THE TECHNICAL DIRECTION OF
THE 2009 KENT STATE UNIVERSITY SCHOOL OF THEATRE AND DANCE
PRODUCTION OF TWELFTH NIGHT

A thesis project paper submitted to the College of the Arts
Kent State University in partial fulfillment of the
Requirements for the degree of
Master of Fine Arts

By
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CHAPTER I

INTRODUCTION

This paper documents the process of the technical direction for the Kent State University School of Theatre and Dance 2009 production of *Twelfth Night*, by William Shakespeare. *Twelfth Night* was presented in Wright-Curtis Theatre, a thrust stage, located in the Music and Speech Center at Kent State University. This thesis paper includes an analysis of the directorial concept followed by a practical interpretation and application of the design including technical issues and challenges presented during this process.

The narrative detailing the execution of this process is divided into four sections followed by an evaluation of my experience. The document is followed by figures that include construction drawings, construction process shots, and final production photographs. The appendices include paperwork such as scheduling documents, budgeting materials, as well as scenery shift sheet detailing the choreographed scenic movements. The production team consisted of the following individuals:

J.R. Sullivan – Director
Stephen Zapytowski – Scenic Designer
Cynthia Stillings – Lighting Designer
Suzy Q. Campbell – Costume Designer
Stephen Zapytowski – Sound Designer
Eric Van Baars – Fight Choreographer
William J. Amato III – Technical Director
Martin Simonsen – Technical Direction Supervisor
Karl Erdmann – Production Manager
Andrew Morton – Production Stage Manager
Jennifer Farris – Prop Master
Sam Shelton – Charge Scenic Artist
CHAPTER II
THE DIRECTORIAL CONCEPT

Guest director J. R. Sullivan places *Twelfth Night* in an early 19\textsuperscript{th} century world defined by comic sensibility and melancholia. The characters who exist within the kingdom of Illyria struggle with universal themes such as love as a cause of suffering, the uncertainty of gender, and the folly of ambition. As the play progresses, the plots of love and trickery reveal a bittersweet finale that brings the loving couples to unity.

The set design, which has no defined boundaries as scenes shift from location to location, reinforces his directorial concept by embodying a cultural clash through the stylistically contrasting houses of characters Olivia and Orsino. For example, the Illyrian house of Olivia provides an exotic relief from the house of Orsino. Stephen Zapytowski’s scenic design is based in a unit setting and transformed by fabric columns that move and change position with different locations.

Zapytowski’s use of multilevel platforms creates a defined contrast in color and shape with the stage floor, accentuating the separation of the houses of Olivia and Orsino. Furnishings and props are used to create different locales within the kingdom but the platforms remain unchanged. Zapytowski creates six pieces of “scenic puppetry” in the form of columns that surround the upstage area of the Wright-Curtis Theatre stage. The choreographed movement of these columns defines the location and presence of each scene as the play transitions into different implied venues within Illyria.
CHAPTER III
INTERPRETATION OF THE DESIGN

Personal Interpretation

My interpretation of the design applies the conventions of boundaries, both undefined and defined, to scenes played on the Wright-Curtis stage. The boundaries created by the set embody a cultural clash between the houses of Olivia and Orsino. For example, multilevel platforms rise out of the stage-level painted water that surrounds them. The result is a defined unit setting that allows individuality of time and space through the establishment of internal boundaries. In other words, the platforms provide a natural separation between playing areas, thus allowing multiple scenes to be played on the unit set simultaneously. In order to maintain Stephen Zapytowski’s concept, the scenic landscape needed to be exactly placed, as per the design drawings.

Challenges of Realizing the Design

Zapytowski’s design employs a relatively simple ground plan (see Figure 18). Nevertheless, the role of important aspects such as extensive platforming, scenic puppetry, a hidden trapdoor jail cell, and masking require thoughtful engineering to realize the scenic design accurately and to provide for fluid and natural transitions from one scene to another. Two key challenges for Twelfth Night were budgetary constraints and utilization of workers with a variety of skill levels to construct a quality set. Ongoing facility renovation presented the challenges of diminished scene shop accessibility and the absence of a loading dock. Creating a budget was a key challenge. The money allotted for scenic design would not allow the set to consist entirely of new construction.
As a result, the use of stock scenery became a necessity during this build. Daily supervision was necessary to ensure safe, efficient, and accurate work while working with a crew of skilled and unskilled carpenters.

The movable columns were another factor that determined our set design budget and the method for dividing up our labor force. The 100 yards of fabric needed to construct the columns would have a large impact on the rest of the budget. Additionally, a 30’ by 20’ area needed to be scheduled in the Stump Theatre to paint the fabric. I had to ensure that the method for constructing the columns be both on schedule and efficient. For example, we had to gather knowledge empirically by creating paint, dye, wrinkle, and stretch samples.

The movement of the columns provided unique challenges in engineering and choreography. Each control mechanism carried an overhead working load of 27 pounds. This required a mechanism strong enough to withstand a ten times safety factor of 270 pounds. In addition to moving fluidly to set positions, these columns had to move quietly and be easily locked in these various positions with a limited stage crew.

Upon the results of these fabric sample experiments, a preliminary budget was submitted with proposed technical engineering solutions for the set. Under the guidance of Technical Direction Supervisor, Martin Simonsen, the budget and schedule were approved for execution.
CHAPTER IV

THE PRODUCTION PROCESS

Phase I: Research and Budgeting

Conceptualizing the set design of Twelfth Night began in November 2008, marking the beginning of the design process. The initial design meeting pointed to a unit set with an open stage aided by mobile pieces of scenery. By the time the design meetings ended and production meetings began, the set of Twelfth Night developed into a full-stage mosaic of platforms with six catwalk height columns surrounding the upstage perimeter. These columns were designed to move in three dimensions. This combination provided our scene shop with an opportunity to innovate new scenic techniques while fostering knowledge of conventional construction methods.

This production required research to be done in two distinct areas: mechanical product research and fabric sample experimentation. The mechanical product research was developed primarily from a 2008 McMaster-Carr Catalog and Mechanical Design for the Stage by Alan Hendrickson. Stephen Zapytowski presented the production team with a conceptual model of a column. This model column moved in three dimensions as the real columns would do. The McMaster-Carr Catalog provided valuable information on materials to be used such as axles, brakes, and drive mechanisms. Hendrickson’s text stated useful guidelines to determine what types of materials would be suitable for each mechanical purpose. For example, Ultra High Molecular Weight Polyethylene plastic (U.H.M.W.) is self-lubricating with a low coefficient of friction making it perfect for use as glides on the column bases.
Aside from the mechanics of each column, the scene shop performed a number of sample experiments on the fabric used to create the column bodies. The scenic designer purchased 100 yards of fabric from a local close-out fabric retailer out of concern for the set budget. While this did save a substantial amount of money, it raised many questions about the fabric’s fiber content because the fabric didn’t have the spandex-like ability to stretch as originally envisioned by the set designer. Assistant Scenic Designer Holly Doak performed burn, dye, wrinkle, and paint tests to determine that this fabric was polyester based, melted when burned, accepted dye only if first painted, puckered when stretched, and held wrinkles well. We used the results of these experiments to aid the production team in decisions regarding column appearance and use.

Upon the initial fabric purchase, the rest of the budget could be established. It quickly became apparent that use of stock scenery was necessary. It also appeared that many stock platforms needed to be repaired. In effect, the column fabric and platform construction were the largest portions of the budget. Once a solution was settled upon, creating the rest of the budget allowed for a comfortable amount of contingency funds. Smart spending and careful planning allowed this project to be completed under the planned budget.

Phase II: Construction Process

The first two weeks of the build schedule of *Twelfth Night* coincided with the production *Jane Eyre* and preparation for the *Student Dance Festival*. This left the scene shop cluttered with pieces of scenery and storage for excess materials from both performance spaces. The loss of space created by this clutter limited our ability to build
new scenery until we had proper space to store it. In response, I developed a build schedule that began with the acquisition and maintenance of stock platforms and step units. By doing this, the Introduction to Scenery class was afforded valuable time to learn about proper platform construction. This learning experience stimulated a sense of pride among the Intro students while they created the foundation of the set.

In the process of recycling scenery, each carpenter demonstrated his or her skill level by repairing the old platforms while under careful supervision. I was able to determine who could be trusted to work independently and who should be assigned to a team. The time saved by reusing stock platforms allowed the more skilled carpenters to concentrate on difficult tasks like installing facing and building step units.

Nearly all of the platforms used were stock from the scene shop storage. Half of the hardboard and 2”x 4” studs used were recycled from a previous Kent State University School of Theatre and Dance production. Reusing these materials saved valuable time and money.

As soon as construction was fully in progress, a three-tiered plan was set in motion. First, Introductory Scenery lab students would build the stage platforms under the supervision of Master Carpenter, Nick Smith. Second, Sam Shelton, the Charge Scenic Artist, would lead a team of painters preparing the facing and deck material for future installation. Third, I would lead two people in the construction of the column material and mechanics. A strict adherence to the build schedule was necessary to complete this process on time. Strong supervision, written communication in the form of shop drawings, and verbal instructions helped to create a shop environment of accuracy
and efficiency. By the end of this process, each Intro student could comfortably read and execute basic drafted plans.

Phase III: Construction and Installation in the Space

During the construction process, the three teams were under my supervision. I issued each team an overview of the build schedule and specific daily tasks. The first team worked on the platforms in three steps of maintenance, alteration, and legging. The carpenters were given a working drawing of each platform labeled as “P-1-1” (see Figure 24). “P” denotes platform. The first number denotes the platform title. The second number denotes the intended half of the unit to which the platform belonged. After clearly labeling the top and bottom of each platform, the carpenters were to inspect the integrity of each rail, stile, toggle, and deck of each. Through this process, the carpenters encountered and fixed broken framing members, holes in the deck, and dislodged joinery.

Once the platforms had been repaired, I gave the carpenters a set of two more drawings. The first set had a layout of the placement of a nailer strip. This strip was to be used as a foundation to staple the facing onto for each cantilevered platform. This nailer strip was made cheaply from 1 ½” inch strips of Oriented Strand Board (OSB) screwed into the framing members of each platform. Most of these strips could bridge the gap between framing members. However, some strips needed an extra toggle to be added to the platform. The second set of drawings had a layout of the length and placement of each leg. These platforms were unique in the way they were stacked upon each other. Few platforms had legs of uniform length. In fact, most platforms would not stand independently. Careful reading of the drawings was important.
Simultaneously, the paint crew began their process in a separate room from the scene shop which had adequate space to lay out hardboard for the entire stage floor. Without this room, we would not have had the time or space to complete the painting with the rest of the set.

The platforms were to receive the texture and color of various types of Terra Cotta and sandstone tile. These tiles had interlocking mortar lines crossing multiple sheets of hardboard, making it necessary to lay down the entire floor as one piece. Sam Shelton and her crew developed stencils cut out of vinyl to cartoon the mortar lines and lay the foundation for the rest of the paint technique. Many layers of paint and Minwax Polycrylic Clear Coat sealer were applied to each surface to create the Terra Cotta texture.

With the platforms and painting underway, construction on the columns began with experimentation. The design drawings provided very little detail about the columns. We knew the finished height, the number of panels that must be stitched together, and the perimeter of each column. Our challenge was finding out how this closeout material would react to the stresses of being used on stage. Holly Doak’s extensive fabric testing enlightened the scene shop to the utility and limitations of this material.

The first step in constructing the columns was to stitch together the proper number of panels of fabric. The fabric was 110” wide. There were three columns with a 2’ x 2’ square footprint and three with a 1’- 6” x 1’- 6” footprint. Each column required a box pleat with 150% fullness. For example, a 2 foot wide panel needs 5 feet of fabric width to have 150% fullness. This meant that two fabric panels were needed for the smaller columns and three panels for the larger. The seams were to be stitched vertically.
to diminish their visibility. It was important to be consistent in sewing the very long straight seams.

The next step involved the application of color and texture to the fabric. Originally the fabric was white. Stephen Zapytowski had specified that the fabric was to be a textured gray. We accomplished this in a multi-step process. We had determined that the fabric needed to be spray painted to preserve flexibility, a soft texture, and consistency of color. The fabric panels measured 27’- 6” wide after stitching and required 18’- 0” of height to hang. In order to accommodate this large amount of space, we hung the fabric panels on our counterweight fly system in the Stump Theatre. Sam Shelton employed the use of a hydraulic lift to raise herself in the air while pneumatically applying a mixture of latex paint and fabric softener in a fine mist to the material.

As each piece dried, it was taken down and randomly rolled into a tube to be dyed. The intention was to create wrinkles as the fabric was rolled to achieve a tie-dyed look to the columns. Dying took place after painting. The material was synthetic polyester and would not accept color from any affordable and safe dye. However, through experimentation we discovered that the dye would bind to the latex in the paint creating a shadowy appearance. The rolled fabric was dipped into a 50 gallon dye vat with RIT dye. After 90 seconds the fabric was removed and placed in a washing machine to rinse. Immediately, the roll was placed in a commercial dryer to set the wrinkles into the fabric.

Mechanically, these columns presented a unique engineering challenge. Their capitals had to move up to down, forward and back, and left to right. Each of these motions had to have a locking mechanism to hold any established position. After much
consideration, I determined that we did not have the money to incorporate a conventional braking system to secure the columns. I began to look at simple machines and common hardware that already accomplished the task in a larger scale. I considered how a follow-spot spotlight operates and locks. With the exception of moving forward and back, a follow spot accomplished these movements with little resistance. I developed a dual axle-yoke system that allowed left-right and up-down movement. The base was constructed out of 1 ½” Schedule 40 pipe that could be attached to our catwalk railing with scaffold clamps. The yoke was constructed out of 16 gauge 1 ½” square tube steel for strength. Both axles were made of ½” grade 5 rated bolts to ensure safety with this overhead rigging. On the top axle, which supplied the up-down movement, a piece of 16 gauge 1 ½” square tube steel, was mounted as a pivot point with another piece of steel directly above. They were welded together and the second piece of steel was coated on the inside with oil impregnated UHMW Polyethylene to reduce friction. A 16 gauge ¾” square tube steel rod was then slipped into the UHMW Polyethylene pocket. This acted as the control arm for the entire mechanism. In order to lock off the mechanism, bicycle drive sprockets were placed onto each axle. This afforded multiple places to drive a bolt through the sprocket to lock off movement in both directions. I found these sprockets to be very affordable in comparison to their industrial counterparts.

Phase IV: Technical Rehearsals

Tech week arrived quickly bringing with it a significant challenge for this production. According to the original plan, 12 crew members were needed to successfully operate the columns. Only 6 crew people could be recruited. I had to
rearrange column operator positions. Originally, twelve people would operate the columns, six in the catwalk and six under the platforms. Unfortunately, lack of rehearsal time and not having the required number of crew members lead to eliminating the column base rotation effect. Because of this, six crew positions were eliminated by this cut. A positive consequence was that a back-up column operator could now act as an understudy for the run of the production.

Training the crew and facilitating the column choreography was my main focus during the technical rehearsal process. The column movement occurred in au vista meaning in sight of the audience. Each column was given a name as “Column 1” through “Column 6.” Scene designer Steve Zapytowski created a visual “story board” of the 19 column positions. We created a movement strategy for each column. Movements were then broken down into a numbered cue sheet that was given to each operator. During rehearsal, labels such as “taut,” “relaxed,” and “sag” were established to provide three vertical position references for the operators to execute (see Figure 8). Horizontally, five repeating spike marks were placed on the control device’s lateral sprocket (see Figure 9). These marks lined up with a barrel bolt, originally used to lock off lateral movement of the columns. Over the course of tech week, this lock was eliminated due to the excessive noise it created. Throughout the play, the columns would move to each of these spikes in a manner that could be “dance-like,” “swift,” or “graceful.” Additional rehearsals were scheduled to ensure consistent repetition of these movements.

As the week progressed, the column operators learned to move the columns in a silent manner with grace and uniformity of motion. The week’s focus then shifted to solving minor details. J. R. Sullivan provided nightly notes for alterations, changes or
finishing touches to be completed by the production team. These notes were completed and a finished product was presented opening night.
CHAPTER V
EVALUATION

This production of *Twelfth Night* provided many unique challenges. It also provided me with a substantial learning experience. Throughout the construction process, I learned two lessons in my approach to technical direction: communication is the skill that integrates the role of a technical director with the production team; a greater amount of time should be budgeted to model, test and build mechanical scenery than conventional scenery. Through the guidance of a non-peer faculty design team and the daily reports of the shop staff, I received feedback that allowed me to refine my managerial and construction methods.

Communication is vital to the success of any production team. During the process it became my responsibility to interpret and pass on information in a variety of ways manners. Some members of the design team needed drafted drawings while others needed to see color samples to describe what would appear in the final set. In the shop, I prepared drawings for a carpenter or painter who could be explained instructions only in the form of drawings and I performed a full construction walk-through/demonstration for those who could understand instructions only through a walk-through/demonstration. During the final week of the build however, I tended to neglect giving visually oriented explanations for the sake of brevity and time and this is something that I could improve in the future.

Budgeting time was crucial during the final weeks of the build. This is when I learned a valuable lesson about mechanics. In the future I will always plan extra time to build anything mechanical. I learned that I must schedule more time in the beginning of
the process for the installation of mechanical scenery to allow time for fine tuning as well as changes by the director. I learned that it takes just as long to install and troubleshoot a mechanical part as it does to build it. This is a lesson that I will carry with me into projects to come.

Overall, I am pleased with the success of this production. I am proud to say that it was completed on time, under budget, and within the skill level and capabilities of our scene shop personnel. Each unit was completed by upholding professional scenic carpentry standards and emphasizing safe construction. The production was executed in a handsome manner that was true to the scene designer and director’s original intent (See Figure 39). Managing a crew of students and working for faculty designers taught me that communication and tact will help in addressing the challenges of being a technical director.
Figure 1
Conceptual model of Zapytowski’s columns
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Introductory Scenery Lab students working on platforms
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Column control mechanism 1
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Column control mechanism 2
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Column control mechanism 3
Figure 6
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Column control mechanism 5
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Control mechanism horizontal spike marks
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Production photo 2
APPENDIX A

PRELIMINARY BUDGET
APPENDIX A

PRELIMINARY BUDGET

Budget:

Set Budget is based upon a $2900 maximum budget.

66 Sticks of 2”x4”x12’ @ 3.11 = 205.26
7 Sheets of ¾” OSB @ 12.69 = 88.83
29 Sheets of ¼” Masonite @ 13.19 = 382.51
4 Sheets of ½” Birch Plywood @ 28.99 = 115.96
100 yds. Fabric @ 4.99 per yd. = 499.00
Hardware = 200
Mechanics = 450
Paint = 500
Contingency = 300
Waste = 100

Estimated Total = $2841.56
Actual Total = $2793.47
Under Budget = $106.53

Figure 44
Unit Breakdown.
Figure 45
Materials Breakdown.

Contingency 11%
Waste 4%
2"x4"x12' 8%
3/4" OSB 3%
1/4" Masonite 15%
Paint 19%
Mechanics 17%
Fabric 19%
1/2" Birch Plywood 4%
APPENDIX B

EXPENSES

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Scenery

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Paint

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APPENDIX C

WORK SCHEDULE
# APPENDIX C

## WORK SCHEDULE

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<th>Wed</th>
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**February 2009**

- 1: Notes and Clean Shop
- 2: Draft and Order Lumber
- 3: Draft and Order Lumber
- 4: Notes and Clean Shop
- 5: Notes and Clean Shop
- 6: Notes and Clean Shop
- 7: Finish Fabric
- 8: Finish Legs
- 9: Draft and Order Lumber
- 10: Notes and Clean Shop
- 11: Notes and Clean Shop
- 12: Notes and Clean Shop
- 13: Notes and Clean Shop
- 14: Notes and Clean Shop
- 15: Notes and Clean Shop
- 16: Notes and Clean Shop
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APPENDIX D

LOAD-IN AND STRIKE SCHEDULE
APPENDIX D
LOAD-IN AND STRIKE SCHEDULE

Load-in 3/15/2009

1. Carry down all P-1 platforms and Step Unit.
2. Place and screw down all P-1 Platforms according to ground plan.
3. Place and screw down all Step Unit pieces.
4. Install Masonite onto P-1.

Load-in 3/16/2009

1. Carry down all Upper Platforms.
2. Leg, place and angle bracket down all Upper Platforms.
4. Install Escape Stair Units.
5. Install Masonite onto all Upper Platforms.

Strike 4/27/2009

1. Strike column fabric and store in Scene Shop
2. Strike column control mechanisms and store in the metals area.
3. Strike Masking and return to BO05 and appropriate hampers. Store in WC.
4. Strike Masonite off of upper platforms and SAVE. Store underneath the cut-off table.
6. Strike P-1 Masonite and SAVE. Store underneath the cut-off table.
7. Strike P-1 Platforms and Step Unit. De-Leg and store the platforms in Stump Theatre. Destroy the Step Unit.
8. Strike Black Border after workers have completed the P-1 strike.
9. Sort Hardware.
10. Clean Shop.
12. Paint the stage floor Black and Seal.
APPENDIX E

LUMBER ORDER
Lumber Order 2/18/2009

From Dougherty Lumber:

29 Sheets of 4’x8’x1/4” Masonite @ $13.19

Total = $382.51

From Carter Lumber:

50 Sticks of 2”x4”x12’ No. 2 Pine @ $3.11
1 Sheet of 2’x8’x1/2” Birch Plywood @ $28.99
3 Sheets of 4’x8’x3/4” OSB @ $12.69

Total = $222.56
APPENDIX F

COLUMN SHIFT PLOT
# APPENDIX F

## COLUMN SHIFT PLOT

### Column Shift Plot

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**Vertical (V)**

- T = Taut
- R = Relaxed
- S = Sag

**Horizontal (H)**

- L = Left
- C = Center
- R = Right
APPENDIX G

DAILY TASK LIST EXAMPLE
APPENDIX G

DAILY TASK LIST EXAMPLE

Work List
Monday 4/13/2009

1. Secure broken facing. LAB CLASS
2. Install 27” Plat Masking. DAN
3. Install railings on the Mezzanine level. RYAN
4. Plumb and square column tops. BILL
5. Re-tape house steps. LAB CLASS
6. Paint railings. SAM / MEGAN
7. Touch up all black paint. LAB CLASS
8. Install felt on trap door. BILL
9. Remove railing angle irons. JEN
10. Clear the backstage area. LAB CLASS
11. Install column trim pieces. DEREK
12. Column operator cubes to the catwalk. LAB CLASS
13. Paint the column #4 seams. MEGAN
14. Dress all masking. LAB CLASS
15. Cut-off excess grid pipe. BILL
16. Install positive stops for the lighting instruments. DAVE
17. Steam the purple house curtain. JEREMIAH
18. Grease column control mechanisms. BETH
19. Install cove pieces onto railings. RYAN