Susannah

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Master of Fine Arts
In
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ABSTRACT

Susannah is the opera written and composed by American composer Carlisle Floyd in 1955. The opera is based on a story from the Biblical Apocrypha. For the live performance of this opera at the Jefferson Center in Roanoke, I designed the animations that projected onto a screen which was designed and fitted as a part of the set design. I created the series of animations that enhanced the story of the entire length of the opera. This project was in collaboration with Opera Roanoke's 2016-2017 season. Carlisle Floyd's *Susannah* was performed at the Jefferson Center in Roanoke, Virginia on April 28 and 30, 2017.

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GENERAL AUDIENCE ABSTRACT

Susannah is the opera written and composed by American composer Carlisle Floyd in 1955. The opera is based on a story from the Biblical Apocrypha. *Susannah*'s story covers the issues of cultural, social, and religious beliefs. For the live performance of this opera at the Jefferson Center in Roanoke, I designed the animations that projected onto a screen which was designed and fitted as a part of the set design. I created the series of animations that enhanced the story of the entire length of the opera. This project was in collaboration with Opera Roanoke's 2016-2017 season. Carlisle Floyd's *Susannah* was performed at the Jefferson Center in Roanoke, Virginia on April 28 and 30, 2017. Opera Roanoke's Principal Guest Conductor, Steven White led the Roanoke Symphony Orchestra and an outstanding cast, including Danielle Talamantes, a Virginia Tech grad, under the stage direction of Artistic Director, Scott Williamson.

Acknowledgements

I would like to thank my committee chair, Professor Thomas Tucker for his dedication and willingness of ongoing help and guidance. I would like to thank Professor Simone Paterson who gave me an idea of what could be done with thesis project. The encouragement and help of Professor Dane Webster was a big motivational factor that made my journey easier. I remember the day I told Professor Dane Webster about the idea of this project and how excited he was. I thank Professor Randolph Ward for his advice on the theater production. Also, I thank Scott Williamson, Artistic Director of Opera Roanoke, whose willingness to try new collaboration never done before for the Opera Roanoke's productions. I would like to thank the casts and crew of *Susannah*'s production for their stellar performance. I would like to thank Ben Knapp, Director of Institute for Creativity, Arts and Technology for his support, and Doug Whitney and the crew of Moss Arts Center who helped me above and beyond their duties. I would like to thank Kevin Concannon, Director of School of Visual Arts for his support and Deb Sim, for her encouragements and generosity throughout the years. Lastly, I would like to express my love to my parents and family for their ongoing support.

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Chapter 1 Introduction

1.1 Opera Roanoke's Susannah Web banner [a]

The first step is about the inspiration and motivation of why the projection design took flight for the opera--how I got to decide to choose the opera production.

The second is a brief history of the Carlisle Floyd's *Susannah*. This includes a short bio of Carlisle Floyd and the origin story for *Susannah*. Next, I will discuss how I got involved with Opera Roanoke. This project was used in the actual public performance. So, the collaboration with Opera Roanoke is worth the mention.

I will further discuss previous Opera productions that used the projection as means of a storyline or visual effect. I have only included the performances that I have actually seen. I have also added the actual production timeline with Opera Roanoke.

Producing and designing for the opera required research for the visual, so I will show how I got my ideas and what I did to get the ideas--along with ongoing collaboration with Opera Roanoke's production team, its set design, and the challenges that came from it.

When the design process began, I tried many ideas that didn't get used in the final production. So, I will present some of the ideas that didn't make it to the final product.

Once the set was brought in and up on the Jefferson Center's Shaftman Performance Hall stage, I spent a good amount of time setting up the projector and projection mapping software to correct the warping.

I will also show how the scene was animated and the many revisions that came with the design--the basic idea of how the process evolved into the final scene.
Lastly, I have included the highlight photos from the dress rehearsal.

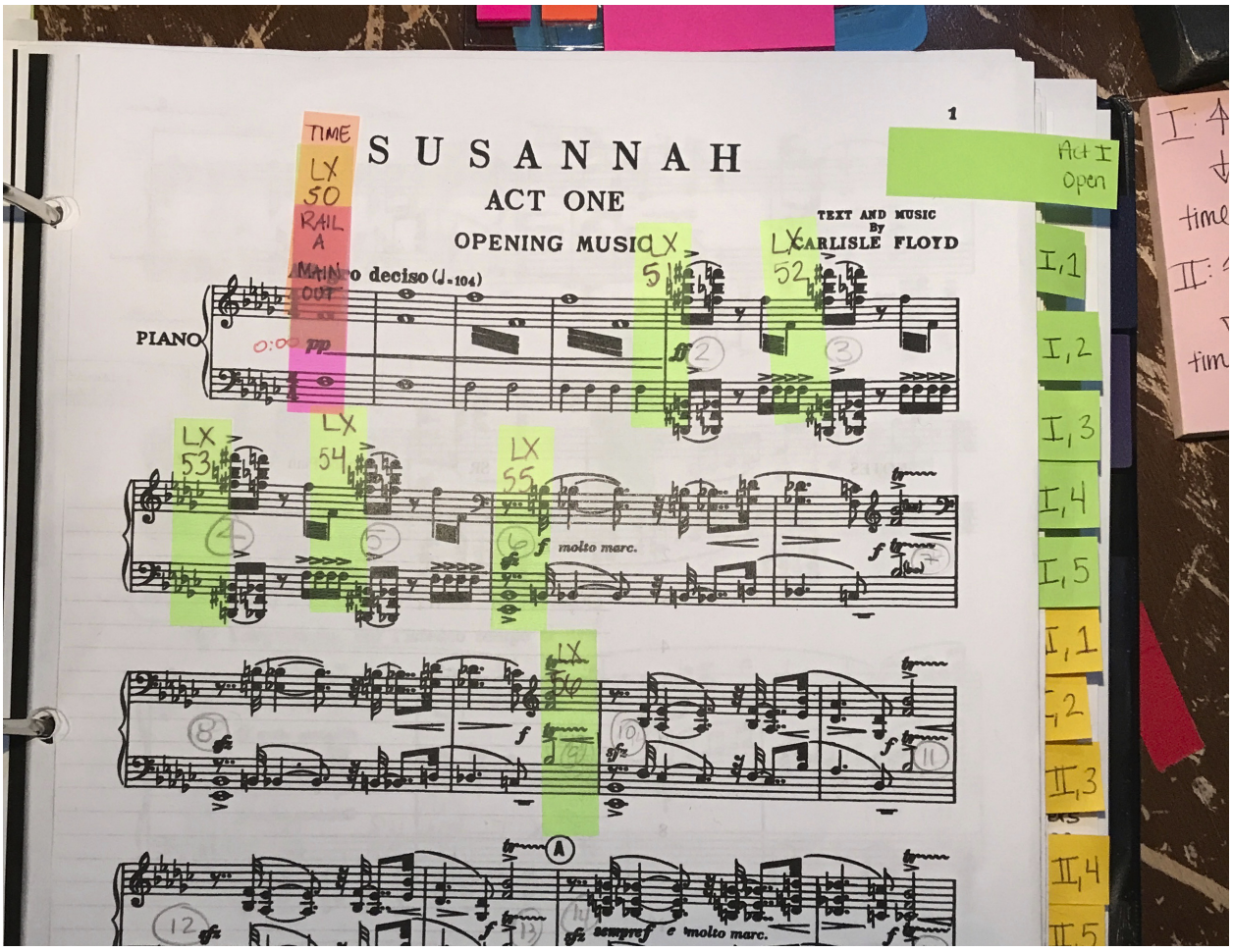
Chapter 2 Why Opera?

People usually respond differently when I say or they find out that I like opera. It could be a strange look in their eyes to admiration to somewhat a condescending squint. I have seen many, many different responses.

I have been listening to classical music since high school. Then, in college, I got interested in opera. I have no clue for the reason behind it. But, I once heard someone on the radio saying how could one not like opera with, “passion, love, jealousy, murder, sex, betrayal, laugh,” or all the human emotions, in opera.

I attend as many opera performances as I can. Every opera performance uses different set designs and the ever increasing technology aspects to enhance the performances. So, I have been paying close attention to these technological advances.

One day in early 2016, I had lunch with Professor Simone Paterson to discuss a paper that I wrote about Richard Wagner’s Art Work of the Future. During the meeting, she asked what my thesis would be and suggested that I should do something with the opera. Since I had a working relationship with Opera Roanoke, I asked her if the thesis could be an actual production, not just in the academic setting. *Susannah* became a year long process and my thesis.



2.1 Stage manager’s cue list for Susannah

Chapter 3 Opera Susannah

Considered to be the father of American opera, Carlisle Floyd was born in 1926. He started teaching in 1947 at Florida State University and remained there until 1976. *Susannah* was his third opera that premiered at Florida State in 1955. [1]

Susannah is one of two American composed operas that gets performed internationally, along with Porgy and Bess by George Gershwin. The story is based on the Biblical Apocrypha and set in rural Tennessee, with a southern dialect. [2]

I saw *Susannah* in June 2013 at Haymarket Theater in Blacksburg, Virginia. At that time, Carlisle Floyd, himself, was in the audience, right in front of me. So, when I started working on the projection design for *Susannah*, it made a special sense of connection. It is a rare occasion to see the opera, along with the original composer.

3.1 Carlisle Floyd waves to the cheering audiences after the performance of *Susannah* at Haymarket Theater

Chapter 4 Collaboration with Opera Roanoke

4.1 Opera Roanoke's La Traviata

I began to collaborate with Opera Roanoke in Fall of 2013. I met Scott Williamson, the artistic director of Opera Roanoke in the spring of the same year at the Taubman Museum in Roanoke. Ray Kass, professor emeritus of art, School of Visual Arts, introduced Scott Williamson to me, saying we should talk. So, I started taking production photography for Opera Roanoke.

This relationship lead to the full collaboration in the production as the projection designer.

Following are the images of Opera Roanoke's previous productions that I photographed.

4.2 Opera Roanoke's South Pacific

4.3 Opera Roanoke's Giulio Cesare

4.4 Opera Roanoke's Die Zauberflöte

Chapter 5 Projection Designs at other Operas

The fundemental theory of projection started from camera obscura in 1544 as with an actual photography camera. The “laterna magica” (magic lantern) was the beigining of the projector. The first magic lantern in documentation dated back mid-17th century. The very basic ideas are still valid though many technical advancement have made. Up until 1900, hand painted material was projected, then photographic slides were introduced. [3]

I will show you the other operas that used the projection for its production in order to enhance the staging and storyline.

One is Adés, The Tempest in 2012 by the Metropolitan Opera, which was directed by Robert Lepage, who also directed Cirque de Soleil’s Ka in Las Vegas. Later on, he produced Wagner’s Ring Cycle for the Metropolitan Opera. [4]

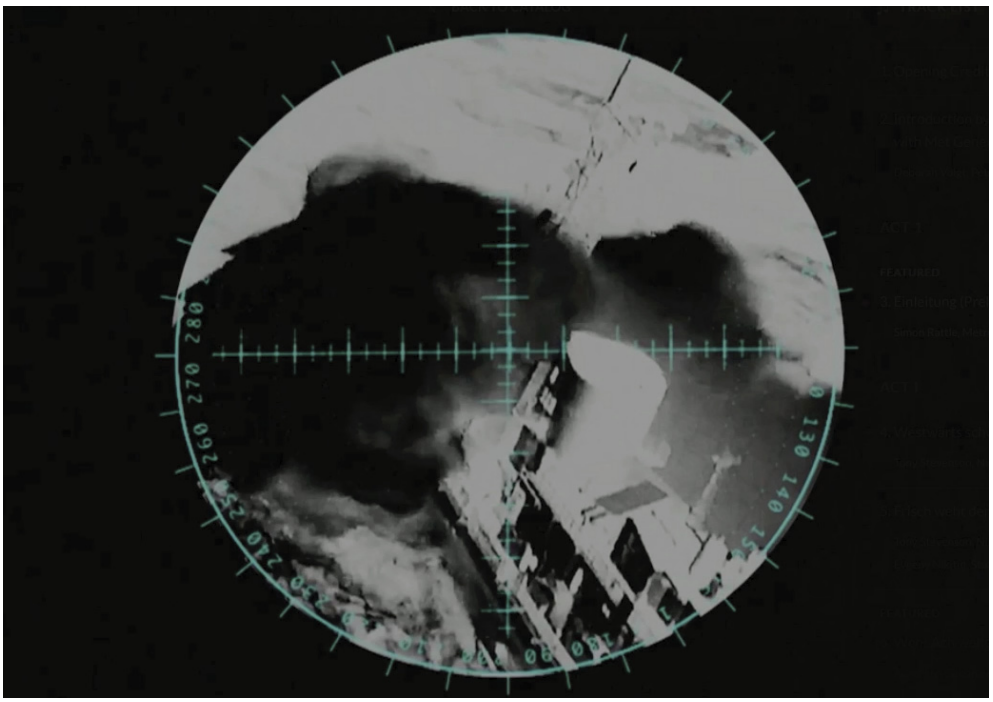
5.1 Adés’ The Tempest by Metropolitan Opera [b]

In 2013, William Kentridge designed and directed the Met premiere of Shostakovich's satirical opera, The Nose. Kentridge is well known filmmaker using his drawings from South Africa. [5]

5.2
Shostakovich's The Nose by Metropolitan Opera [b]

In 2014, Opera Roanoke used simple, static images behind the stage for Mozart's Abduction from the Seraglio.

In 2016, the Metropolitan Opera used simple videos for the production of Tristan und Isolde.



5.3
Wagner's Tristan und Isolde by Metropolitan Opera [b]

Chapter 6 Production Timeline

The initial idea of doing a projection design started in early 2016, as mentioned in Chapter 2: Why Opera.

I talked to Scott Williamson about the upcoming production of Opera Roanoke's 2016-2017 season. When I first talked to him, *Susannah* wasn't set in stone yet. Around late spring, I learned that *Susannah* would be the opera to be performed in April 2017, which fit the time frame of the semester that I was to be working on the thesis.

In summer of 2016, I started studying the opera, *Susannah*. The first step was retyping the libretto from scratch, so I started studying the scenery of the East. During the summer months, I traveled to New Hope Valley, Tennessee and Blue Ridge Parkway to get the sense of the place and to visualize what would be good for projections.

The first *Susannah* production meeting was held in November 2016 at Opera Roanoke's office, which included the artistic director, set designer, technical director/set builder, and myself, the projection designer.

The set design was finalized in mid January of 2017. From then on, I was working on a concept that would fit the set design and presented it to the artistic director. Mid February of 2017, I spent a longer amount of time working on the design for projections. Right after spring break of 2017, the production was in full swing.

6.1
Opera Roanoke's Instagram post of production meeting. Left clockwise, Scott Williamson, Artistic Director, Jimmy Ray Ward, Set Designer, DongSoo Choi, Projection Designer, and Joey Neighbors,Technical Director

Chapter 7 Research

To prepare myself for the production of Susannah, I took Production Studio I with Randy Ward at the School of Performing Arts, Virginia Tech in the Fall semester of 2016. The class covered many aspects of staging in theater.

During that time, I also traveled to areas for photography and video. At the time, I wasn't sure what kind of set I would have, and I didn't have the general visual concept for the projections. I additionally visited galleries and museums for more inspiration.

7.1 & 2
New Hoipe Valley
Tennessee

7.3 & 4 Blue Ridge Parkway

7.5 Van Gogh, 1889 The Starry Night, Museum of Modern Art, New York

7.6 Van Gogh, Starry Night Over the Rhone, 1888. Musée d'Orsay, Paris

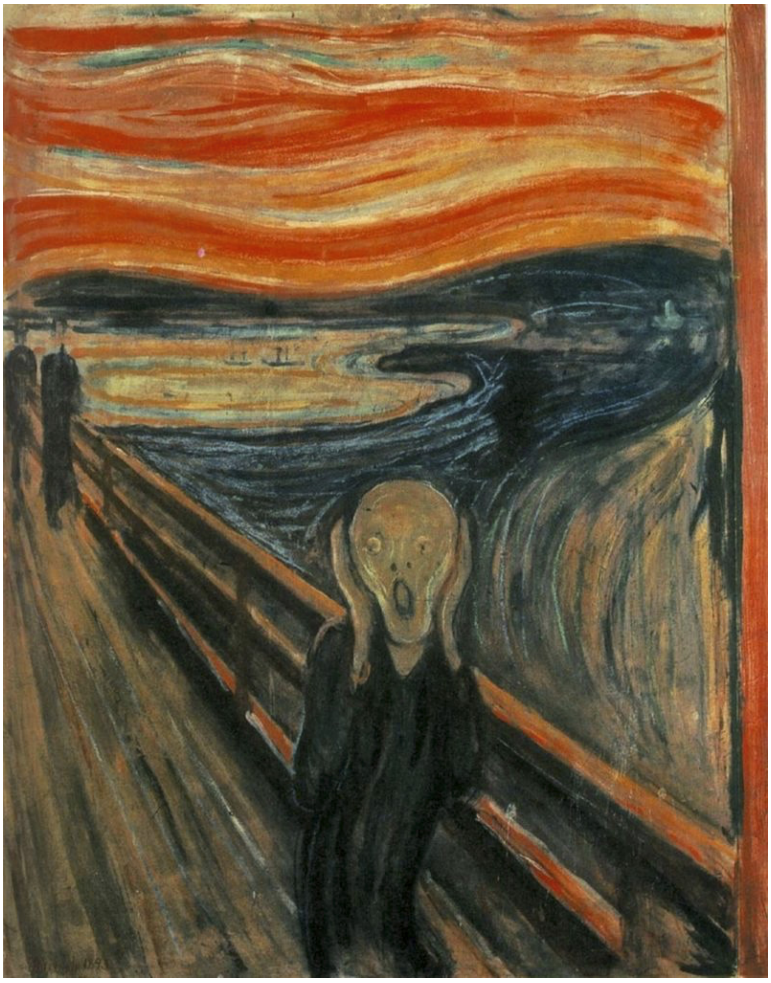
7.7 Dali, Down the Rabbit Hole [c]

7.8 Dali, The Pool of Tears [c]

7.9
Dali, Cubist Figure [d]

7.10 Koga Harue, Pleasant Feast, 1933 [e]

7.11 From Commerce of Edo, Edo Tokyo Museum's diorama



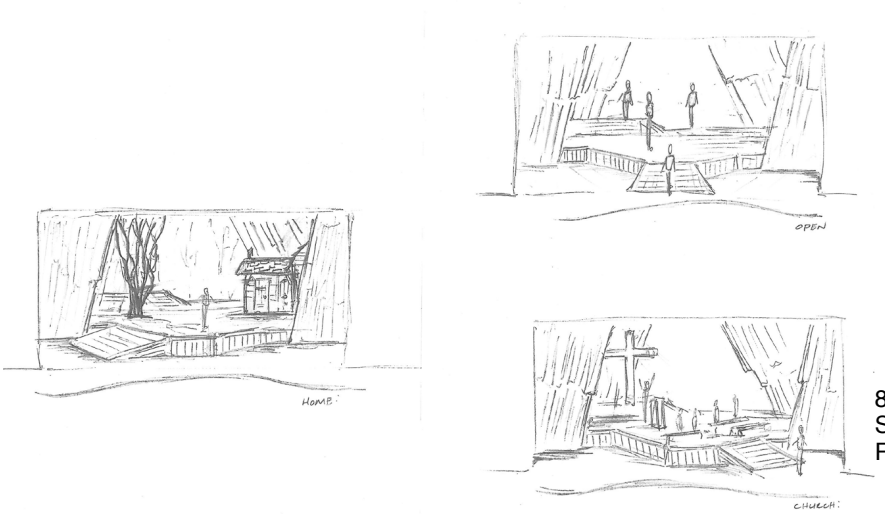
7.12 Munch, Scream [f]

7.13 A Room With a View at The National Musuem of Modern Art, Tokyo

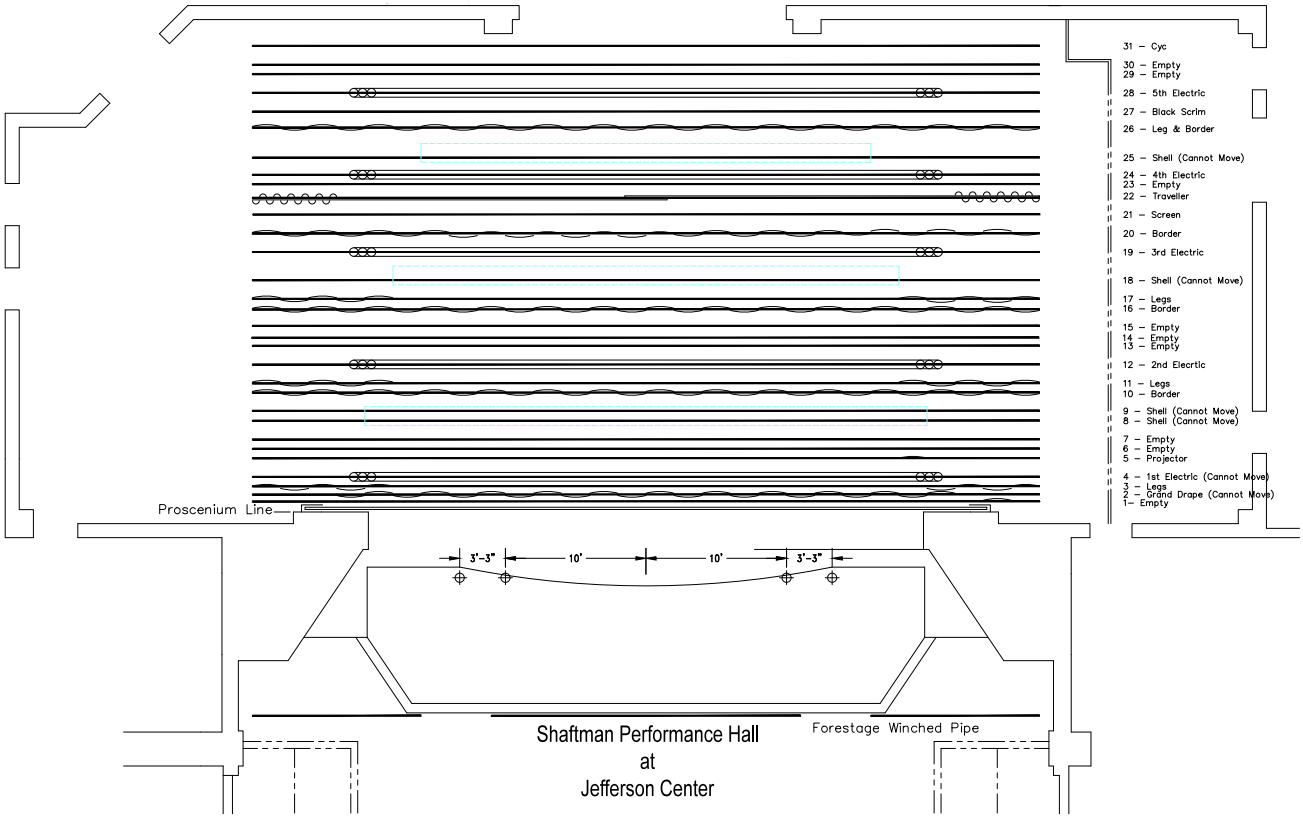
Chapter 8 Production Meeting

There were many production meetings before the actual rehearsal began.
The many aspects of the production preparations were discussed. Once the set design was delivered, I was concentrated on the technical detail of the possible projection ideas.

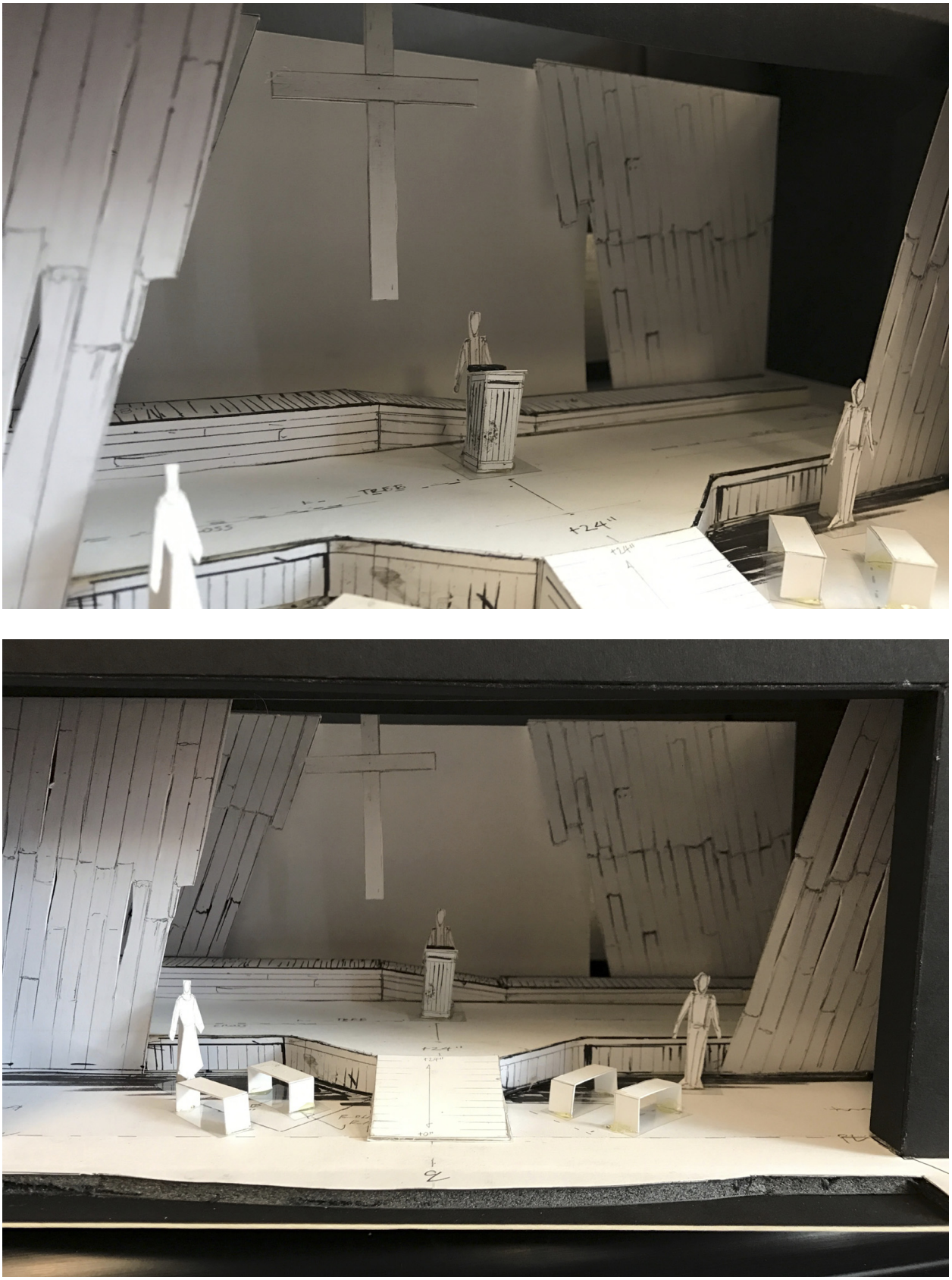
Also, during the rehearsal period, many aspects of production were discussed, all to make the performance of the opera shine!



8.1
Set Design Sketch from Jimmy Ray Ward



8.2 Jefferson Center, Shaftman Performance Hall Rigging Plot [g]



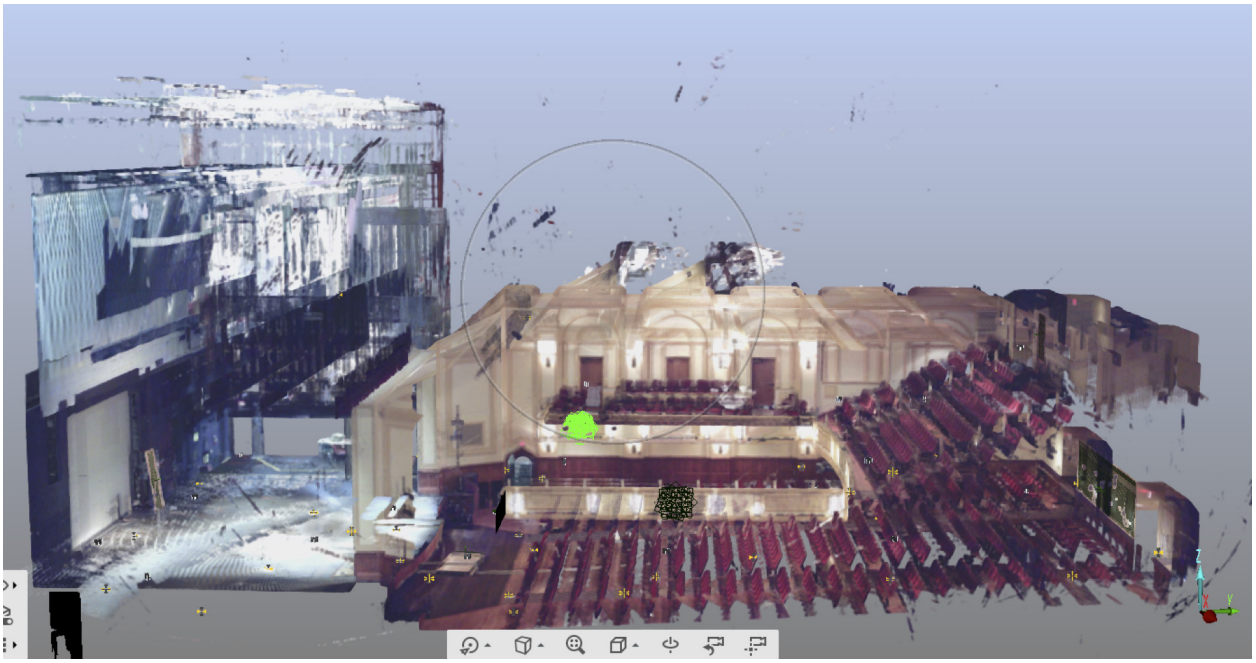
8.3 & 4 Model Set Design from Jimmy Ray Ward

8.5 Artistic Director, Scott Williamson, left and Joey Neighbors, right, set builder and technical director for Opera Roanoke looking at the model set design at Opera Roanoke's Office

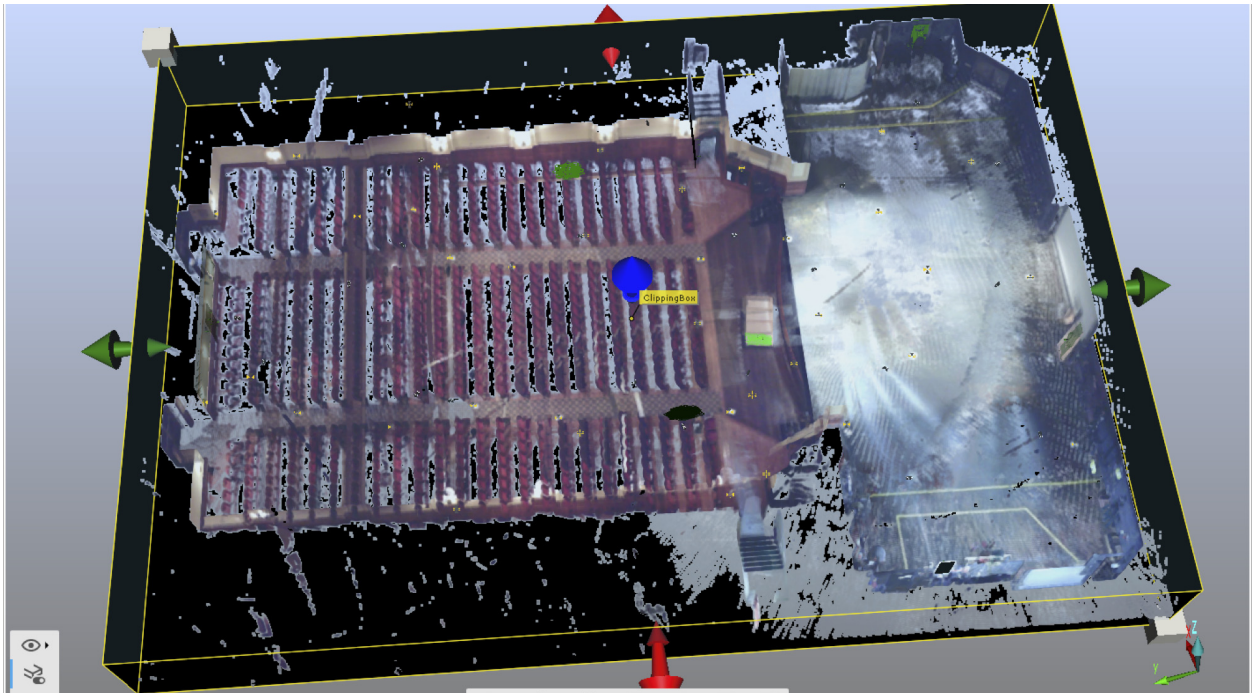
8.6 After rehearsal production meeting with cast and crew at Jefferson Center

Chapter 9 Set Design and Challenges

Even before the set design was discussed, I made preparations for the possible outcome. I went to Jefferson Center and made 3D scans with the FARO laser scanner. The FARO laser scanner is the device that uses laser to scan the environment and create a 3D point cloud of the scanned data. I scanned the entire Shaftman Performance Hall of Jefferson Center to visualize the stage structures and rigging plots. So, if needed, I would have been able to create the 3D model of the set or the exact view point of the given point to point.



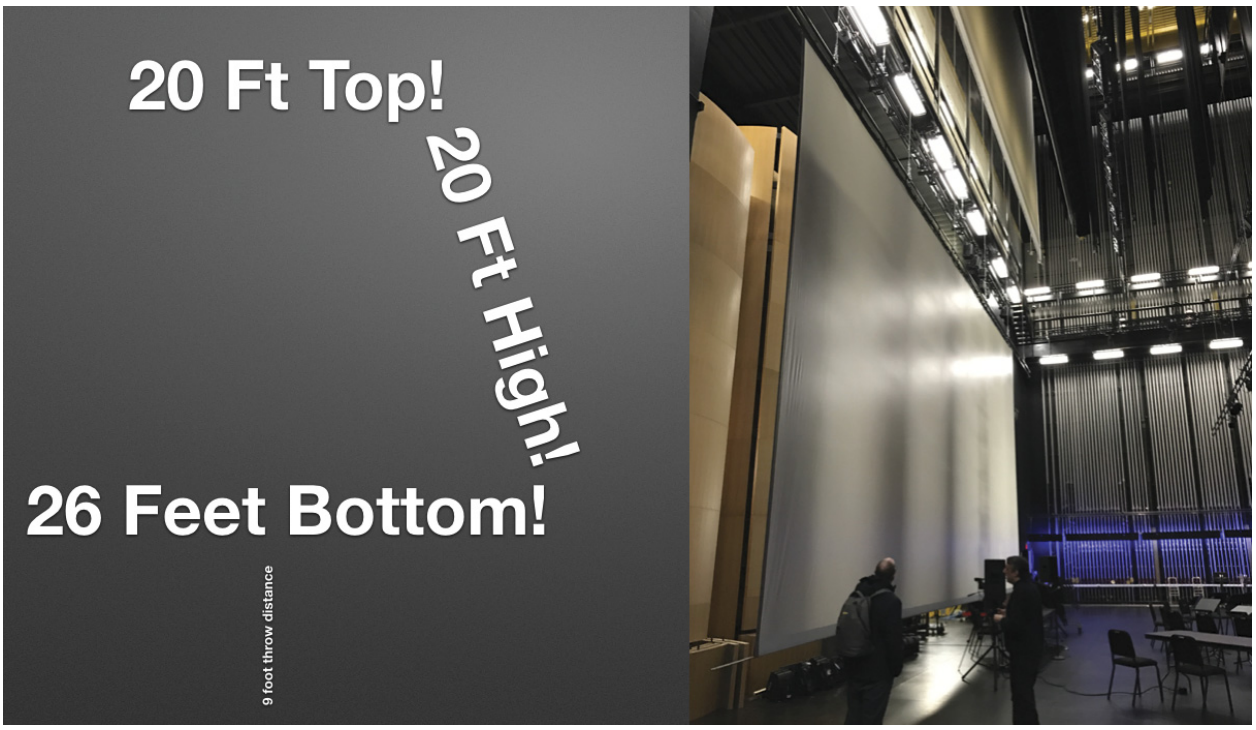
9.1 Jefferson Center Shaftman Performance Hall, 3D Laser Scan and Side Cut Away View



9.2 Jefferson Center Shaftman Performance Hall, 3D Laser Scan and Top Cut Away View. Stage on the right shows very clear view of dimension

The biggest challenge came from the set design itself. The set was designed with an area of 26 feet wide at the bottom, 20 feet high, and 20 feet wide at the top, but only with 9 feet of throw distance for the projector. That was way too short of a distance for the given projection area to cover.

With the help of the Moss Arts Center crew and its facility, I tested how big an image could be projected with that given distance. Due to the short distance of the throw, the mirror was used to gain the throw distance. Using a mirror is very common practice when you are dealing with short throw distances for projections. With a mirror size of 48 x 72 inches, the possible projected image size was about 17 feet wide by 9 feet high. That is way smaller than the required size of the set design. I checked the possibility of using a second mirror, but quickly nulled out due to the second mirror size requirements coming close to 9 feet x 12 feet.

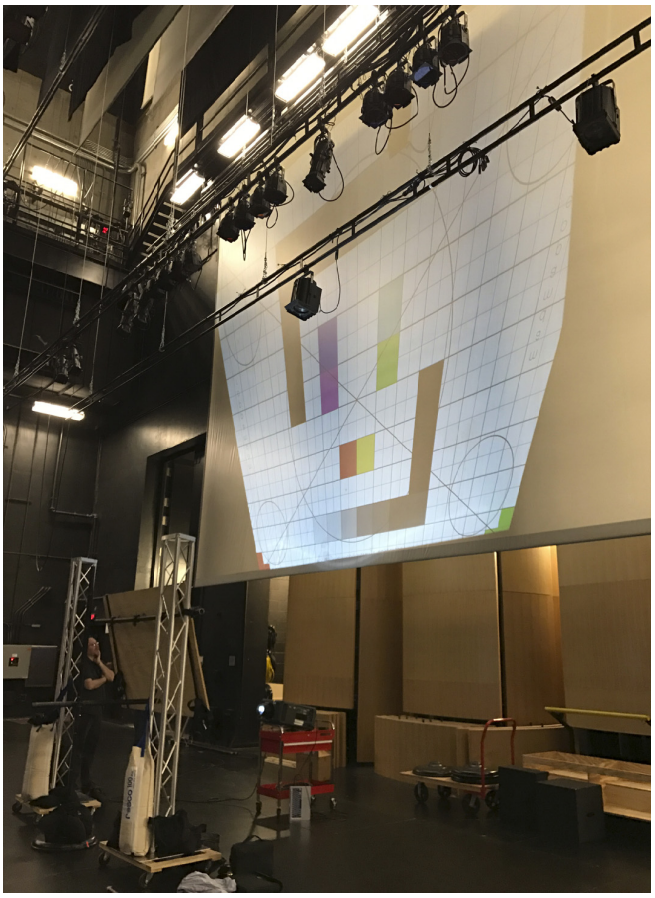


9.3 Projection Surface, Thomas Tucker, School of Visual Ars left and Doug Whitney, Moss Art Center looking at the actual screen

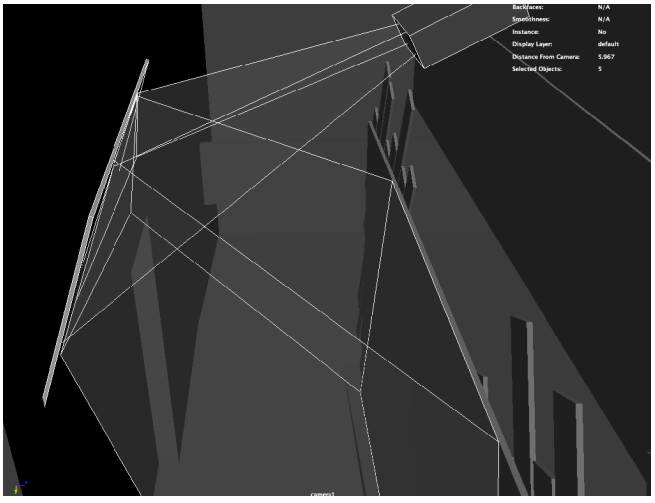
The second test was done in a small scale using a lower powered projector. This time, I wanted to see if I could use the natural keystone of the projection to be a favor. The set design projection shape was a trapezoid. The result of the test was that using the keystone would work.

9.4 Second Test, Possibility of utilizing the natural keystone

The third test at the Moss Arts Center was driven from the second test. I wanted to make sure that utilizing keystone was, indeed, possible in a real scale test. The test result came out as a success. Yes, it was possible to create the required size projection to be within 9 feet--with one fallback. The fallback was that the mirror and the projector must be mounted over 25 feet high. This difficult rigging factor turned out to not be possible at the Jefferson Center. So, this was scrapped.



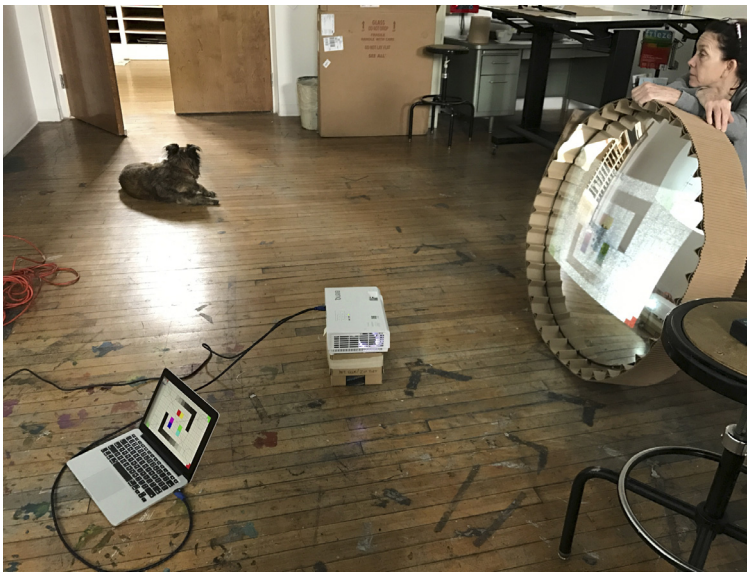
9.5 Third Test, Based on second test for utilizing the natural keystone



9.6 Possible projection set up based on the tests

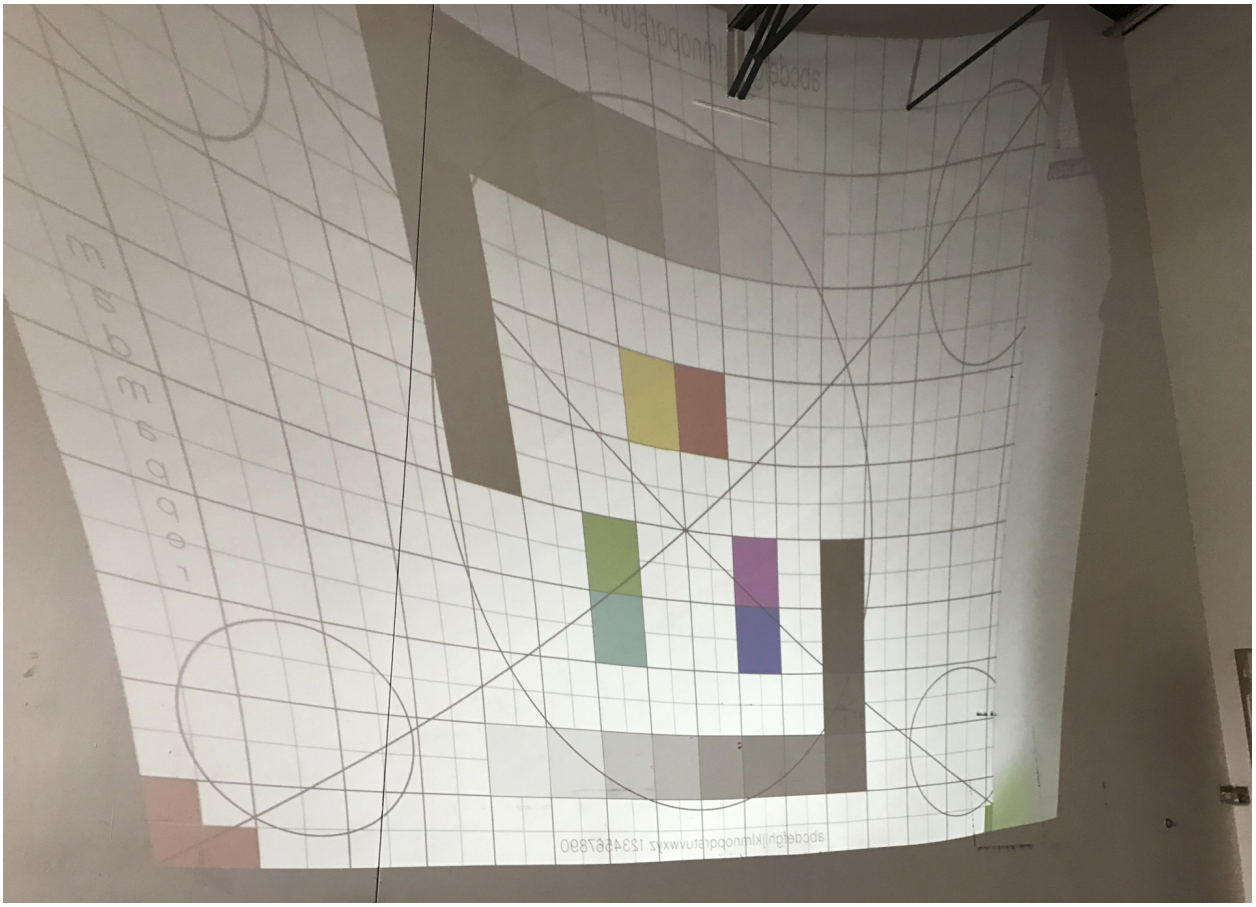
9.7 Proposed rig to be built to achived the desired projection size. Hight should be at least 25ft high

Then, what did we have to do to make this work? I got a suggestion to use a security convex mirror. I got a 36 inch convex mirror to test. The test result was good. It was achievable, but still, the mirror and the projector needed to be mounted above the line set on the stage, which again, was not possible.



After many considerations, the production team decided to modify the set design so the width of the projection size was 20 feet. The size could easily be achievable using the convex mirror, with room to spare, which is always good to have since there is nothing much you can do to change the set once the set is on the stage.

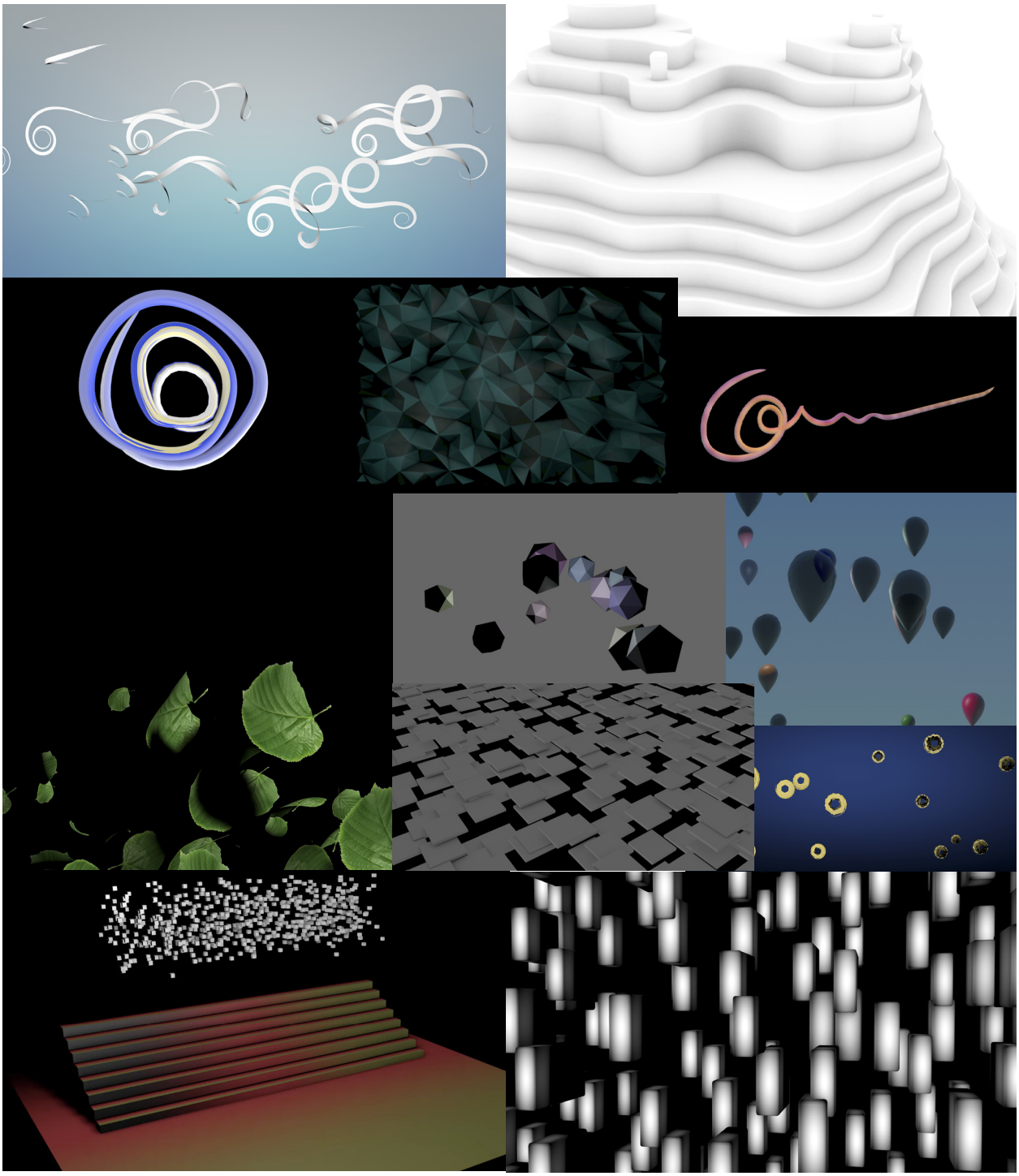
9.8 Security mirror test with Deb Sim and Mr. Pickle



9.9 Size was indeed achievable but the mounting problem still existed.

Chapter 10 Early Ideas

To develop the consistent, visual content for *Susannah*, I created multiple animations and visuals. All of those helped me develop the final animations, but none were used, as is.



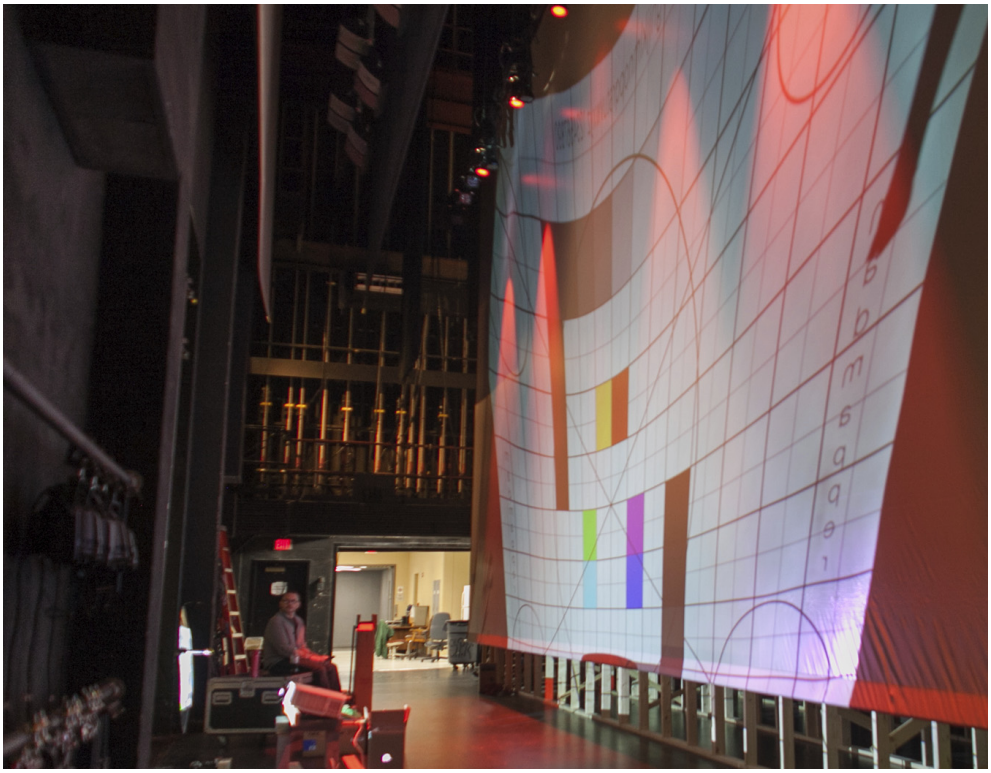
10.1 - 12 Many early ideas and test for various parts of the oprea

Chapter 11 Final Projection Setup

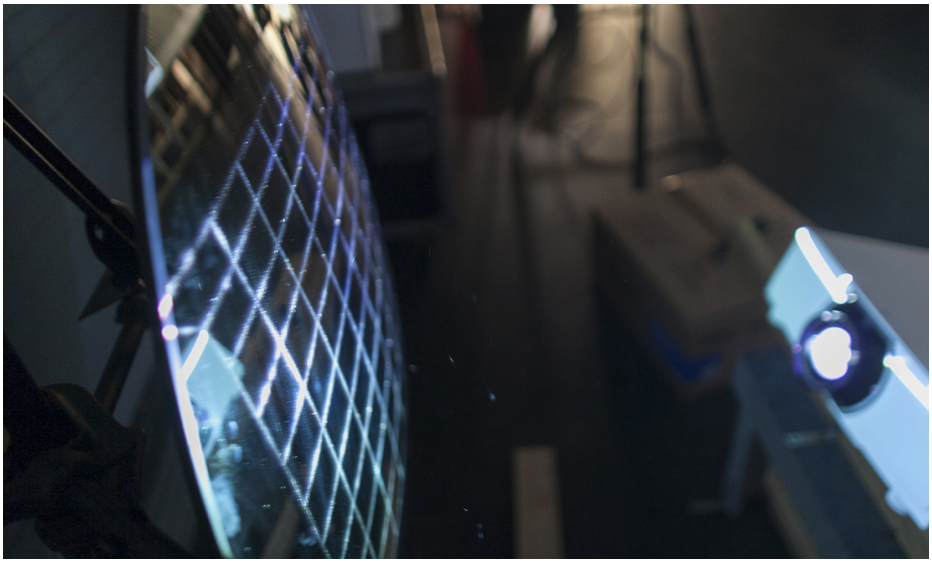
Right after the set was on the stage, there came the projection set up. Since the curved mirror was used to project the image, correcting the warped image was needed. This process was done using MadMapper, a projection mapping software modifying an original image to the projected surface and shape. The process of this correction was tedious and time consuming. Once the projector and mirror were positioned and locked down, I spent most of the day correcting the image as much as possible. The next day, I brought in a self-leveling laser guide for one, final correction.

11.1 Final try for the flat mirror but image was too small for the set

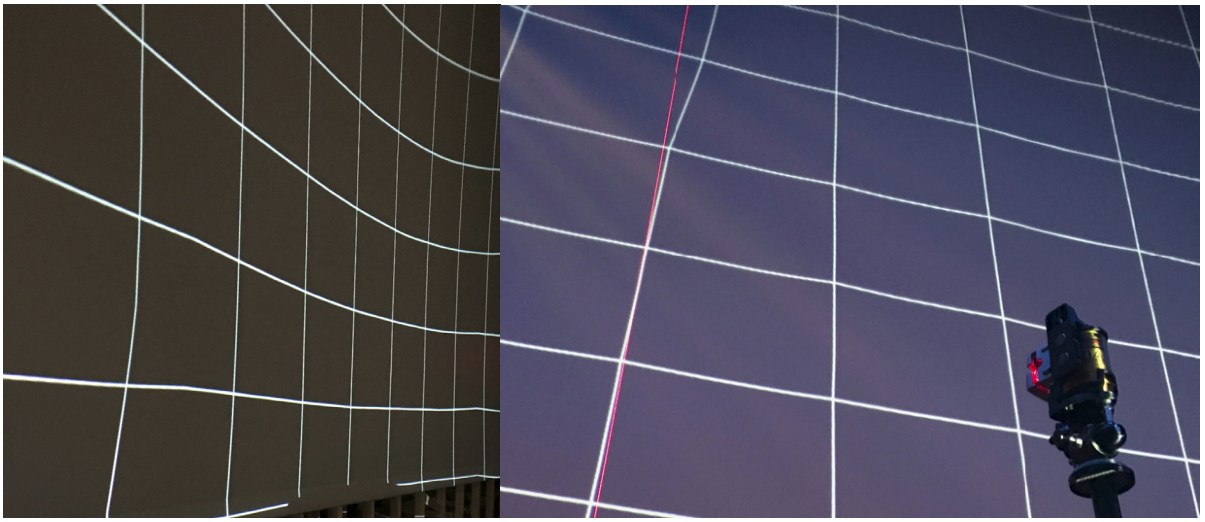
During the stage lighting adjustments and cast rehearsal, I was able to control the main projection computer from the auditorium for a better view, which helped in modifying the animation timing and other trouble shooting. A few of the animations had to be changed due to the lack of visibility from the stage light washing the color away.



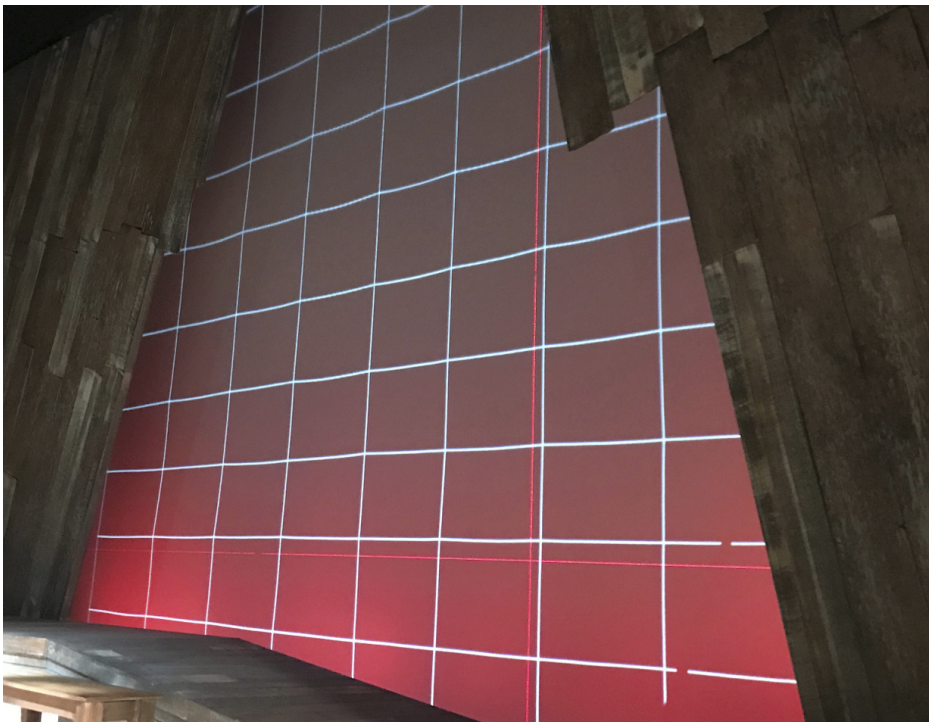
11.2 Curved mirror is set up to project the full size required



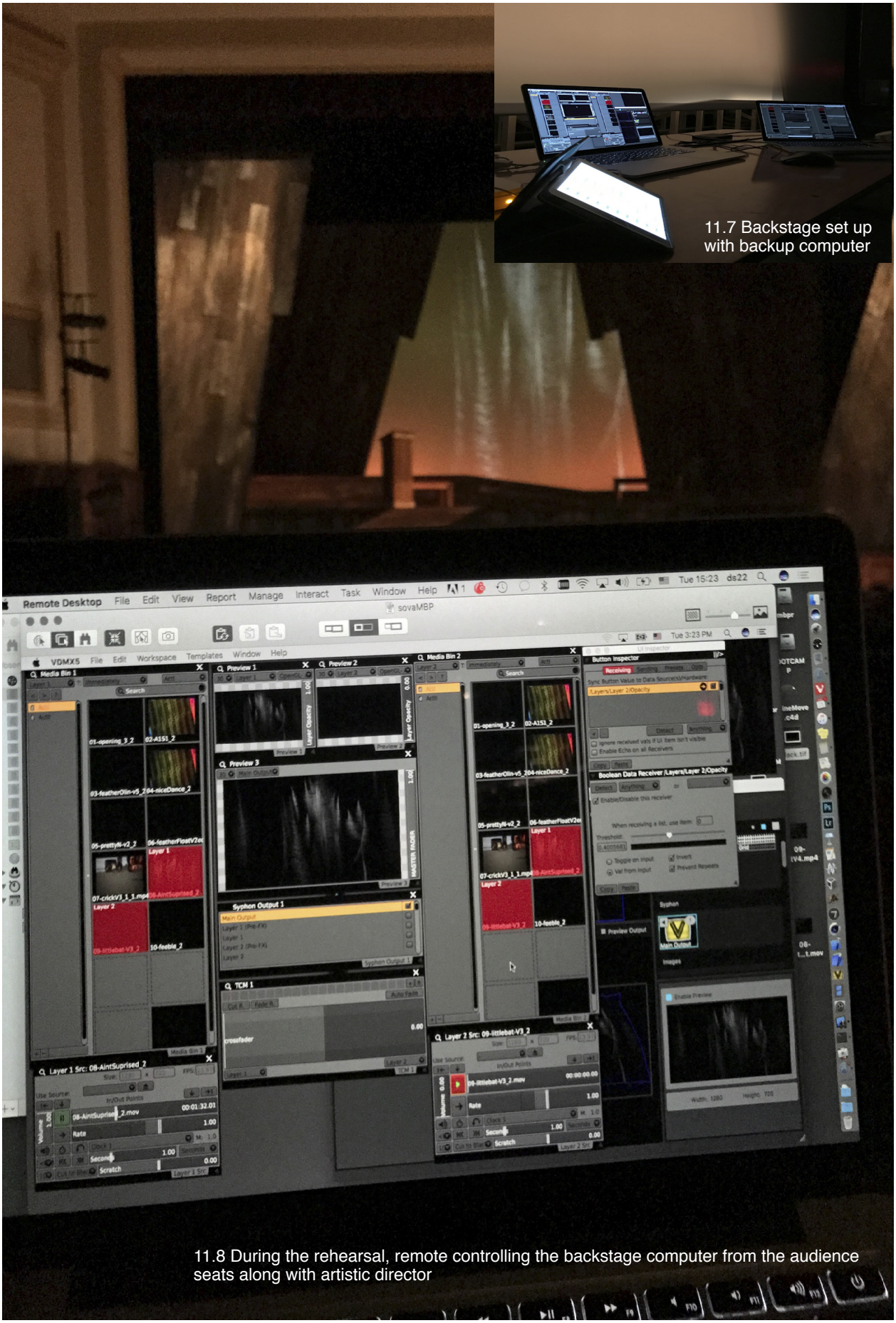
11.3 During the image correction, mirror shows the grid from the projector



11.4 & 5 To correct the warp from the mirror, laser guide was used for precise control



11.6 After the correction, grid is pretty much flat without distortion



11.7 Backstage set up with backup computer

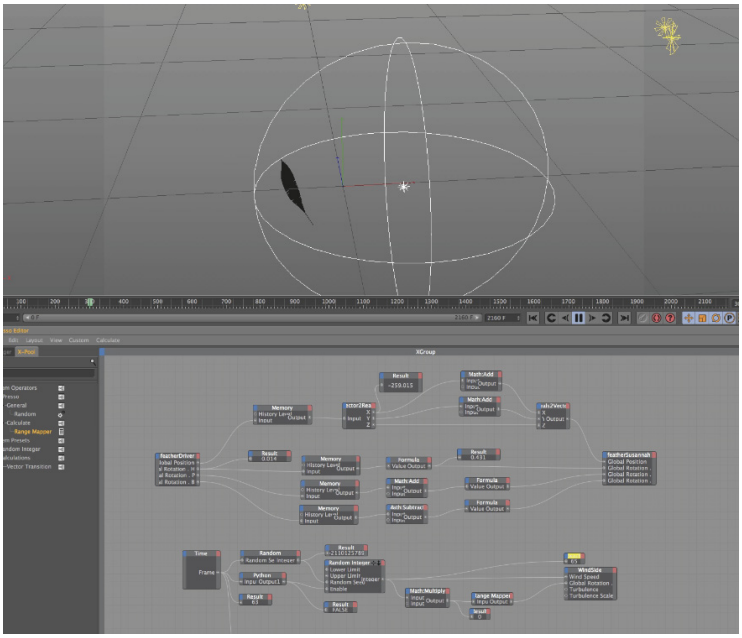
11.8 During the rehearsal, remote controlling the backstage computer from the audience seats along with artistic director

Chapter 12 Animation and Scene Analysis

I will go over the few animations and how it was developed, animated, and the final look of the stage.

Act I, Opening Scene

This is basically the overture of the opera. So, usually, the stage curtain remains lowered, and the orchestra only plays the music. I decided to create an animation that, like the music, mimicked the entire opera--basically a telling what's coming from the opera. During the production meeting, there was a discussion how this opening scene animation would be projected. The artistic director and choreographer decided to create a pantomime for the scene.



12.1 Cinema 4D setup of Xpresso for feather simulation

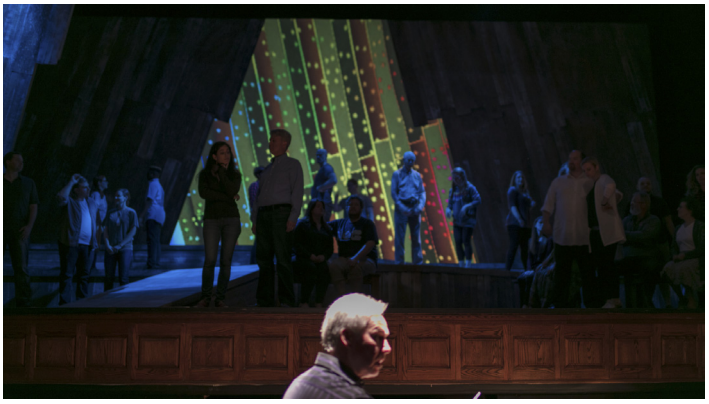
Actual animation was done in Cinema 4D, using and heavily relying on its xpresso scripting language. The heavy use of xpresso was to give the animation the flexibility and power to change many aspects of the animation without relying on the keyframe animation. The keyframe animation was tried and the true method that worked, but when it came to long animation, the procedurally driven animation was a much better solution. Also, xpresso gave the power otherwise not possible within Cinema 4D.

12.2 & 3 Final staging of the opening scene

For this scene, I created the wind simulation using multiple wind generators with random variations that applied by xpresso. The single feather was floating away from the group of feathers.

Act I, Scene One, Nice Square Dance

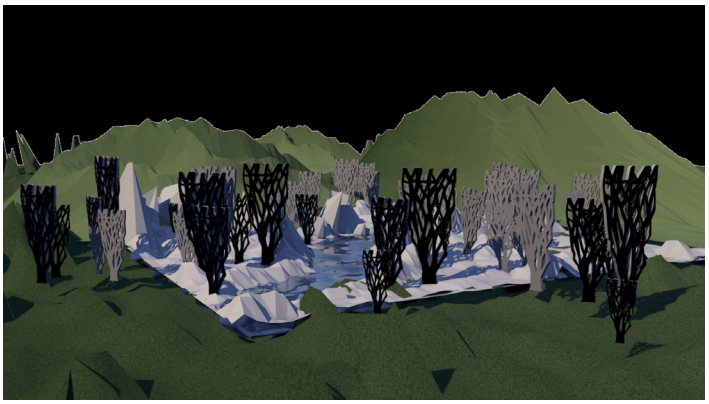
This was the most colorful animation I did for *Susannah*; the opera starts happy and town folks gathering and dancing was a good balance for the colorful, background image. Also, the slats of the set design were used to better blend the image.



12.4 During the tech rehearsal for Nice Square Dance

Trees!

The projection was used for the entire duration of the opera, not only as a method to enhance the scene, but also as an extension of the set on stage. The tree that flies in and out was designed by the set designer, but it was scrapped, and virtual trees on the projection screen were used instead.

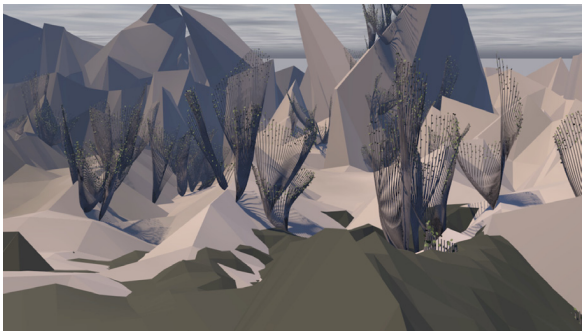


12.5 Trees and mountains based on set design tree

First, I modeled the tree based on the set design that was scrapped. Then, the artistic director gave a concern, and I also didn't like the result much, so that design was taken out. To come up with a stylized tree that would fit with other elements that I used in animation, I experimented with multiple options. The final tree design was much simpler, but styled to fit the low-poly look of the mountains modeled.

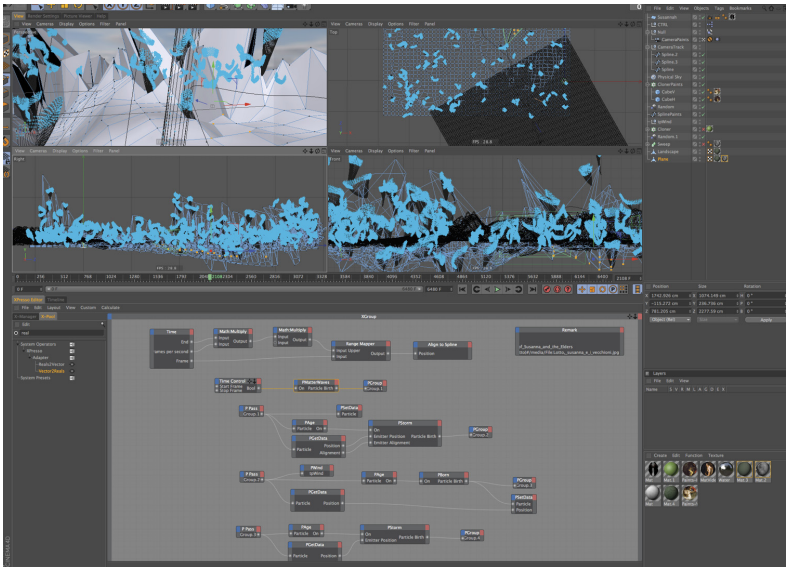
Act I, Scene 3, That crick oughta be right about here

This scene is the pivotal point of the opera where happy turns to bad. There is a bathing scene of Susannah. To make the nudity present, but all-the-while keeping it a PG rating for the audience, the video of Susannah was projected onto the screen. So, I modeled

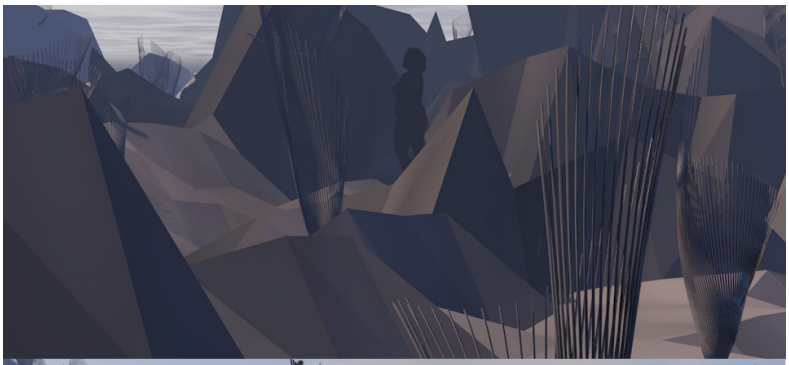


12.6 Final stylized trees

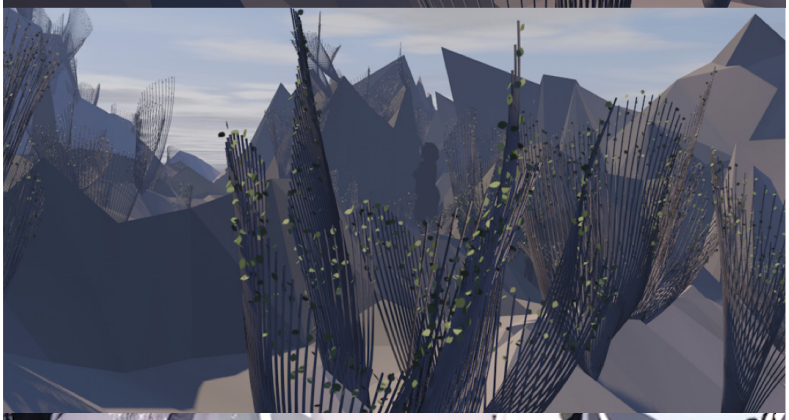
the mountain crick scene, took a video of Susannah bathing on green screen, and later combined to show Susannah in a believable, artistic manner.



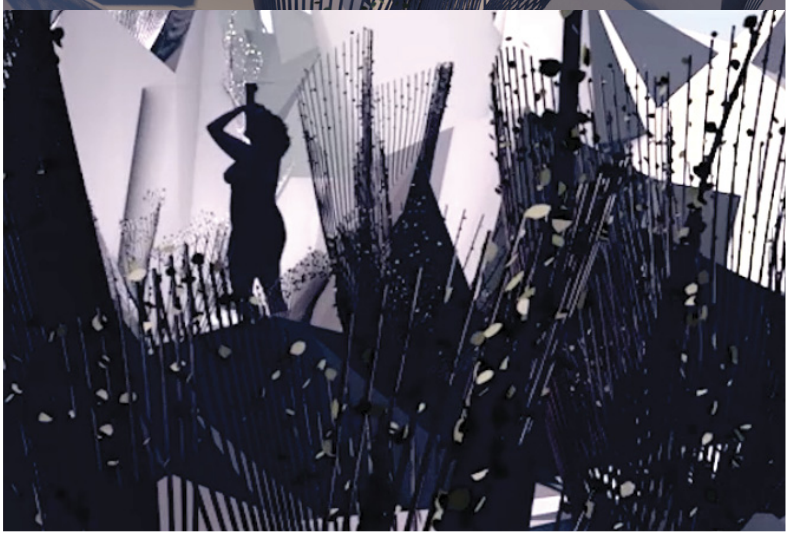
12.7 Bathing scene set up and testing in Cinema 4D



12.8 First render with Susannah in



12.9 Original composite but Susannah wasn't showing up well on stage due to low contrast nature of composite



12.10 Higher contrast version was edited into final to deliver the message to audience in short time

Act I, Scene 4: I ain't surprised

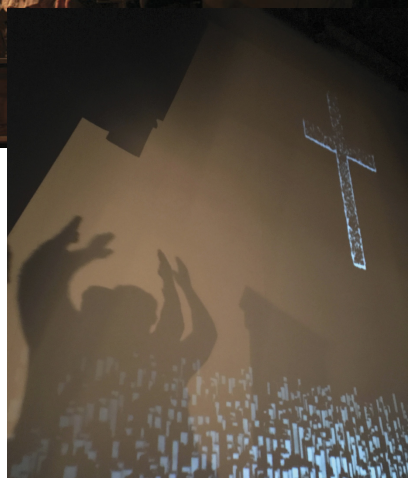
The scene was animated to show the rotating group of feathers. This was one of the simple animations that turned out to be very effective for the given scene and the staging.

12.11 & 12 Actual render of Act I Scene 4 and staging with cast

Act II, Scene 2: Saved From Sin

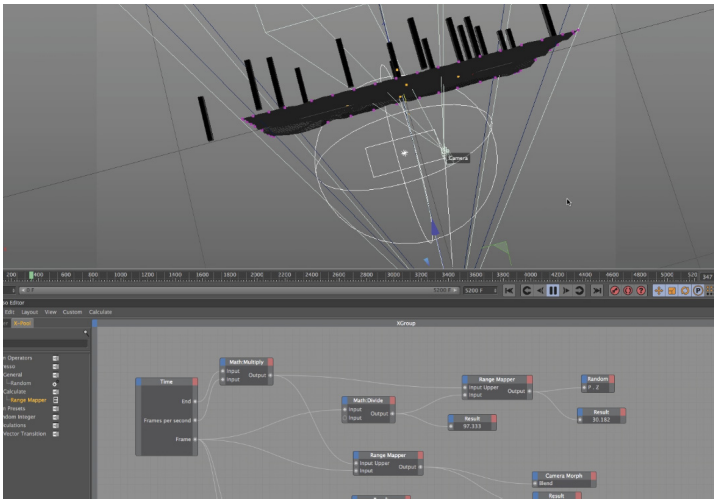
12.13 Act II Scene 2 on stage

This scene is also called the revival scene, all happening inside a church. The animation was designed with falling confetti that becomes the crowd. Then, the crowd sends up the particle which forms the cross.



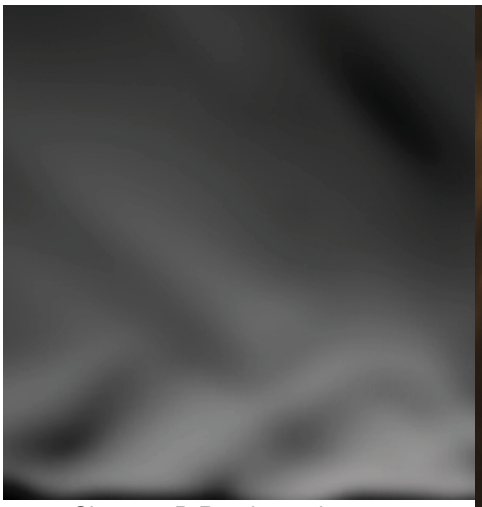
12.14 Act II Scene 2 from backstage

Act II, Scene 3: I’m a lonely man, Susannah



12.15 Cinema 4D setup of Act II Scene 3

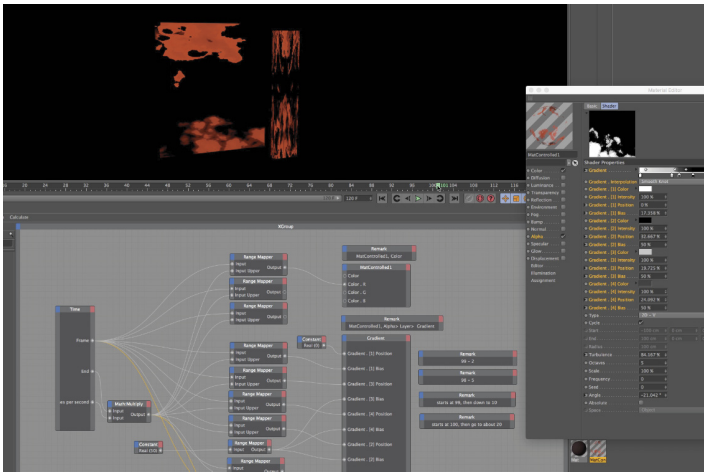
This scene is where the reverend lures Susannah to bed. I wanted something simple, but showing the emotions of the reverend, along with Susannah’s. The animation was done using the cloth simulation, with the controls of sticks that shake up the fabric.



12.16 Cinema 4D Render and AfterEffects Composite

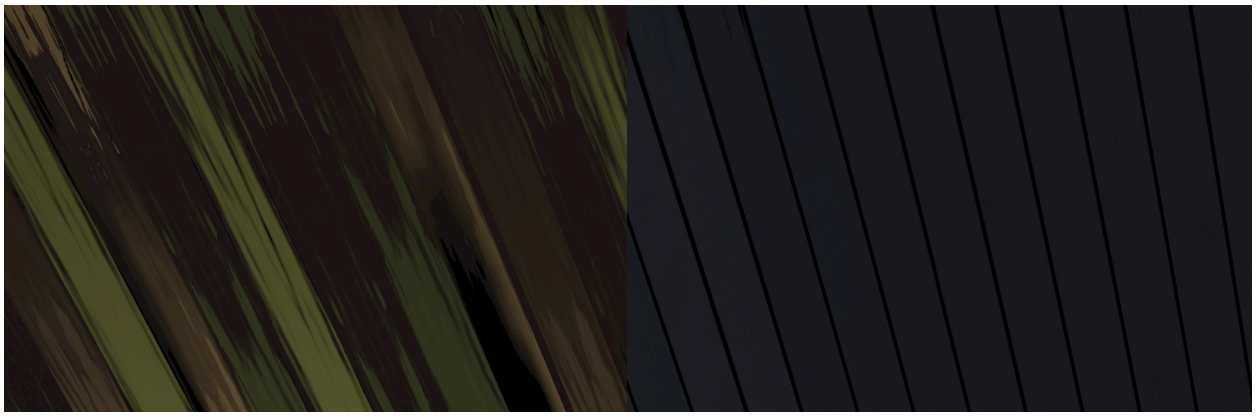
12.17 Staging of Act II Scene 3

Act II, Scene 4: Brethren an' sister'n



The scene is at the church again, where the reverend is trying to tell the town folks about Susannah's innocence--though everything goes bad. The animation was done using rotting slats, which required me to come up with the precise control of the material property using xpresso in Cinema 4D

12.18 Cinema 4D procedural test



12.19 & 20 First render and second modification, color was changed to white due to lack of visibility

12.21 Start of animation on stage

12.22 Animation changes

Chapter 13 Photos from the Opera

Here are some photographs from the rehearsals.

13.1 Curtain goes up for opening scene

13.2 Act I Scene 1, Nice square dance

13.3 Act I Scene 2, Such a nice square dance

13.4
Act I Scene 2,
Ain't it pretty night

13.5
Act I Scene 3,
The elders spotted bathing Susannah

13.6 Act I Scene 5, Feeble minded idjet!

13.7 Act II Scene 3, Trees on the moutains

13.8 Act II Scene 4, Hear me, O Lord

13.9 Act II Scene 5, Final scene

Chapter 14 Epilogue

14.1 Act I Scene 5, What am I gonna do, Sam?

When I first thought about working on the opera production, one thing was on my mind. I want to be present in the sense of making the production better but I didn't want to over do anything or draw the attention of the audience away from the singers on the stage. What's the point of opera if something on stage is a distracting rather than adding to the beautiful voices that can be heard?

I think that Josef Svoboda, acclaimed scenographer - a term he prefers over "designer" - said it well on this matter.

"*What is essential is the approach to the job: I would be delighted to create a setting of cheese if it best suited to the play. You have to use expressive means that precisely fit the production concept. And that's where the true beauty of my work lies, for me.*"[6]

The concept and approach to the production can change over the course of time. But, I think the adaptability of design and a method for a better production is very important. I always thought that when in doubt or stuck on something, go back to the basics and look at the root of the problem. I found this aproach of solving the complicated matters with simple solutions to be very effective in this journey of creating projections for the opera.

Someone asked what my next step would be. It is difficult to answer since I have so many interests in diverse areas of arts and technologies. I am thinking about working on more opera productions, because that would be nice. I wouldn't limit myself to one thing though. Focusing on the project at hand is good but limiting myself to one thing isn't. Only time will tell.

Bibliography & Credits

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5. Artnet. William Kentridge. 2017; Available from: http://www.artnet.com/artists/william-kentridge/biography.
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Credits

a. Opera Roanoke, Carlisle Floyd's Susannah. 2017; Available from: http://operaroanoke.org. Fair Use determination attached
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From: **Allen Sanders** asanders@jeffcenter.org
Subject: Re: Rigging plot
Date: May 10, 2017 at 3:25 PM
To: DongSoo Choi ds@dongsoochoi.com

Yes that will be no problem. Good luck!

On Wed, May 10, 2017 at 3:17 PM, DongSoo Choi <ds@dongsoochoi.com> wrote:

> Hello, Allen
>
> I have a question for you.
>
> Rigging plot I got from you, is it ok to be used in thesis paper?
>
> Let me know.
> Thanks!
>
> DONGSOOCHOI.com

--
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