Laramie Project Lighting Design

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The Laramie Project
By Moises Kaufman and members of the Tectonic Theater Project

Union College
Yulman Theatre, Studio A
February 2-5, 2017

Director: Jonathan Albert
Scenic Designer / Photographer: Charles Steckler
Costume Designer: Brittney Belz
Stage Manager: Shauntai Quinlon
Lighting Designer: Jay Foster-Grover
Thesis Adviser: Robert Bovard
Design Concept & Analysis

The most defining aspect of The Laramie Project is that it is non-fiction. “People talked. These conversations actually happened” stated the director, Jonathan Albert (adjunct Theatre faculty, Union College). The Laramie Project is an emotional show which provides a brutally honest and clear glimpse into the events around the death of Matthew Shepard. The format of the show is a composition of interviews and transcripts, acted out by the company. The value in the show is the emotional journey it brings the audience through. This journey is compelling because of the honesty and intimacy of the interviews that compose the show. These interviews expose qualities of the characters that would not have been exposed, had those people spoken about their experience in a public setting. These qualities allow the audience to build a personal connection with each character. We not only learn the facts about Matthew's life and death; we also get to know his friends, his family, his community members, and his murderers. This reveals intricate connections between the community, and the diversity of rural America. The director emphasized the importance of the characters in production meetings. They tell the story. They are the story. In my lighting design, the support and expansion of these characters would be paramount.

To further introduce this production of The Laramie Project, it is fitting to include the introduction that the audience received. This is the director's note, from the opening page of the program.

“I guess I didn't understand the magnitude with which some people hate.”
Rulon Stacey, former CEO of Fort Collins, Colorado Hospital

On October 6th, 1998, two Wyoming boys met Matthew Shepard, a gay college student, at a local bar. The three left the bar together under the guise of Russel Henderson and Aaron McKinney giving Matthew Shepard a ride home. Eighteen hours later, another Wyoming boy out for a bike ride found Shepard tied to a fence, beaten and burned, unconscious with a fractured skull, nearly frozen to death. On October 12th, 1998, Matthew Shepard died.

In the two years following this event, members of the Tectonic Theatre Project in New York City traveled to Laramie, Wyoming multiple times to conduct interviews with family, friends, Laramie residents, and many others involved in the incident. The company then compiled these interviews in a dithyrambic style of theatre where they became the individuals they had interviewed – sharing their passion in the retelling and more importantly reliving of this story. The Laramie Project premiered in Denver Colorado in February, 2000, two hours from Laramie, Wyoming. In May of 2000, the show was moved to The Union Square Theatre in Manhattan. And in November of 2000, The Laramie Project opened in Laramie, Wyoming.

Hate crime laws impose tougher sentences on criminals who target people based on victim's race, religion, gender, sexual orientation, or disability. The Matthew Shepard case put the need for hate crime legislation into the forefront of our country's collective consciousness. On October 28th, 2009 President Obama signed the Matthew Shepard Hate Crimes Prevention Act. This law expanded the existing hate crime legislation to include crimes motivated by a victim's actual or perceived gender, sexual orientation, or disability.
Whichever candidate you voted for on November 8th, 2016, our nation again put hate and division into the forefront of many conversations. America Ferrera, American actress and activist, spoke at the Women's March in Washington a few weeks ago. Near the end of her speech she said, “We will not ask our LGBT families to go backwards. We will not go from a nation of immigrants to a nation of ignorants.” The Laramie Project is as important as ever.

Thank you for coming to the Union College Department of Theatre and Dance production of The Laramie Project.

Jonathan Albert

The Laramie Project is especially poignant to our audience in February, 2017. As Jonathan Albert pointed out in his director's note, these issues with hatred and discrimination are still pervasive in America. It can be frightening how modern the piece feels, despite being nineteen years old. Ignorance, fear, and misinformation still persuade many Americans to commit acts of violence and discriminate against people that they perceive as different from themselves. In The Laramie Project, the focus is on discrimination against gays. However, it is impossible for our 2017 audience to separate these events from other hate crimes. The Black Lives Matter movement, the terrorist acts of the last two decades, and the results of the 2016 election all relate to The Laramie Project. The hatred of religious extremists has continued to ruin innocent people's lives. Stereotypes and unjustified fears continue to lead people to form harmful opinions of people they do not know. We still live in a world that allows tragedies like Matthew Shepard's death to occur.

In the stage of choosing what show to do for this term's production, the director, the producer (William Finlay, Dept of Theatre and Dance Chair, Union College) and I were persuaded to do The Laramie Project partly because of its unfamiliarity to the student community. I was not yet four years old when Matthew Shepard died. This means that first-year students seeing our production may not have yet been born at his time of death. I had never heard of Matthew Shepherd or Laramie, Wyoming. From my exploratory conversations with fellow students, no one had heard of Matt or Laramie either. This made The Laramie Project enticing, anticipating that the show would be especially moving to people who had been oblivious to the plot beforehand. We, the design team, saw this show as an opportunity to speak to the student body about the current state of the world. By showing them this honest and clear snapshot of 1998 Wyoming, we hoped to expose them to the magnitude and timescale of the problems at hand; that we are in the middle of a long struggle, not at the beginning or end. The intimacy and truthfulness of the script show the nature of rural America with shocking clarity. These people need to be heard and understood if we wish to move forward as a nation and dispel the unjustified hatred between the American people.

The inclusion of the basic facts of Matthew's death in the program influenced the rest of the show, and was a result of the director's focus on characters. Had this information not been included, the audience members who did not already know the plot would have to dedicate focus to figuring out the story of what happened to Matthew. By giving this information to the audience before the show begins, the audience can now begin the show knowing the reason that this story is being told. The first time Matt is mentioned, they know who he is. By exposing the audience to these facts in advance, we allow them to focus on other details. With the many characters in the show, the identification of the perpetrators in the program helps the audience to identify them and recognize their names throughout
the performance.

To continue building the ambiance of our performance, the style of the playwright and our director should be noted. The following is an excerpt from the Tectonic Theatre Project's script.

ABOUT THE STAGING

The set is a performance space. There are a few tables and chairs. Costumes and props are always visible. The basic costumes are the ones worn by the company of actors. Costumes to portray the people of Laramie should be simple; a shirt, a pair of glasses, a hat. The desire is to suggest, not recreate. Along the same lines, this play should be an actor driven event. Costume changes, set changes and anything else that happens on the stage should be done by the company of actors.

The director decided to follow the staging suggested in the script. It would require a major reworking of the show to do anything else. The pace of the show demands quick scene changes, which eliminates the possibility of moving scenery. Thus, changes between moments and locations have to be signified with changes to costumes, furniture, props, and lighting. The furniture gets reused for many scenes, so it doesn't define moments as precisely as other means. Thus, a large requirement of my lighting design was to define location. Costumes and props can easily swap us between characters, but cannot easily define space. The lighting has to simultaneously distinguish which areas of the stage are in use, and where those locations are in the context of the show.

The director's concept put the focus of this show on the people of Laramie. The cast of nine people become a diverse group of over sixty characters. These characters provide portraits of the people of Laramie, who compose the show. By combining the portraits of each of the interviewees, the audience builds an intimate understanding of the people of this town. They can compare and contrast the sheltered and the enlightened, the spectrum of religious figures, the liberals and the conservatives, the criminals and the survivors. These portraits are lit in a way to best represent their environments. The preacher at his pulpit in bright white light. The criminal in the dark. These are of course representational, but they are also realistic. Churches can afford lighting for their pulpit. Felons living in trailers don't spend much on lighting, in fact they probably leave the shades drawn. In my design, I sought to represent these spaces with lighting that would suggest qualities about the characters' environment. To repeat a section from ABOUT THE STAGING, “The desire is to suggest, not recreate.” The suggestion of space with light allows the characters to exist in their natural environments. This makes their stories more impacting, being told from locations that exist and that Matthew knew.

The staging and focus on characters forced certain constraints on my lighting design. To create space for the actors that suggests their environment, I have to replicate lighting conditions from those environments. The more realistic those lighting conditions are, the more defining and informative they will be. Furthermore, the lighting should not distract the audience from the show. It should guide them through the many moments in the show, providing an environment for the characters on stage that helps the audience to understand those characters. The lighting also needs to define the acting space, as the full company of actors remains on stage for the duration of the performance. The lighting will need to draw the audience's focus to the acting character and away from characters not in the current scene, especially those changing costumes or moving furniture. The lighting will also need to be able to define locations, as action on stage switches between locations frequently and scenes in different locations commonly overlap. In these transitions, the different locations need to have distinct lighting looks, to
separate the transition to a new location from the expansion of the current location.

To create a realistic lighting palette for Laramie, I needed to choose the locations I would create. The first and most obvious location is outside, in the Wyoming air. To refine this further, I chose a time of day to replicate. In the script, the moment that Aaron Kreifels finds Matt is stated as after five o'clock P.M. on an October evening. This is a long moment, and one that connects the audience with the horrors of Matthew's death and the fence. I took inspiration for the color of Wyoming from the realistic lighting that would have occurred in this moment. I sought to highlight the impact that this event had on the image of Laramie and Wyoming as a whole. The image of Matthew's death is forever embedded in the image of that town. For color inspiration, I looked to the following two images of Wyoming scenery near sunset.
These images give contrasting views of Wyoming. The first is of the setting sun splashing the landscape with warmth. The second shows color made by reflections off of clouds and snow. Both are looks that I wish to recreate to be able to depict Wyoming in different weather, times of day, and mood.

To create the look of outdoor Wyoming, I had to choose the direction and color for each of my lighting instruments. For each area, I decided to provide front light from two directions, a fill light, and a top light. This would allow me to create a standardized look for outdoor Wyoming anywhere on stage. The front light is usually the brightest light on an area, known as the key light. It is used to signify bright sources, like sunlight. It is a common convention to have two front light sources, one slightly from the left and one slightly from the right. This allows for two complementary colors to be used, because complementary colors will mix to white. Complementary colors are any two colors on opposite points reflected over the center of the color wheel. For my front light colors, I chose R16 and R63.

R16 is intended to replicate the color of the sunlight in the first photograph. R16 was the most saturated color that could be used without being too saturated to create the look of real sunlight on people's skin. Once I chose R16, I chose R63 because of the complementary transmission spectrum, and the slightly lower transmission percentage. This made the natural mix of the two lights at the same intensity be slightly more amber, since the amber light was brighter. This made the color on stage tend to be more amber, creating a general warmth throughout the show. R63 is also a close match to the blue sky in the second photograph.

For my fill light, I chose R356 because it was the closest match to the lavender in the clouds and

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1“R16” and other abbreviations of this sort are referring to the Roscolux brand of gels. These are colored transparent sheets of plastic which are used to give color to stage lights. The “R” stands for Roscolux, the number signifies a specific color gel. For more detail, skip forward to the “Equipment” section.
snow of both photographs. The fill light was produced with Fresnels in order to replicate the
distribution qualities of light diffused through clouds. They were also focused at a steeper angle, once
again to emulate natural clouds. These lights were used to build the look of outdoor Wyoming. In
natural sunlight, shadows from the direct sun are still bright from the light that is diffused by the
atmosphere. The fill lights act as this atmospheric light. The steeper angle of the light allows it to sneak
around objects that cast shadows from the front light, since the fill light will approach the object from a
higher angle.

For top light, I chose R80. With a transmission of only 9%, this is a very saturated, deep blue.
This dark blue top light can be used in many ways. It can be added to the mix of outdoor Wyoming
lights, giving a slight blue glow to suggest a blue sky. Used as the key light, this color washes the stage
with a deep blue glow. This is used to illuminate the nighttime, specifically for the candlelight vigil and
the funeral.

By combining these colors and sources I could now build an image on any part of the stage that
resembled natural outdoor lighting. By varying the intensities of each color, I could change the look on
stage to match the time of day.

To convey the warmth and beauty of outdoor Wyoming, it must be contrasted with the drab or
stark quality of other locations. The play starts with members of the Tectonic Theatre Company in New
York. They speak their initial thoughts about setting out to Laramie to conduct interviews. In this
moment, there needs to be a look for New York that is distinct from the look for Laramie. This look still
needs the brightness of outdoors, but should be more metallic, as the light reflects off of the blue
Atlantic and the concrete metropolis. To create this, I use my cool front light as key instead of the warm
front light used for Wyoming. This shift in front light leaves the stage looking much cooler, as the tops
and fill are cool colors as well. Similar to this is the lighting for the hospital. To suggest the white
corridors and fluorescent lighting of a hospital, I use cool front lights and blue tops. This creates the bluish brightness of hospital lighting, and is distinct from the usual warmth of the show. This look is similar to the look for New York except that I have removed the fill lights, because they are established as a representation of the sky. These cooler looks help to make the warm glow of Wyoming stand out more, keeping the audience's eyes from adjusting to the otherwise constant warmth of the show.

Within Wyoming, there are many locations which do not feel the warm glow of the sun. One such place is the Fireside Bar, the place Matthew left from with Aaron and Russell. To create the ambiance of the Fireside, I had to use a new key light. I had to make it clear that the Fireside was indoors, and that it was night. My front light was already used to signify sunlight, so that was an inappropriate key light. To create a realistic bar look, I used amber top light as key. I hung a single fixture over each furniture piece in the bar; the bar itself, a table, and a desk signifying a pool table. The fixtures were focused onto the furniture pieces, not onto the acting spaces around them. The light that illuminated the actors' faces was partially bounce off of the wooden surfaces in front of them. This was all to create the look that the Fireside wasn't a particularly well-kept or upper class establishment. It's 1998 in rural Wyoming. The local bar should be poorly lit. I used R09 to create the warmth of an old incandescent light bulb. The furniture being illuminated more than the people helps to distinguish the Fireside from other locations. It also makes it clear that it is night; the artificial overhead lighting would be overpowered by any natural light that would penetrate through a window if it were day. The key light from these three selectively focused top lights left large areas of the stage in near darkness. This contrast is what created the ambiance of the Fireside.

The areas of darkness in the Fireside allowed room for further definition of the environment. I had hung two LED's\(^2\) in order to cover the stage in a wash. I set them to produce a saturated but bright purple. This colored the stage in a slight purple glow, filling the darkness and shadows with color. This was intended to suggest the glow of an “OPEN” sign in the window of the bar. The red and blue neon tubes in the sign would mix to a purple, just as the red and blue LED's mix to purple. This purple wash was unique to the Fireside and helped to further distinguish it from other locations.

Another scene takes place in Trish Steger's shop. To create her shop, the bar is moved to a new location to signify a counter. I hung a new special for the shop, another top light with R09. To distinguish this from the Fireside, I made the front lights brighter. This created the image of a shop by a window, with natural sunlight from the window supplementing the artificial light from above. I also did not use the LED wash from the Fireside. These techniques allowed me to reuse the look of the key light from the top, while still distinguishing between locations.

\(^2\)LED stands for Light Emitting Diode. This is a modern, computerized lighting fixture. It contains many light sources that produce pure red, blue, or green light which can be mixed to a near infinite spectrum of colors. The LED fixture is controlled by the lighting board and can respond to changes almost instantly, allowing for strobe and other effects.
Another location that required definition was the courtroom. We witness the trials of both Aaron McKinney and Russell Henderson. In these trials, the Judge condemns these men for their actions. The judge makes the final decision on these people's fates, and speaks with godly authority. He sits behind the bar, which signifies his bench in this scene. He is alone stage left, while the jury and the accused are all stage right. This allows me to give the judge a look that is distinct from the rest of the scene. I gave the judge a special front light, with R02. This color, bastard amber, warms up the color temperature so that the light doesn't wash out the tan actor. This color is less saturated than the other colors used thus far, making it distinctly white. This white light is a convention that I establish to represent godliness. I use white light for several other moments, all with a connection to God. The judge embodies God in this scene because he is the decision maker, declaring man's fate to him.

One of the voices of morality on this show is Rulon Stacey, the CEO of the hospital where Matthew died. In the show, he discusses putting away his own qualms with homosexuality to support his patient and his patient's family. He also discusses his unexpected emotional connection to the event, and how hurtful some people were. He is the character who delivers the medical updates on Matthew's condition. For these moments, I sought to replicate the starkness of hospital lighting, as well as the washed-out brightness from the lighting equipment set up by newscasters. This left Rulon Stacey in blue top light with a bright colorless front light special. The special had an iris in it, so that I could limit the light to a small circle with Rulon in the center. This created the look of a spotlight on him. In this way, he was illuminated by a single beam of white light focused around him. This undoubtedly reminds us of God, the way beams of light shining through clouds seem to bless what they hit. Rulon's words of understanding and kindness in this time of hatred stand out and make him appear saintly.

Another connection with God is made through the Baptist minister. He does not condone homosexuality, and makes the following statement: “I hope that Matthew Shepard as he was tied to that fence that he had time to reflect on a moment when someone had spoken the word of the Lord to him – and that before he slipped into a coma he had a chance to reflect on his lifestyle.” As he delivers this line, he crosses downstage center and outstretches his arms in a prophetic pose. In this moment, I add a colorless front light special to illuminate him. This gives the line extra weight, and reminds the audience of the image of Jesus on the cross. This connection with God intentionally contrasts with the other ones, in that this is an appeal to God for the justification of hate, not love or justice. It is meant to illuminate the way that God can be used for both good and bad means.

The final location I wish to distinguish is the interrogation room at the police station. It is distinct from the other looks for police thus far. I had been putting police in the locations that were referenced in the script, either outdoors at the scene of the crime or at the hospital. The interrogation room is used for a single moment, the flashback to Aaron McKinney's confession. This flashback takes place in the middle of a courtroom scene. The staging is peculiar in this scene, and can be clarified
with lighting. The scene shifts between several locations without any blocking changes. Additionally, a character moves from one location to another without getting out of his chair. The shifts in location and time are not visually apparent through the acting, they are only expressed through the dialogue.

The scene starts with the bailiff announcing the case number and judge's name. This puts us in the courtroom. The bailiff and the jury are stage right, while the judge is stage left. However, the scene immediately diverges, going to a tape recording of the confession. This confession is acted out at a desk, center stage. This location is the interrogation room. The next moment is a brief reaction to the case from some community members. This is back in the courtroom, upstage right. We then jump back into the interrogation room, finish the confession, and then move back to the court room for the verdict. At this point, the director wanted Aaron McKinney to be in the courtroom, although there has been no change in set or blocking. Aaron remains seated at a chair for the whole scene. To make these location changes clear, I needed a distinct look for the interrogation room. I used a new top light color, R60. This “no color blue” is much less saturated than the rest of my color palette. The cool blue from this top light suggested the glaring whiteness of fluorescent light, with the distribution qualities of a single overhead light. The brightness of this light made the scene feel like it was in a room with white walls. This special was my key light for the interrogation room. In the initial courtroom scenes when Aaron is not in the room, he is left in relative darkness compared to the judge and jury. When we return to the court room for the verdict, I extend the look for the jury over to Aaron at center. The different color and distribution of light makes it clear that Aaron is no longer in the interrogation room, but is in the courtroom with the jury.

This look was further distinguished by the interaction between costuming and lighting. In this scene, Aaron is wearing a bright orange jumpsuit. In the beam of the bright, near white top light, a lot of light bounces off his jumpsuit onto his face. This gives him an eerie, sinister glow. As he moves, his face is sculpted with shadows and swaths of orange reflections. In the courtroom, the light hits his face more directly instead of from bounce, and gives the two locations very distinct appearances.

This has all been lighting occurring on the stage. In addition to this is a connected, yet separate lighting occurring above the stage. This is lighting for illuminating the fence. A prominent feature of the set is a fence elevated above the stage. Behind the fence is a wall of wide wooden boards. This is a buck fence, common to the Wyoming area. It is the type of fence that Matthew was tied to and left at. Throughout the show, I illuminate the fence to reflect both the time of day and the mood of the scene. I do this to establish a connection with the Wyoming landscape. The beauty of the landscape is mentioned several times in the script, and described in detail by Matt's father during his statement to the court in which he grants life to one of Matthew's murderers instead of the death penalty. Setting Matthew's beating in a beautiful place paints a conflicted image, but one that reveals much. First, the
beauty of the landscape Matt's father describes is paralleled by the beauty of his forgiveness; that he is showing mercy to one who did not show mercy. This beautiful description foreshadows his decision to spare Aaron's life. Secondly, the idea that most of the people of Laramie live there for (or at least with) an appreciation of the landscape makes them seem like better people. They are simple folks, living simple lives. They did not ask for any of the attention they received. In fact, many of them probably chose to live in Laramie to avoid the crowds, attention, and chaos that Matthew's murder brought about. Thirdly, the creation of a beautiful space for Matthew connects us with him in his final moment. By creating the image of the fence, we can see the same skyline that he saw, and we are invited to look at the world from Matthew's perspective. Throughout the show, I illuminate the fence to show the perspective from the Wyoming landscape. The image I create on the fence reflects both the time of day and the mood of the moment.

EQUIPMENT

To transmit my ideas to the stage, I had to have an understanding of the equipment available to me. The actual creation of the image the audience receives is done by the equipment, and is a medium that has to be mastered just as much as the sketch artist has to master the pen. Furthermore, the equipment must be carefully allocated because there is a finite amount of it, and imposes serious limitations onto design work. With different resources available to me, I would have designed a different show. The process of lighting design requires a careful mixture of artistic creativity and an understanding for what is physically achievable. If the creative process is not informed by the capacity of the theatre's resources, the desired image will not be realizable and the designer's message will not be transferred to the audience.

To understand the process of equipment selection, one must understand the use of each piece of equipment. The control of lighting starts in the lighting board. This board is programmed to communicate using a protocol called DMX. This is a data communication language that allows the lighting board to tell the dimmers and intelligent fixtures what to do. Dimmers are pieces of hardware that control the amount of power being sent over a cable. This controls the brightness of the incandescent lamp in the stage light on the other end of that cable. Intelligent fixtures are things like LEDs, moving lights, and fog machines that have been designed for theatrical use and can be controlled with a DMX signal. In our theatre, the dimmers and LEDs are controlled over DMX. In this way, the lighting board simultaneously controls all of the lights in use during the show.

The most common lighting instrument in our theatre is the Altman 6x9. It contains a 750W lamp, surrounded by an ellipsoidal reflector that focuses the light through the lens train and out the front of the fixture in a beam. The “focus” of the fixture can be adjusted, changing the sharpness of the edges of the beam. The fixture also features four shutters for cropping edges into the beam, and a “gobo” slot for projecting patterns and images with the light. On the front of the fixture is a slot for holding gels, to color the light. These fixtures get used where a well-defined or sharp edged beam of light is required.

The next most common fixture is the Fresnel. These fixtures control the light less precisely and therefore have a softer edge to the beam. A knob allows the lamp and reflector to be moved closer or father away from the fixed lens at the front of the fixture, therefore “flooding” or “spotting” the light, respectively. A “flooded” light has a wide beam angle and dull edges. A “spotted” light has a comparatively narrower beam and sharper edge, allowing for slight adjustment to the spread of light from the fixture. The front of the fixture has a slot for holding gels.
Our Fresnels are equipped with 575W lamps. This makes the Fresnels inherently dimmer than the 6x9s. However, this was done to respond to a limitation of our theatre. Our theatre has 1200W dimmers, meaning that they can supply up to 1200 watts of power. With 575W lamps, two Fresnels can be powered by a single dimmer, since they will only pull 575W x 2 = 1150W at full intensity. With 750W lamps, two fixtures would pull 1500W at full intensity and trip the circuit breaker on the dimmer. This “twofer” technique is used in the Fresnels because they are used for spread-out washes of light. By using two fixtures, the area covered by the dimmer can be doubled. This is not used in the 6x9's because they are used for precisely defined beams of light. The individual control of these beams is more important because they are more distinct. The smooth edges of Fresnels' output allow two fixtures to blend together and appear as one much more easily than with 6x9s.

Our theatre also has several Altman 6x12's. This fixture is similar to the 6x9, but has a longer lens train. This focuses the beam into a tighter spread, increasing brightness while decreasing the size of the beam. This fixture also has a slot for an iris. An iris is a circular shutter that can be adjusted to make the fixture produce a differently sized circular beam of light.

These fixtures all rely on dimmers for power. Once again, dimmers are the pieces of hardware which receive signal from the lighting board and then output a corresponding amount of power to the light(s) plugged into it. We need dimmers to control our lights. Without them, the lights would not be controlled by the board, and could only be on or off, controlled with a light switch. The number of dimmers limits the number of lights that can be individually controlled. Our theatre has 54 dimmers, which is quite limiting. I had to plan the use for these dimmers to get the most versatility out of this limiting number.

The final type of fixture we have is the Color Kinetics Colorblast 12. These fixtures do not use dimmers, they have their own power supply and communicate with the lighting board directly over DMX. The Colorblast is an architectural wash LED fixture. The way the fixture creates light is by mixing amounts of pure red, green, and blue light together (RGB). This is called additive color mixing. These colors can be mixed to create a near infinite spectrum of other colors, including white. This is why red, green, and blue are called the primary colors of light. This is the basis to RGB color mixing, which is the most common way of conceptualizing LED color mixing.

In a fixture with an incandescent lamp, color mixing has to be done with color filters. Color filters only allow certain wavelengths of light to pass through them. The light emitted from heat sources (incandescent lamps, fluorescent bulbs, the sun) contains a mix of many wavelengths of light. This is why they all are white-ish, because white light is an even mix of the wavelengths of visible light. When white light passes through a filter, some wavelengths are attenuated by the filter and the color of the filter is imposed on the light that passes through it. The filtration of certain wavelengths from a light source is called subtractive color mixing. In theatre, we use “gels” to filter light and create colors. The filtration qualities of gels get quantified in technical data sheets such as this one for R80:
The most important information on this sheet is the plot and chart of transmission percentage versus wavelength. For reference, the visible spectrum of light is around 390 to 700nm, so this data sheet expands slightly past the visible spectrum in both directions. For clarity in understanding the chart, the peak intensity for violet is 440, blue 480, green 520, yellow 570 and red, 650nm.

R80 is a dark blue filter. This can be inferred by the large area under the curve that is blue, and the low transmission percentage. The large area under the red side of the spectrum is not visually prevalent because frequencies above 700nm are outside of the visual spectrum, into the infrared. This filter allows lots of blue light through, with a little of both green and red. This bit of red and green makes the filter less saturated, and brighter.

Color mixing can also be thought of using the secondary colors of light: cyan, yellow, and magenta. This is more in tune with how subtractive color mixing is done. In some moving lights, color is created with the use of color filters that can be electronically controlled. These filters are commonly CMY instead of RGB because CMY yields more versatility. With saturated RGB filters, we could only create red, green, or blue light. If two filters were used, they would block out all the light. For example, a red filter would block green light and a green filter would block red light, leaving nothing if light tried to pass through both. With CMY, mixing is achievable. A yellow filter blocks blue light. A cyan filter blocks red light. Using both would filter out blue and red, leaving green. This is the basis for CMY color mixing.

A third way to conceptualize color uses the following color wheel as a guide. To define colors, we will use three variables; hue, saturation, and value (HSV). Hue is color. On the color wheel, let us define hue in degrees, clockwise around the center of the circle from the dot on the right side. For reference, red is 0°, green is 120°, and blue is 240°. Saturation is the percent of distance traveled from the center of the circle to the edge. The center is 0%, the edge is 100%. As saturation increases the color becomes more pronounced. Value is brightness. The dot on the color wheel would be at 0° Hue, 100% Saturation, and Value would determine its brightness.
The lighting board for our theatre is the Pathway Connectivity Solutions Cognito 2 board. It is designed for small theatre lighting installations and features intuitive and detailed controls for LEDs. The most significant and opportunity-creating feature of this board is the way it controls LEDs. In general, it presents the variables to control in relatable and intuitive units such as degrees, percentages, and seconds. It also provides the operator with a variety of ways to view and control properties of the light.

The Cognito lighting board reduces the need for color mixing knowledge for board operators. In the LED color control screen, colors can be viewed with either RGB, CMY, or HSV values. These three parameters get assigned to physical wheels on the board which can be rotated to change the value. This allows for the fine tuning of looks, without looking at the board. Furthermore, the Cognito creates a user interface that is easily used by those who do not understand color mixing. For example, lets say that we are in the RGB screen, and that the Red, Green, and Blue values are each at 50%. If I scroll up the Red wheel, it will increase to 100%. However, the LED will not be producing an especially red color, because Blue and Green are still at 50%. If I continue to scroll up the Red wheel, the Cognito will reduce the Blue and Green values, knowing that I want the look on stage to be more red. Similar to this is the CMY screen. Even though our LEDs only have RGB LEDs in them, they can be controlled with CMY values because the Cognito does internal processing to convert the format of the user interface to the format the fixture needs to communicate with. Many light boards would not allow an operator to use CMY mixing to control an RGB fixture. Even more advanced is the HSV color mixing. This control is very intuitive for the operator. Working in hue, saturation, and value is the most relatable way to fine tune looks on stage. The hue knob changes the color. The saturation knob changes how pronounced that color is. The value knob changes how bright it is. This is a more direct way of controlling lights, rather than manually adjusting the RGB values to produce the desired look.

A further nuance of the Cognito is the control of how colors fade. The standard way for boards to fade in between cues is called a crossfade, where one look is faded in while the old look fades out. This is peculiar with LEDs, however. Consider fading from red to cyan. In an RGB LED, Red can be represented with RGB values of 100:0:0 while Cyan would be 0:100:100. Half way through a crossfade, the Red and Cyan colors would each be faded half way down, so the LED would be outputting 50:50:50. This would mix to white, so the crossfade from Red to Cyan would go from Red to White to Cyan. This is how the Cognito executes fades when colors are defined with RGB values. However, the Cognito executes fades in a distinctly different way when colors are defined with HSV values. In this mode, the board fades from color to color by fading through Hue, Saturation, and Value.
If we represent Red and Cyan in this way, Red could be 0°, 100% saturation, 100% value. For this example, Cyan will be 179°, 100% saturation, and 100% value. Now when the board executes the fade, it fades between these values. Saturation and value remain at full, and Hue increases from 0° to 179°. This looks like a smooth color shift from red through orange, yellow, green, and into cyan. The color remains bright and saturated throughout this shift, because the saturation and value parameters remain at full. The board has two modes, HSV subtle and HSV rainbow. HSV subtle is the one I have just described. HSV rainbow is the same except that it goes around the color wheel in the direction that covers more degrees of Hue. The HSV rainbow color shift would go from red through magenta, blue and into cyan because I defined Cyan as 179°. The closer, “subtle” fade is through the top of the color wheel. The farther, “rainbow” fade is through the bottom of the color wheel.

This is a distinctly different way to fade from the previous example of crossfading with RGB values, which brought the color through white (0 saturation) in between two saturated colors. Most light boards only work with the RGB values. The Cognito HSV fade modes allow for color fades that retain saturation, allowing for much more versatility and control of transitional looks. Without this lighting board, I would not have been able to create looks on the fence with the subtlety I desired.

Lighting Design Process

After establishing a concept and an internal image of the lighting environment for The Laramie Project came the process of creating a lighting plot, hanging and focusing the plot, and programming cues. This stage occupied the two weeks before the show opened, because before this point, the director had not solidified blocking choices or done run-thrus. The goal of this stage was to evaluate the resources available to me and the way that they could best be used to create the looks I wanted, followed by precise implementation of those resources. This process also involved collaborating with and responding to feedback from the director.

A large demand on my design was to respond to the staging of this show. All theatrical design is informed by the performance space, and the theatre we used shaped The Laramie Project in several ways. It is a small black box theatre. The location of the lighting booth and the exit doors make a slight-thrust configuration of the audience most space efficient. The stage designer (Charles Steckler, Professor, Union College) made a large wooden frame set that functioned as a walk-in closet, housing all of the costumes, props, and extra furniture that would be used in the show. This frame was only used to hold objects, it was not used as a performance space. This set was constructed and installed before rehearsals began, making it an influential visual image from early in my design process. The set pushed the upstage limit of the performance space downstage. To accommodate, the director used the full width of the space, from under the lighting booth to the stage left exit door. This made performance closer to the audience, creating more of an intimate relationship. It also put more physical separation between areas on stage, allowing a furniture or costume change on one side of the stage to not distract from the action on the opposite side of the stage.

The shape of the performance space, being wide and close to the audience, allowed for multiple events to occur on stage simultaneously. If a scene takes place stage right, most of the audience's heads will be turned far enough to not see a costume change happening upstage left. This, combined with selective lighting to draw attention to the active characters, allow the company of actors to remain onstage without distracting from the show. All but a select few costume changes happen on stage in full view of the audience, and all of the set changes are in full view. However, the fast pace of the show and the selective illumination of the stage can keep the audience focused on the action, not the background.
To organize the looks on stage and determine the lighting resources they would require, I made a color key for each look I wanted to create. This started with my Area Color Key and Instrument Key. The Instrument Key organizes my fixtures by direction and purpose, and identifies the type of fixture used for each light.

**Area Color Key, (A-I)**

- R80
- R16
- R356
- R63

**Instrument Key**

- Top (Fresnel)
- LED Color Variable
- LED Color Variable

**Looks Created**

- **"Outdoor Wyoming"**
  - Key: R16
  - Fence: Amber daylight
  - Mix others for time of day/mood

- **"NYC"**
  - Key: R63
  - Fence: Blue Sky
  - Mix others for fullness

- **"Hospital"**
  - Key: R63
  - Fence: Dark Blue
  - No 356: indoors

- **"Wyoming Night"**
  - Key: R80
  - Fence: Dark Blue

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**Area Plan**
The Area Color Key summarizes the base lighting for the stage. These lights cover the majority of the stage in a evenly blended wash of light. It is divided into areas A-I, shown in the Area Plan, so that the multiple lights on a single part of the stage can be found and controlled more quickly. I organized my areas to cover the entire width of the performance space.

The area lighting was sufficient to create the looks for “Outdoor Wyoming,” “NYC,” “Hospital,” and “Wyoming Night.” The distinctions between these four looks was achieved by varying the intensity of the different lights on the area, as well as varying looks on the fence. The “key” light is the light that is brightest on an area. The other lights are used to fill in shadows and build a more complete image.

My other looks require different colors or distributions to create, and required additional fixtures to be hung, called “specials”. I organized these specials using the color key for each look.

The “bar” look is for the Fireside Bar. The R09 top light signifies incandescent overhead lighting. The LED washes suggest the glow from a neon “OPEN” sign. The fence is illuminated at night, with the dark blue glow of moonlight and the R58 glow from nearby light pollution.

The “news” look is for a moment where the stage is overtaken by news reporters. In this moment, I strobe the LEDs on and off with a white light, asynchronously. This creates the effect of camera flashes being produced by many more reporters than are actually on stage. The fence is dark in this moment to accentuate the shadows from the LED strobes. This moment is strikingly different from the others, because of the jarring strobe lights. It is meant to reflect how overwhelming and sudden the media attention on Laramie was.
The “shop” look is for several indoor Wyoming locations. These are places that represent the loveliness of small town Laramie. These include local stores, the offices at the local university, the homes of locals, and the police station. Similar to the fireside, R09 top light represents incandescent overhead lighting. To distinguish these locations from the Fireside, I include the R16 and R356 area lights to represent sunlight. All of these places are seen in moments that would have occurred in the daytime. To further distinguish these moments, I illuminate the fence with a bright amber to show that it is day.

The “police” look is for the flashback to Aaron McKinney’s confession. I made this moment distinct from the other moments in the police station because the moods of the moments are so different. The interviews with police officers were filled with compassion for the community. Aaron McKinney’s confession is full of anger. The R60 top light is unique to this location and suggests fluorescent overhead lighting. The brightness and steep angle of this key light create facial shadows which accentuate the actor’s facial expressions, eye sockets, and veins. I support this look with the cool R63 area light to slightly illuminate shadows with a color that compliments the cool R60. I also make the fence resemble blue sky to connect the look on stage to the fence.
The “Medical Update” look is exclusively for Rulon Stacey delivering press releases about Matthew's health condition. The iris in the frontlight creates a narrow beam of light that makes Rulon stand out from the rest of the stage. The harsh white spotlight created with the straight-on no color frontlight resembles the washed-out image that people would have seen on their 1998 TVs. In these moments, an actor announces “Matthew Shepard medical update,” followed by the date and time. Leading into this announcement, I have a que to bring up the Med. Up. special on Rulon and an R63 frontlight on the narrating actor. This cool frontlight for the narrating actor and the R80 top light on both characters makes the moment distinctly cooler than the normal warmth of the show.

The “Judge” look required a special to illuminate the judge and his bench. This special used the shutters on the fixture to isolate the light to the judge and his bench. This created more distinction on the judge by allowing him to be illuminated selectively from the surrounding stage. This was used to illuminate him alone or to make him stand out from surrounding characters in different scenes. I used R02 to warm the light a little, and to create distinction from the Medical Update look. R02 is much less saturated than the R16 frontlights, so this light can create distinction within the frontlight wash.
The idea for the Angel look came later into the design process, after costumes had been added to the show. In this moment, two actors enter the stage wearing giant wings made of white bed sheets. These giant white sheets reflected lots of light. They showed minor color changes much more than the black stage floor or the actors alone, so I had to create a more even wash of light for them. I used an LED to provide a golden frontlight, which provided a more even color than the blend of my area lights. The golden color was chosen to give a color to the glaring white sheets. Golden seemed the most fitting for the consecration of this moment.

Using my color keys, I followed the blocking of a run-thru and established where each look needed to be created on stage. For each look that required additional fixtures, I counted the different places on stage where the look needed to be. By referencing my color keys, I could count all of the fixtures I would need to use.

The organization of my lighting fixtures culminated in my channel list and light plot. The light plot is a to-scale map of my fixtures in the frame of the theatre. The channel list is a spreadsheet of all my lighting fixtures with details and room for notes.
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The qualities of our theatre and its available instruments molded my design. Of note are channel 1 and 15 being Fresnels, not 6x9's like the rest of the frontlights. This is to increase the beam angle at these hanging positions. The width of the theatre prevents these lights in the corners from being hung at as steep of a horizontal angle as the rest of the frontlights. The actors use the stage in the far downstage corners, very close to my hanging positions. The Fresnels allow illumination of these spaces with single fixtures, because the beam angle is wide enough to cover the whole area at this short projection distance.

The width of the performance space also demanded that I add an additional frontlight to cover the upstage right area under the lighting booth. I added a single fixture, extending my upstage cool frontlights. The walls of the lighting booth (shown in dashed lines on the Area Plan) prevented the addition of warm frontlight to this area. The staging in this area took place at the hospital, so it did not require warm frontlight. This is what inspired me to choose the direction of my warm/cool frontlights. Sending cool frontlight from slightly stage left allowed me to shoot cool light under the booth, which is what the director's blocking and my color concept demanded.

The wider distribution of Fresnels allowed me to cover the nine areas with eight channels for both my top lights and my fill lights. The conservation of dimmers in my area lighting allowed room for more specials. For the top lights, the five downstage areas could be covered with four fixtures. For the upstage top lights, the projection angle I needed for top light conflicted with the shape of the grid. From the perspective of my plot, the hanging positions available put the lights on vertical pipes, instead of horizontal. This did not allow for the ideal hanging positions to evenly distribute the lights like I could for the downstage top lights. To accommodate, I hung two fixtures that were circuited together with a twofer, and focused over an expanded Area I. This gave me three small areas and one large area upstage. The saturation of my top light color allowed this larger area to be used, as it was far less noticeable on the stage floor than the actors. If the top light extended beyond the action on stage, the bounce from other stage lights would cover it up. However, if an actor walked through this space, they would reflect the light more noticeably. This made the narrow control of top light less necessary.

For the fill lights, I was able to cover the stage with eight fixtures and dimmers. By covering the same width of the stage with eight areas instead of nine, the focal points of the fill lights became offset from the front lights. Walking across the stage, the most focused fixture would switch between frontlight and fill light. This allows the fill lights to fill in the space between focal points of the frontlights, creating a more even blend across the stage.

A known limit to my design was that I had six Colorblast LEDs available to me. These are extremely valuable resources, as they produce a wide range of colors. To get the most out of these fixtures, I hung them where color changes were most necessary. These fixtures are also unique from incandescent fixtures because they have no inherent fade time. Because of the physical nature of incandescent lamps, there is a slight delay to changes in intensity, due to the heating or cooling of the lamp filament. This prohibits these fixtures from creating certain fast-pace lighting effects, like lightning, explosions, or camera flashes. The rapid and drastic changes in intensity which these effects require cannot be reproduced with our incandescent stage lamps because they take too long to heat up and cool down. I wanted to replicate camera flashes, so I had to hang Colorblast LEDs to cover the stage for this effect.

To light the fence, I used four Colorblast LEDs and two 6x9s. Four was the minimum number of colorblasts that I could use to cover the entire upstage wall in a wash. The Colorblasts were hung straight on from a steep angle so that they could illuminate the back wall without casting shadows from the fence onto the wall. This allowed the Colorblasts to be used to wash the wall in light, independently
from the color on the fence itself. This allowed me to use the back wall similarly to a cyclorama, illuminating it with different colors to represent the sky. The 6x9s were hung as a flatter angle, and from the side, so that they would cast elongated shadows of the fence onto the back wall, resembling the long shadows that the sun would cast in the evening.

After illuminating the fence, I had two Colorblasts remaining. I knew I wanted to be able to use them for creating the camera flashes for the newscasters, and for coloring the Fireside. I experimented with different hanging positions to achieve both of these looks. For the newscasters, I needed a full coverage of the downstage areas, as four actors spread across down stage, standing and facing the audience in this moment. For the Fireside, I wanted to fill in the stage with sidelight. This different angle of distribution would make the color fill in shadows that the other lights missed, making the effect more noticeable. To achieve both of these effects with my two fixtures, I hung them wide apart on the lower of my hanging positions next to the audience. This made the light come from the side more than my other fixtures, and included the downstage areas in the wash. I hung these fixtures on the lower pipe to get them closer to the performers, increasing their brightness. Later, I would also add one of these LEDs into my “angel” look, illuminating the large white sheet on stage with a golden glow. This was an opportunity made available to me through careful planning and consideration of my hanging positions.

Each additional light I hung was to create a specific look in a specific location. The Fireside bar scene focused around three furniture pieces across the stage, so I focused a top light over each piece. These lights were Bar Top 1, Bar Top 2, and Desk Top 2. A later scene at the Fireside had slightly different staging, so the Table special was also used for the scene. The “Shop” look occurred in many moments, so I labeled the fixtures to represent what they were for. The top lights for the shop look were Shop Top, Desk Top 1, Desk Top 2, and Table. The use of the same colored top light for the “Bar” and “Shop” moments allowed some fixtures to be used for both looks.

The “Police” look only needed to be created once and in one area, requiring one top light. This single light helped to define the small space that this moment occupied.

The “Medical Update” moment always happened on the same side of the stage, so I spiked the actor's microphone stand and focused the 6x12 iris special onto the spike. The microphone stand always remained at the same height and position, so precise focus of this light was achievable.

The “Judge” look only needed to be created in one place, focused onto the Judge's stand. This required one special to be hung. The Judge's stand was spiked so that this light could be precisely focused.

EVALUATION

I attended the show every night, to allow myself to separate from the work and attempt to view the show as an audience member, not a designer. This also allowed me to interact with audience members after the performances and hear their feedback. Sitting in the audience during each performance carried emotional weight that had been lost to me in the rehearsal process. In the process of producing a show, the company working on it can easily become desensitized to the material. Sitting next to first time audience members brought the emotional turmoil of this show back to the foreground. It was a somber experience, watching the strife of family and friends as we are told the events surrounding Matt's death.
Overall, I was happy with the looks I created and the colors I chose to represent Wyoming. The following image is a moment at the Fireside Bar.

The bar itself is the focal point of the key lighting, making the actors’ hands and forearms their most illuminated parts. This resembles the poorly lit atmosphere that a rural Wyoming bar would have. In interior scenic spaces that are out of the focus of the top lights, the purple glow from my LED wash is more noticeable, as seen in the following image.
These last two images take place in the same scene at the Fireside. As characters move through the space, they pass between well-lit areas around furniture to dim, purple areas in between.

The following images capture the focus on active characters that I created with selective lighting. The two male characters are engaged in a scene, while the female actress is not. She sits and watches their scene play out. She is physically close to the action, but is removed from it because she is comparatively dark. In the second photo, the four characters on stage mourn at a candle vigil for Matthew. In the background, another actor stands, waiting for his next scene. He is removed from the scene by how dimly lit he is.
The next image captures Rulon Stacey giving one of his medical updates. This look is very selectively lit, and isolates Rulon from the rest of the stage by using his high contrast from the dark surroundings. The camera failed to capture the other actors on stage in this photo because they are so dark.

One of the biggest successes that I can claim with my lighting design is the focus that it drew to the active characters. I never found myself watching the changes to costume or set that were occurring on stage throughout the show. After asking friends if they were distracted by the costume or set changes, they replied that they hadn’t followed this background action either. This was due to the lead-lags used in my ques. Throughout the show, I would bring up the light for the next scene slightly before I would fade out the lights from the current scene. This would illuminate the new scene before the old scene went dark, and would cause the audience to automatically refocus to the new bright spot. This allowed other action to occur on stage that would not draw attention, because it was comparatively in darkness. This complemented the style of the show and increased the pace, as new interviews could start as soon as the last one stopped, because the new scene was already illuminated. Increasing the pace also helped to draw focus, as the audience was always readjusting to a new character or location. The fast paced nature of the show served to keep the audience engaged in learning new characters, not
looking into the background.

An unexpected consequence of the focus on active characters that my stage lighting created was that some audience members did not see the fence. After the show, when I asked them what they thought of the lighting on the fence, they did not know what I was talking about. This initially baffled me. The fence is large, on top of the set behind the entire action of the play, and was lit quite brightly in certain moments. For the entire fifteen minute preshow period, the only lights in the theatre are the house lights and the fence lights. The following picture shows how prominent the fence is to an audience member in the front row.

How could an audience member not notice this feature? One explanation is that our model of a buck fence was too suggestive. First, our fence is about 2/3 scale of what these fences would actually look like, to make it fit the dimensions of our space. These fences would also be a long chain of segments, not just the single one we recreated. Additionally, our fence is mounted above a large wooden frame and in front of a wooden wall. This image could have been too abstract to suggest a separate location to the audience, especially because it is not an acting space. It is possible that audience members could have never seen a buck fence, and our model did not suggest “fence” to them at all. People who have never been to Wyoming may have a very different concept of what a fence looks like. Another
explanation is that audience members were so focused on the action and characters on stage that they never looked up. This would be fitting with our design concept of heightening the connection with these real characters. Once the action of the show begins, the stage is always transforming into new locations with new people. It would be reasonable for an audience member to become so entranced in the acting that they ignore the set. The director did not use the closet-like set as acting space; it held costumes and props. Actors would go back there to make costume changes while action was happening elsewhere on stage. This led me to leave this space dark. This could easily train the audience to think of the set as offstage space, and to ignore it altogether.

Having audience members not notice an entire aspect of my design was initially troubling, but upon later reflection, I believe this was also a success. These people did not notice the fence because they were entranced with the performance. They were too busy following characters to look up a little and survey the area around them. In programming the fence lighting, I took great care to keep the fence from rapidly changing, getting too bright, or displaying a noticeable color shift. I wanted it to float in the background. If an audience member noticed it, it would contribute to their image of Laramie. It would also establish a connection with Matthew's final moments. However, I never wanted the fence to distract the audience from what was happening on stage. The people of this town are the most important part of this show, and their story needs to be heard.

If I had the opportunity to change my design, I would have added more specials for each of the religious figures in the show. There is a moment where the Unitarian, Baptist, Mormon, and Catholic religious leaders each preach their views on homosexuality and Matthew's case. With more time, I would have filled my three spare dimmers with specials for these people, and isolated them from each other with lighting. This would have allowed me to create a distinction between these characters with color and distribution qualities, rather than only being able to distinguish them using intensity changes in my area lighting with the plot I designed.

Overall, I believe that The Laramie Project was a huge success for our community. The timing of the show, within our current social and political environment, needed a response from our department. The Laramie Project simultaneously broadened the perspective of our student body and made a statement about modern times. My lighting design served to help build the environment for the people of Laramie, and in doing so, made their accounts even more real and impacting. My lighting design also responded to the needs of our performance space; to separate areas and clearly define acting spaces. This was crucial to the success of the show, as the acting company never exited the stage and needed to be part of the background to other scenes. The various aspects of my design culminated in the production of a lighting environment that would elaborate upon but never distract from the performance, focusing the audience's attention onto the real characters of Laramie, Wyoming.