Puppet 1. There were a few exceptions and those will be discussed in the appropriate areas of this section. As I have gone over a detailed explanation of the process in the section on Puppet 1 I will forgo repeating this as Figure 16 gives a good visual representation of the process on Puppet 2. For reference, Figure 15 shows the completed puppet.



Figure 15. Production Picture of Puppet 2



In Figure 16 we can see the progression of construction. This process is similar to the process used in Puppet 1, so details will not be given.



a



b



c



d



e



f

Figure 16. Molding of Puppet 2.



g



h



i



j



k



l



m



n



o



p



q



r

Figure 16 (continued)





s

t

u

Figure 16 (continued)

The other exception with Puppet 2 was the sculpting and casting of four tentacles that would later be attached to the pot portion of the puppet. This initial sculpture for the tentacles can be seen in Figure 17i. It was sculpted out of oil clay on a straightened coat hanger so that it could be dipped into latex and hung to dry. After the latex was dry, it was peeled from the sculpture, forming a hollow latex tube. The tube was then stuffed with cotton wadding to fill out the form and to give it body. The technique is similar to the technique used on the inside of the mouth for both Puppets 1 and 2, but instead of building it up by brushing the latex on it was dipped into latex to build it up.

As seen in Figure 17b through 17e, a stem was sculpted and cast in the same manner and materials as the “pod” section of the puppet instead of the fabric used in Puppet 1. This was done because more detail was needed in Puppet 2 as it would be more visible to the audience in size, movement, and blocking. In watching blocking during early rehearsals, I noticed there were several times during the play where Puppet 2 would be far downstage so I decided that I needed a more detailed puppet. This “stem” was attached to the “pod” in the same manner as the fabric version of Puppet 1 and can be seen in Figure 17f through Figure 17h.



a



b



c



d



e



f



g



h



i

Figure 17. Assembly of Puppet 2.

As with Puppet 1, the assembled Puppet 2 was placed in an appropriate container (a terra cotta style plastic plant pot). The container was constructed in the same manner as the can for Puppet 1 sans the wilting mechanism. The details of the container were discussed in the design section for Puppet 2 and can be referenced in Figure 2.

### Puppet 3

The construction of Puppets 3 and 4 used similar techniques, so I will list the materials used here and avoid repeating the same information for Puppet 4.

As can be seen in Figure 18, Puppet 3 is a full body puppet with a large range of movement options. To facilitate this I used lightweight flexible materials in the construction that also would hold up to repeated use. The materials I used were 1/4<sup>th</sup> inch steel pencil rod for the frame, sheets of 1 inch and 3 inch thick soft poly-foam, several cans of spray expandable foam, spray adhesive, wooden dowels for handles for the puppeteer, liquid latex to strengthen the foam in high stress areas, six yards of purple fur fabric for the inside of the mouth, a section of black vinyl screening and latex paint. Some of the tools I used were an electric knife for foam carving and a power paint gun for paint application.



Figure 18. Production Picture of Puppet 3.



Figure 19a shows one half of the clamshell structure that I welded out of the 1/4<sup>th</sup> inch steel pencil rod to use as the underlying framework in which to attach the foam skin of the puppet. The two sides of the clamshell attach at a hinge point in the back using bolts with lock nuts creating the “pod” section framework. Due to the hinge, the puppeteer would later be able to open and close the mouth of the puppet.

After the frame was welded, I began construction by attaching a foam gum line to both sides of the framework. I achieved this by gluing the mouth side of the frame to a 3 inch foam sheet with a coating of expanding spray foam as can be seen in Figure 19c. I then cut the foam into the shape of the frame leaving a 1 inch border on both sides of the metal frame. I would later use this to attach the outside skin foam as well as a gum ridge, teeth, and mouth interior.

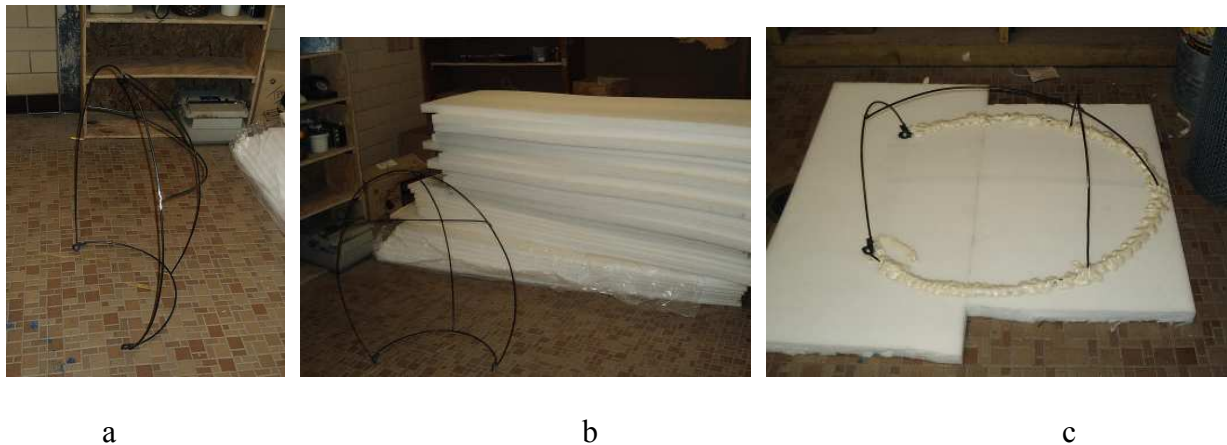


Figure 19. Core Construction of Puppet 3.

The next step in the construction can be seen in Figure 20a through Figure 20c. Here I began stretching 1 inch foam over the outer surface of the frame and attaching it to the gum line that I had attached earlier using the spray adhesive to join anywhere two pieces of foam met and

to the gum line. This would later be reinforced with hot glue, but for now it was left attached this way in case adjustments would be needed later on.

Now that I had a base “pod” to work with I began to build up lips by layering spray foam directly onto the foam skin. In a process that took a couple of days, I built it up to a general lip shape on both sides of the clamshell like “pod” and then carved a more detailed representation of human lips per the design. This process can be seen in Figure 20a through Figure 20e. During the drying time needed between layers of the lip buildup I began to cut out leaf shapes from the 1 inch foam that would later be used on the collar of the “pod” where the puppeteer accessed the inside of the puppet. As seen in Figure 20f, I also used more of the same spray foam to put “veins” on the leaves. This would give the leaves more of a three dimensional quality while also bringing in a visceral “alive” feeling. This veining was also used on the larger leaves used for the large pot base for the puppet. (Fig. 20i)

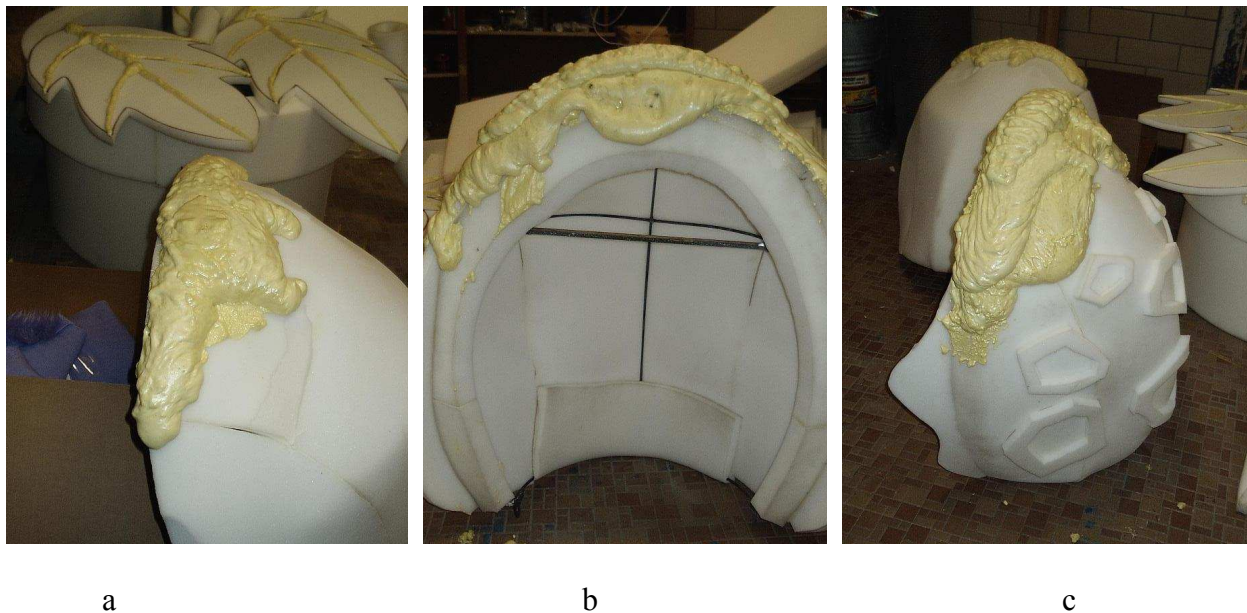


Figure 20. Skin Application of Puppet 3.



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g



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Figure 20 (continued)

Figures 20g and 20h it show the angular “warts” that I cut from 1 inch foam and attached to the skin of the “pod” for added texture. Another texture element was also added in the form of spray foam veins on the “pod” as well as can be seen in Figure 21d and Figure 21e. I felt bringing the veins into the “pod” itself would not only bring that creepy lifelike quality but would unify the leaves on the pot with the “pod” itself. It also mirrored the large tentacles that would be added later as can be seen in Figure 21b and Figure 21c.



The tentacles are 1 inch foam rolled into a tube form and segmented by inserting one end into the next piece and so on until the desired length was reached. Each segment of the tentacles was then hot glued together. These segments formed a stepped pattern of overlapping foam sections that gave it a more three dimensional quality as well as a new plant shoot look.



Figure 21. Final Construction of Puppet 3.

The next piece assembled was the large foam pot used as the base of the puppet as well as a place to hide the legs of the puppeteer. It was constructed from two 3 inch foam sheets. One

full sheet was rolled into a tube about 4 feet in diameter and the ends were jointed together with spray adhesive. On top of this base tube was glued a second tube of 3 inch foam whose inside diameter was equal to the outside diameter of the base tube. This sheet was only about 5 inches wide and formed the lip of the pot creating a “terra cotta” style plant pot as can be seen fully painted in Figure 22a.

At this stage in construction of the puppet all pieces were fabricated and ready for painting before assembly. As can be seen in Figure 22c through Figure 22f, the various components were painted with the design palette decided on in the design stage. These colors brought life to the puppet and gave it an almost alluring whimsical quality needed in musical theatre and the development of the plant as a larger than life element in a non-realistic play.



a



b



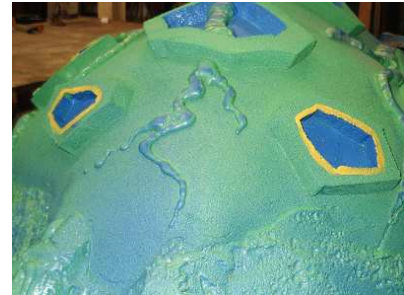
c



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f

Figure 22. Painting of Puppet 3.

After the individual pieces had been painted, the fur fabric (Figure 22b) was attached to the inside of the mouth (Figure 23a and Figure 23b). The two halves of the “pod” were then brought together to check for fit and to figure the placement of the black screen material that allows the puppeteer to see out of the mouth of the puppet as well as for ventilation, as seen in Figure 22d.

Figures 22e and 22f show the addition of a spray foam ridge as well as a few foam wedges for teeth. The teeth were embedded in the foam while it was still wet, effectively gluing them in place. This process was done for both the top and the bottom, but the bottom gum line was inset a bit so that the gum ridges overlapped instead of lying on top of each other. This allowed the mouth to close fully, as seen in Figure 22e.

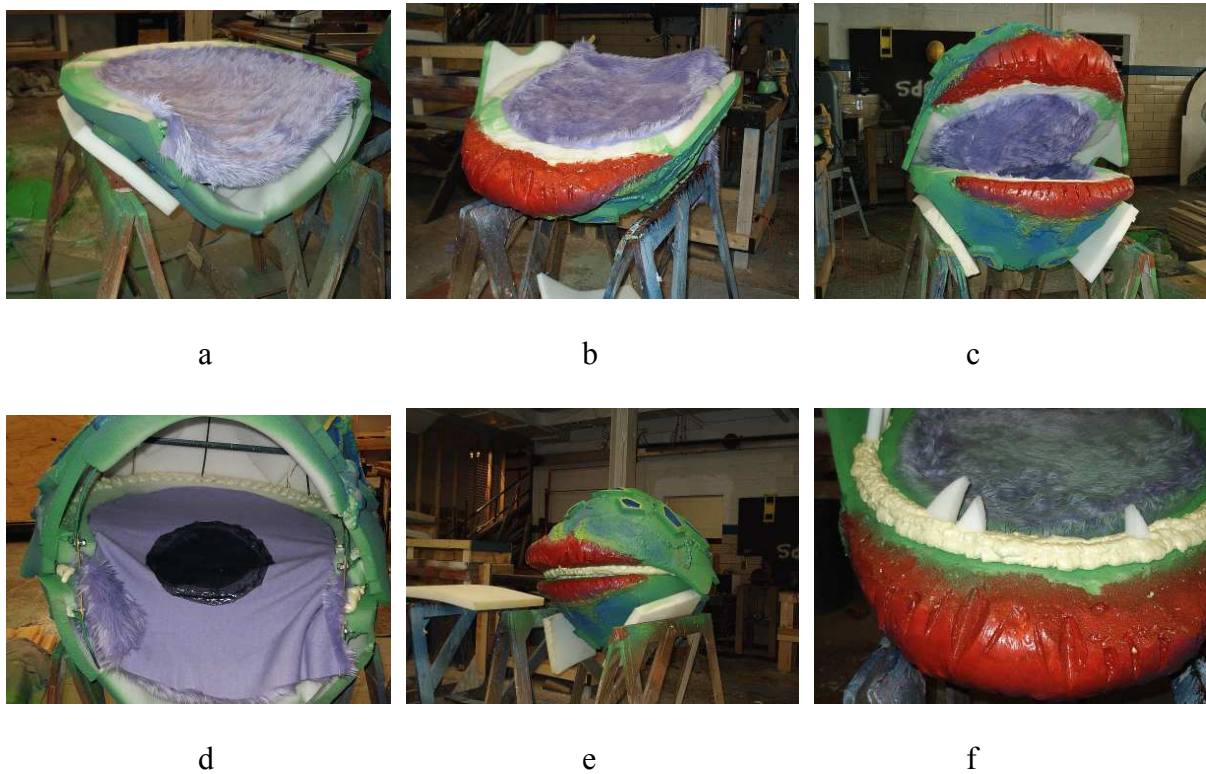


Figure 23. Final Preparation of Puppet 3.



Next in the assembly was the “collar” of leaves designed to go around the puppeteer access in the back of the “pod”. The leaves that were cut out and painted earlier were hot glued in an overlapping pattern on both halves of the “pod” leaving a gap at the sides to allow the mouth to open and close freely (Figures 24a through 24c).

Figure 24d shows the addition of a tongue to the inside of the mouth. It was carved from 3 inch foam and was hot glued to the back of the bottom section of fur fabric forming the lower part of the inside of the mouth. It was only attached on the back of the tongue to allow it to flop when the mouth was opened and closed bringing more animation to the puppet.

With the “pod” section of the puppet assembled I moved on to the “pot” section of the puppet and attached the tentacles and large leaves to the top rim of the foam “pot” with hot glue as shown in Figure 24f. Puppet 3 was now fully constructed and I moved on to Puppet 4.

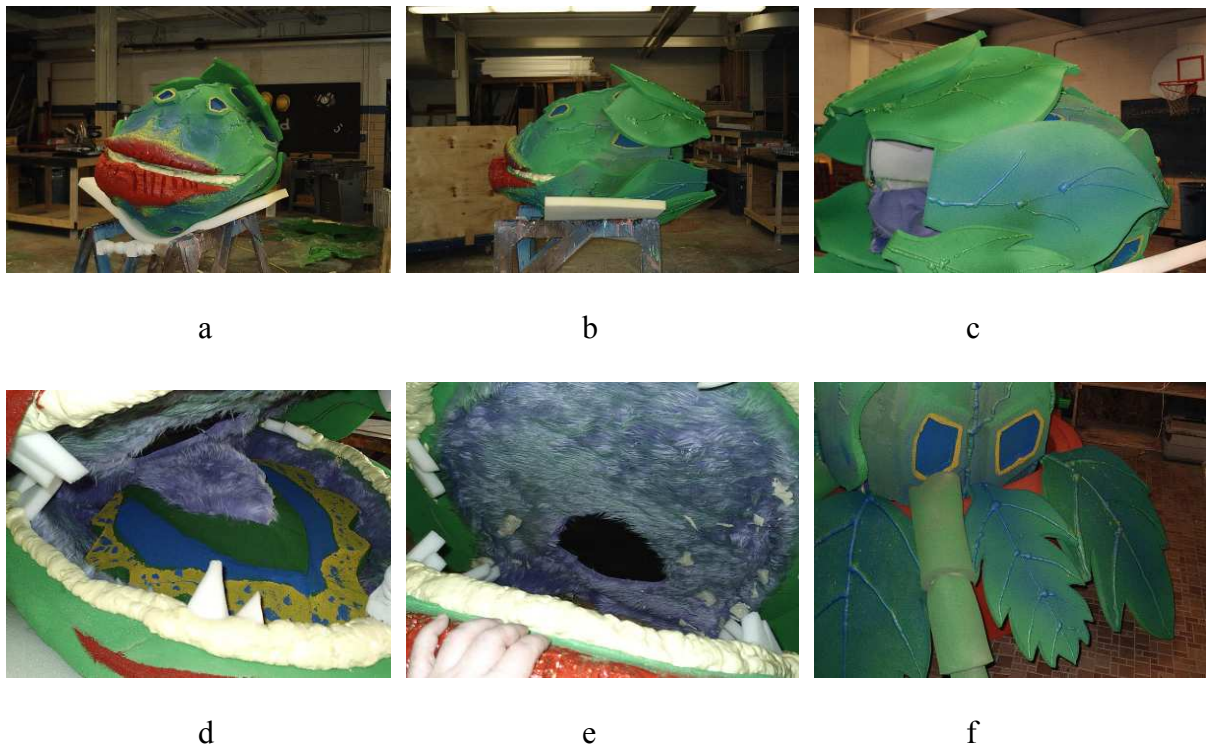


Figure 24. Example Pictures of Completed Puppet 3.



g



h



i

Figure 24 (continued)

#### Puppet 4

Puppet 4 was basically constructed in the same technique as Puppet 3. I used the same materials and processes for construction, though there are a few extra components and problems with this puppet that I will cover later in the construction explanation.

The final puppet was eight foot by five foot by five foot fully assembled and was sturdy and large enough to “eat” a six foot two, three hundred pound man as called for by the director after the casting process. The relative size of the puppet created a large presence on stage and gave a menacing impact as can be seen in Figure 25.





Figure 25. Production Picture of Puppet 4.

As seen in Figure 26a, I began construction with a clamshell type steel pencil rod frame. The frame was hinged in the back in two places to allow the two halves of the “pod” to be separated. Standard door hinges were used for their ease of separation. The separated halves were designed to fit through the standard width of a door frame. This would allow the puppet to fit through most standard doors when moving the puppet to different venues and from the shop to the stage. In Figure 26 b through Figure 26l the process of skinning the “pod” section of the puppet is shown in various stages of completion. The 1 inch foam, spray adhesive materials, and construction technique were the same as used on the steel frame for Puppet 3 with the exception that the lips were built up out of 1 inch foam instead of spray foam as can be seen in Figure 26l.



a



b



c



d



e



f



g



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j



k



l

Figure 26. Core Construction of Puppet 4.

Figure 27b shows where I began to bring element of puppet 3 design into puppet 4 by means of the large angular warts and lip accents. They were, in this puppet, cut from the 3 inch foam sheets instead of the 1 inch foam sheets as I needed more height in Puppet 4. As seen in Figure 27e and Figure 27f, I used spray foam to build up and smooth certain seams (such as those around the lips) and to make large round warts in various locations on the “pod”.

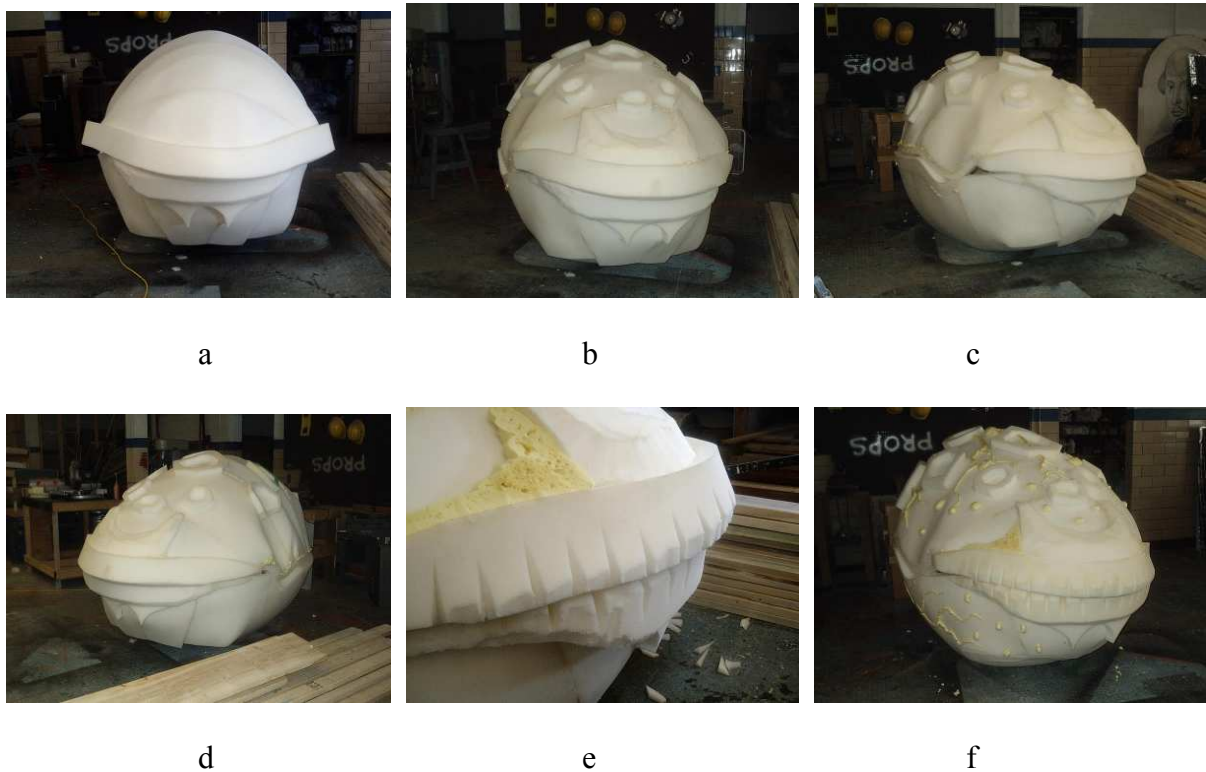


Figure 27. Details Added to Core of Puppet 4.

Figures 28c through 28e show the two halves of the “pod” separated and the beginning process of painting. I used standard household latex house paint, as with Puppet 3, and applied it directly to the foam. This proved to be sufficient in coverage and durability with the exception of the lips themselves. During rehearsals the surface of the lips began to wear due to repeated entry by the performers, so the lips were reinforced with several layers of liquid latex brushed on,



allowed to dry, and then painted over with the latex house paint. This layer of latex held up well to repeated use during the run of the play. The application of paint to the puppet was done with a power painter for the general base color, while more delicate applications such as the inside of the angular warts and the lips were done with brushes. After the latex paint had dried I applied a generous coating of clear coat to the lips to achieve a slight “wet” look.

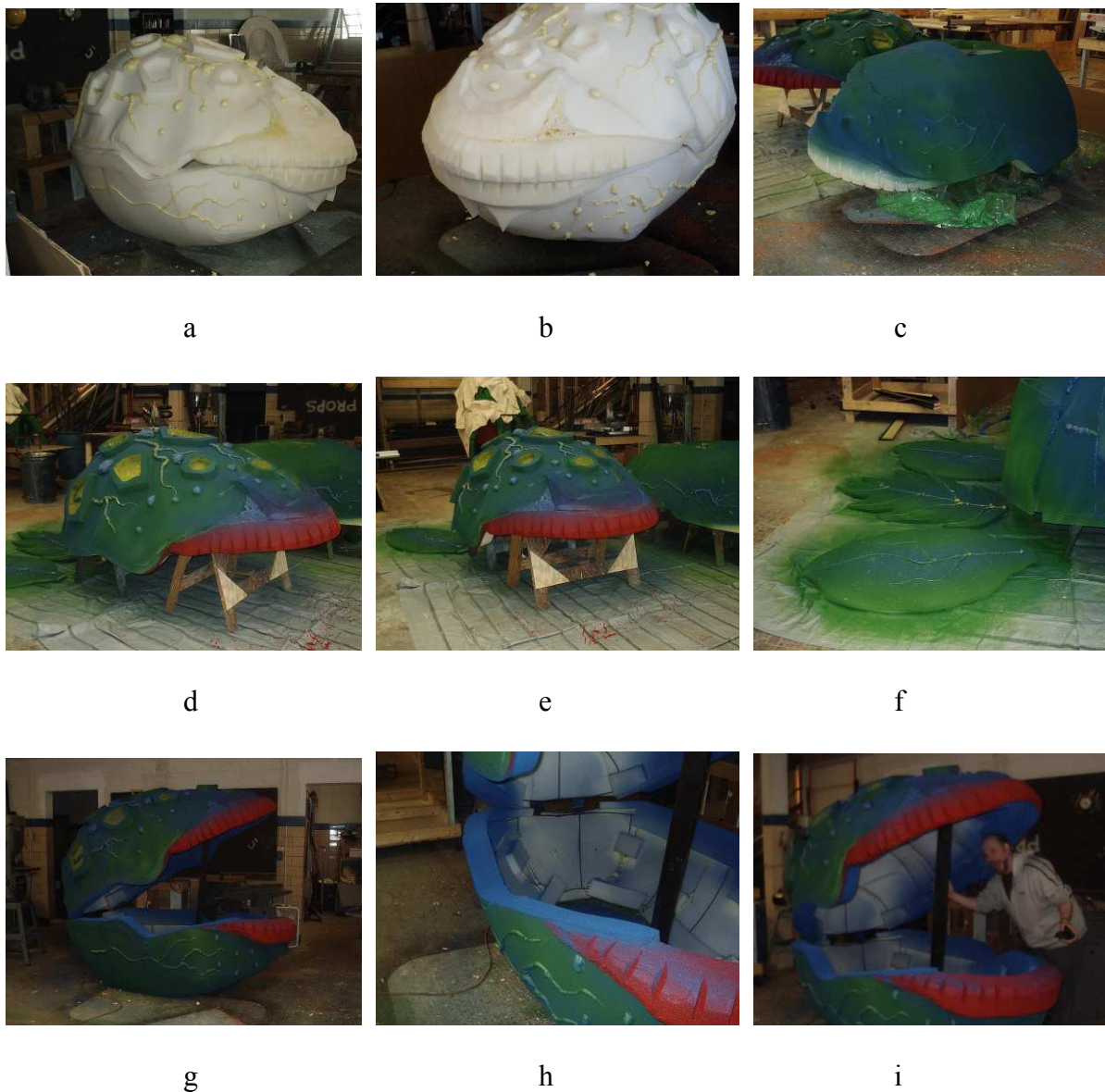


Figure 28. Painting of Puppet 4.

In Figure 29b through Figure 29f we see the process of attaching the inside of the mouth. This was done separately in the top and bottom halves of the “pod”, but unlike Puppet 3 where this was done with the halves separated, in Puppet 4 it was done with the halves connected and the mouth propped open so that I could see the placement of the material in the final product. This was done because of several of the functions of the interior fabric as opposed to the interior of Puppet 3. In Puppet 4 the top fabric not only had to form the roof of the mouth of the “pod” but it had to hang down at a certain point in the back like a curtain to cover the presence of the puppeteer as can be seen in Figure 29f. The bottom half of the “pod’s” interior was securely attached to the underlying frame and outer skin because of the repeated entry of actors that were to be eaten by the puppet as can best be seen in Figure 29e. The fabric used was the same furry material used in the interior of Puppet 3 and was attached with hot glue directly to the frame and interior of the outer skin.

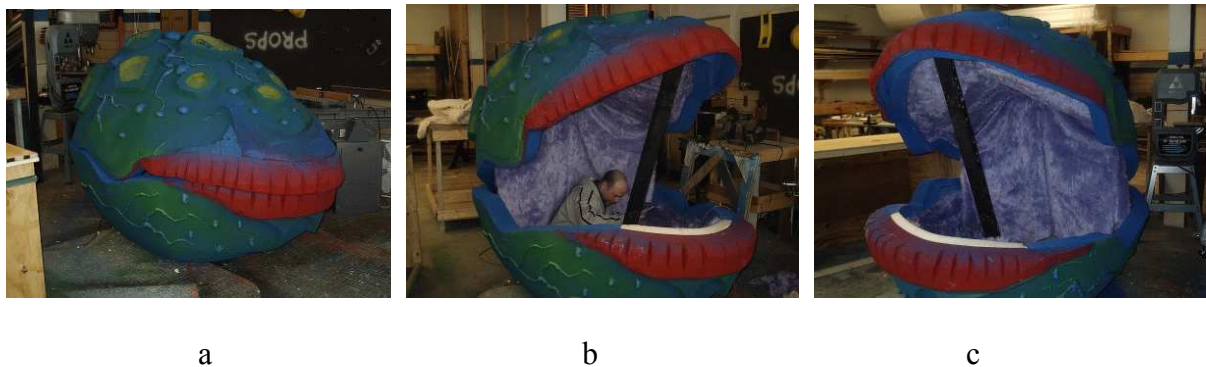


Figure 29. Mouth Interior Construction of Puppet 4.



d

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f

Figure 29 (continued)

After the interior of the mouth was attached I turned to the gum line that later would be used to attach the large foam teeth. The gum line was cut from 3 inch foam sheets and attached with hot glue around the inside of the top and bottom halves of the “pod” as seen in Figure 29e and Figure 29f. After the gum line was attached I moved on to attaching the teeth, as seen in Figure 30.



a

b

c



d

e

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Figure 30. Tooth Application on Puppet 4.



The teeth were cut from 1 inch foam in the shape of a sharks tooth as seen in Figure 30a and then applied to the gum line using hot glue. I spaced the teeth by applying the front teeth where seemed appropriate and then working back along the gum line, evenly spacing the teeth until I ran out of room as can be seen in Figure 30b. This was done on the top and bottom gum lines with the exception of a gap in the front lower half. The teeth in this section were left out as the actors would have to slide into the mouth of the puppet at this point and inclusion of teeth here would complicate their smooth entry. An example of where the teeth were placed and were not placed can be seen in Figure 30c.

Figure 31 details the construction of the “base” of Puppet 4 in its various stages.

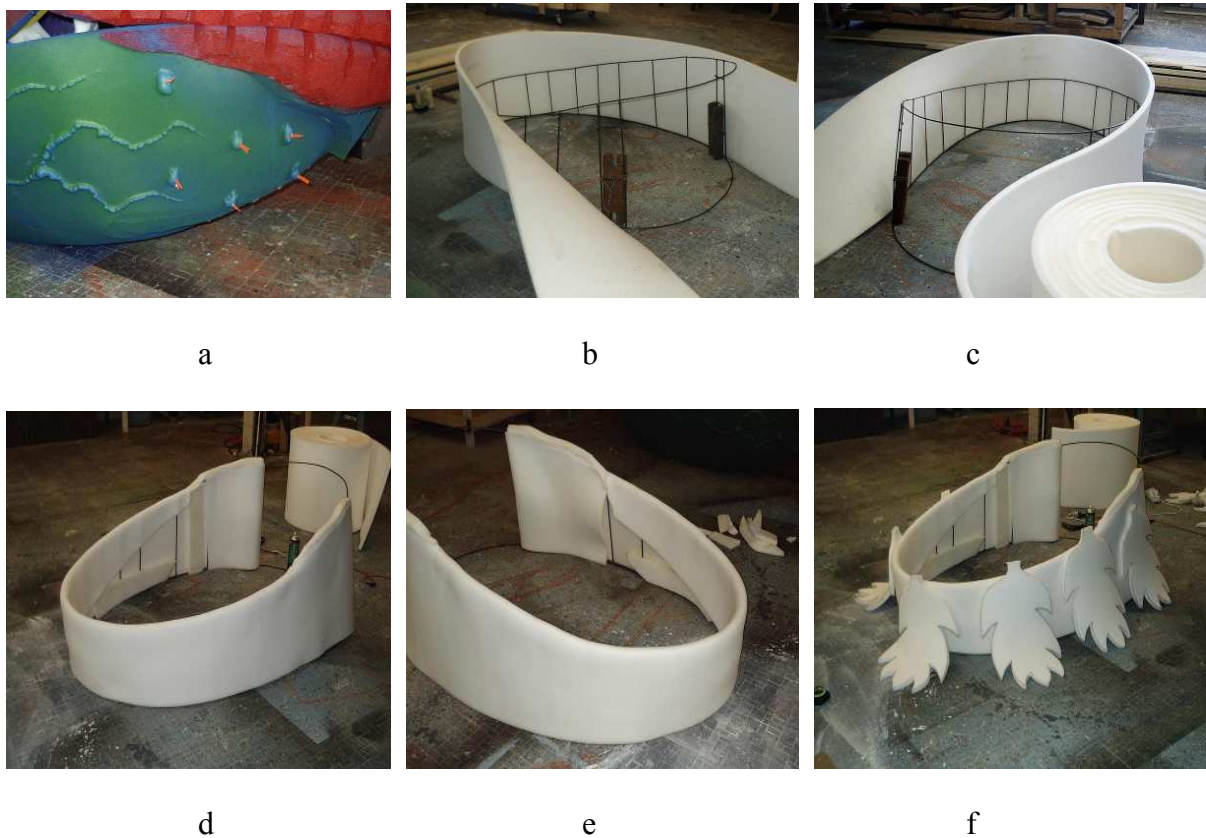


Figure 31. Base Construction on Puppet 4.



Figure 31b shows the pencil rod frame that was designed to go under the “pod” section of the puppet in order to both elevate the puppet for dramatic effect and to allow enough space under the puppet for the actors who were “eaten” to slide out of the back of the puppet through the hole in the bottom of the “pod” and through the back of the base. This access point can be seen clearly in the back of the frame in Figure 31d. I skinned the frame in the same manner as the rest of the puppet with 1 inch foam sheeting and spray adhesive as shown in Figure 31b through Figure 31e. Two large metal weights were also attached to the framework on the back of the frame to assure that when the actors enter the front of the puppet to be eaten the puppet would not tip forward (Fig. 31h).

After the base was constructed, I began, as with Puppet 3, to cut out leaf shapes for both the base, as shown in Figure 32d, and the “collar” of the pod, as seen in Figure 32i. These were constructed the same as Puppet 3 with spray foam veins and attached with hot glue. This puppet had tentacles as well, but in the case of Puppet 4 they needed to move. As seen in Figure 32f I used the same construction technique I used in Puppet 3 for the tentacles, but in this case, as discussed in the design chapter, I inserted a steel pencil rod into the interior of the tentacles that would be attached to bent pipes. This allowed a second puppeteer to move the tentacles from back stage. The leaves, tentacles, and base were painted within the design palette.

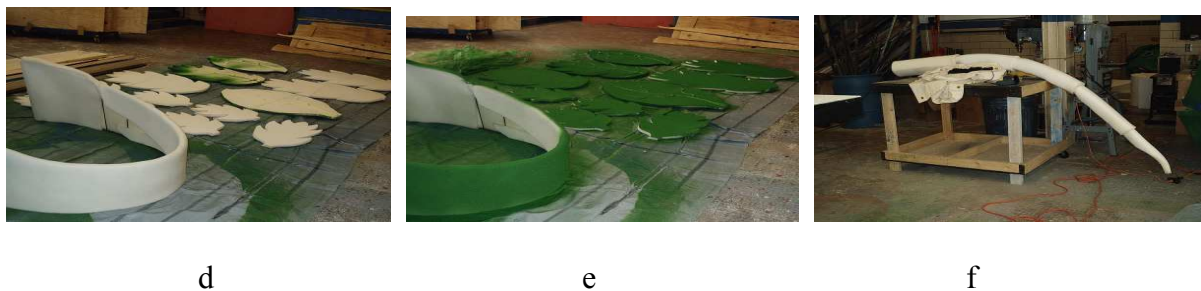
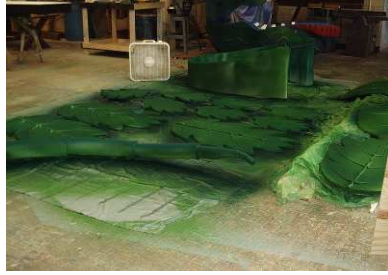


Figure 32. Final Construction of Puppet 4.



g



h



i



j



k



l

Figure 32 (continued)

At this point the construction of puppet 4 was mostly complete so I brought in the puppeteer for a detailed “fitting”. I placed the puppeteer in the pod, behind the fabric curtain and had him find the easiest point to lift the upper jaw by using the frame. Once the point had been found, I measured and cut a 1 inch wooden dowel to the appropriate length and attached it to the frame using welding strength epoxy. This created a sturdy handle that the puppeteer could use with both hands to lift the upper jaw of the “pod” and effectively simulate mouth movements. Figure32i shows Puppet 4 painted and ready to be shipped to the venue.

## CHAPTER 3

### CONCLUSION

The design and construction of these four puppets took almost an entire year. It was a great challenge for me in all aspects as I had never taken on a project of this size before. All of the factors that had to be considered when designing the various stages of the puppets presented unique problems that had to be effectively solved while keeping within time and budget constraints.

Anyone taking on the challenge of designing and building the puppets for *Little Shop of Horrors* (Ashman, 1982) is in store for a decidedly time intensive project with great rewards and challenges. I wish anyone taking on the project the best of luck and envy their unique experience. I thoroughly enjoyed my time on this project and couldn't think of a better thesis project for anyone interested in theatre design. I would like to thank Melissa Shafer, Karen Brewster, Herb Parker and Delbert Hall for allowing me to take on this project and for working with me to see it through to the end. I would also like to thank the entire crew for our production of *Little Shop of Horrors* (Ashman) for being consummate professionals and putting on a great show, but especially Jordan Straight for enduring the pain and bringing my creation to life on the stage.

## REFERENCE

Ashman, H. (1982). *Little shop of horrors*. New York: Shukat Company.

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