

LIGHTING THEMED ENTERTAINMENT:

DESIGNING OUTSIDE OF TRADITIONAL THEATRE AND DANCE

BY:

MONIQUE ROCHELLE NORMAN, B.F.A.

THESIS

Presented to the Faculty of the Graduate School

of The University of Texas at Austin

in Partial Fulfillment

of the Requirments

for the Degree of

Master of Fine Arts

The University of Texas at Austin

May 2007

LIGHTING THEMED ENTERTAINMENT:
DESIGNING OUTSIDE OF TRADITIONAL THEATRE AND DANCE

APPROVED BY

SUPERVISING COMMITTEE:

SUPERVISOR

AMARANTE LUCERO

YACOV SHARIR

WILLIAM S. BUSSEY

LIGHTING THEMED ENTERTAINMENT:

DESIGNING OUTSIDE OF TRADITIONAL THEATRE AND DANCE

BY

MONIQUE ROCHELLE NORMAN, M.F.A.

The University of Texas at Austin, 2007

SUPERVISOR: Amarante Lucero

This thesis asserts that there is an evolving demand for theatrically trained lighting designers within the themed entertainment industry. The methodology for this paper consisted of personal interviews, discussions, and extensive research, including historical references to the evolution of lighting in themed entertainment. It will become evident that there are innumerable venues and opportunities for theatrically trained lighting designers outside of traditional theatre and dance. The themed venues and topics presented in this work include; concerts, zoos, museums, retail, restaurants, theme parks and examples of designers in these industries.

TABLE OF CONTENTS

INTRODUCTION	1
Chapter 1: Concerts.....	4
Chapter 2: Zoos.....	9
Chapter 3: Museums	14
Chapter 4: Retail Stores	20
Chapter 5: Restaurants	28
Chapter 6: Theme Parks.....	32
Chapter 7: Examples of Designers for Themed Entertainment	40
Conclusion	44
Bibliography	47
Vita	52

INTRODUCTION

This thesis asserts that there is an evolving demand for theatrically trained lighting designers within the themed entertainment industry. François Roupinian, a theatrical lighting designer stated, “they wanted a designer that did theatre and multimedia who would add a different background than an architectural lighting consultant.”¹ This is a common sentiment that has been expressed by numerous executives and lighting designers within the themed entertainment industry.

The diversity and depth of skills that are acquired from a formal education in theatrical design can be utilized in a multitude of industries that are not directly associated with traditional theatre and dance venues. The themed entertainment industry is one of the most diverse industries that exist within the nontraditional job market for theatrically trained lighting designers. By looking at a number of disciplines within the broad category of themed entertainment, it will be clear that there has historically been and is presently a need for effective lighting.

The definition of Themed Entertainment can be very broad, with museums, zoos, and theme parks as the largest and most easily identified. The Themed Entertainment Association (TEA), an international non-profit association,

¹ Amy L. Slingerland, “Newtown,” *Lighting Dimensions Magazine*, March 2002, 24.

describes themed entertainment as “compelling places and experiences.”² Some specific examples include; museums, science centers, corporate visitor centers, live performances or concerts, retail stores, themed restaurants, aquariums, zoos, heritage centers, and theme parks.

Looking at the history of each of these industries, it can be seen that with new technological advancements the themed entertainment industry is constantly given extraordinary new tools to use for their expansion. New methods of lighting control, new technologies for lighting distribution, and new ways to present lighting are being created. At present, this growth has led to the exponential increase in need for savvy and well trained lighting designers.

Carefully planned light is virtually everywhere, with lighting designers having been responsible for much of this. The methodology for this paper includes personal interviews, discussions, and extensive research within the themed entertainment industry. In the following chapters it will become evident that theatrically trained lighting designers can, have, and are encouraged to make the transition into a number of venues within themed entertainment.

² Themed Entertainment Association, *Project Development Guidelines for the Themed Entertainment Industry*, 2nd ed. (Burbank: Themed Entertainment Association, 1999). 1

There's a golden glow about lighting design at the moment. If the past 10 years or so have largely been about convincing architects and other clients that lighting designers are a good thing, the next decade looks to be more about coping with a glut of work... 'At the moment we see an infinite market... We could have a team of 70 or 80 – we have enough business opportunities – but we can't find enough good people. We're not expanding just for the sake of it.'³

³ FX Magazine, "FX magazine congratulates The Lighting Design Awards 2007's Designer of the Year, Mark Major of Speirs and Major Associates." [Internet]; available from <http://www.fxmagazine.co.uk/story.asp?sectioncode=9&storycode=1347&navcode=199>; accessed 25 April 2007.

CHAPTER 1: CONCERTS

The Rolling Stones, Dave Mathews Band, U2, Eric Clapton, and the Barenaked Ladies, are only a few of music's mega star extravaganzas on the stages of the world's concert venues. A concert is "...a public musical performance in which any numbers of singers or instrumentalists, or both, participate."⁴ The roles of concert lighting designers have become an integral part of most musical performances today. Many concerts are incorporating equal amounts of spectacle and music. In fact, some concerts have actually started to become so elaborate that they are more like visual productions accompanied by music.

It is difficult to pinpoint the actual beginning of concert lighting as we think of it today. Certainly the 'Grand Tour' could be seen as one of the developments from opera in the mid nineteenth century. The term [concert] was often given to a star's travels through Europe presenting solo programs in the European cultural capitals.⁵

In the centuries preceding the invention of recorded music, the only way to hear the music by one's favorite musician or artist involved traveling to see them perform. From the beginning of written history, royal and wealthy

⁴ Concert, *Dictionary.com Unabridged (v1.1)* [Internet]; available from <http://dictionary.reference.com/browse/concert>; accessed 3 March 2007.

⁵ J.L. Moody, *Concert Lighting: Techniques, Art and Business*, 2nd ed. (Oxford: Focal Press, 1998), 3.

families employed court and house musicians to entertain them during meals and throughout the day. In Europe's history, the royal and wealthy would flaunt their riches by hosting musical events with composers they patronized.

The Holywell Music Room opened in 1748 in Oxford, England, and was the world's first purpose-built concert room. Soon after the Holywell Music room was constructed, many similar concert halls appeared throughout Europe and the world. These first concert halls primarily employed illumination by candle light. With the advent of recorded music, admirers (as we refer to them today, fans) desired the ability to see musicians perform live. This demand for live performances encouraged many artists to join the "Grand Tour." Later, with accessibility of electricity, artists began using electric lighting to help compliment their performances.

Rock and Roll is considered to have been born in the early 1950's. By the mid 60's, the idea of spectacle and the use of lighting to enhance that spectacle in rock and roll concerts had become better developed. For example, a Jefferson Airplane concert at the Fillmore West in San Francisco, California, circa 1967, featured a psychedelic lighting show that had many design elements still popular today.

The Rolling Stones concerts are a strong example of how many of these lighting effects continue to exist in concerts. It takes hours of standing in line to

get tickets but once inside the arena, most feel the time spent in line was worth the effort. There is a sense of excitement and anticipation that emanates from hundreds of people, while every face reflects a glow from the lighting effect that illuminates the space. An elaborate stage with large sections of seating circles the performance space. The on-stage seating has multiple levels and some detailed decoration. For a moment one might question the purpose of the decoration, but then decide it is nothing important. Suddenly, the room appears to shift, the lights dim on the audience and a single beam of light illuminates a microphone center stage, announcing that the show is about to begin. The lighting designer has drawn the focus of hundreds of people to a single point in an enormous room, without yet having a single person visible on stage. The concert continues as the Rolling Stones enter the stage and their music pounds the audience. Hidden lights in the decorative façade of every level of the on-stage seating pulses, vibrates and flashes into action. The whole stage comes alive with light as music fills the air.

It is the responsibility of the lighting designer to enhance the anticipation of the audience, as musicians enter the stage at the beginning of a concert. It also falls to the designer to focus the attention of the sometimes thousands of people in an audience, to a single person on stage. Audiences enjoy direction; it is the lighting designer who helps focus their attention when and where it is necessary.

On a traditional theatre stage, mood and atmosphere are an essential part of any production; likewise, those same elements are of importance to a concert performance. When Eric Clapton performs *Tears in Heaven*, there is a very noticeable shift in the emotional mood. The concert hall is silent and the lighting becomes dim. As Eric Clapton sings the lines; “Would you know my name, if I saw you in heaven? Would it be the same if I saw you in heaven?”⁶ The stage becomes deep blue with a single white beam of light piercing through the hazy air creating a perfect cone, as if it were a finger reaching down from above. Having this lighting shift enhances the effect of the song, helping the audience become immersed in the emotions being elicited from the musician. Many times, as the lighting goes dim and a song begins, audience members become emotionally involved in the moment and hold up lighters (or today, cell phones), creating what appears to be a sea of stars.

When The Barenaked Ladies sing; *If I Had a Million Dollars*, a different mood is conveyed to the audience with lighting. This Barenaked Ladies song is fun and upbeat. To match the emotional tone of the song, the lighting should be bright and playful. The lighting designer could use this instance to sweep beams of light across the audience, engulfing the fans in colorful light. This effect can

⁶ Eric Clapton and Will Jennings, “Tears in Heaven” [Internet]; available from <http://www.eric-clapton.co.uk/ecla/lyrics/tears-in-heaven.html>; accessed 4 March 2007.

excite the audience and allows the band members to see the faces of their fans.

Often during concerts live recordings take place. In most cases, the lighting designer must supplement the original design to enhance the lighting for the camera. When concerts are filmed, not only is lighting the performer important but the audience also needs to be well lit. Commonly, cameras are on long arms sweeping over the heads of audience members, as the camera operators try to catch the excitement on the viewers' faces. If the faces of the audience are not lit, then the camera will not be able to record their reactions. Lighting, for the camera, is a huge responsibility falling to the lighting designer.

There are a multitude of opportunities for theatrically trained lighting designers within the concert industry. "Thanks to [Natalie] Merchant, LD [lighting designer] Jason Boyd launched his own concert career. Boyd was a New York theatre LD when he met Merchant through mutual friends. In 1998, the singer enlisted him to design the lighting for her section of Lilith Fair."⁷ Jason Boyd is one of many theatrically trained lighting designers who have made a smooth transition into the concert lighting industry.

⁷ Catherine McHugh, "Revisiting the Motherland: Jason Boyd Sees American with Natalie Merchant," *Lighting Demisions*, March 2002, 46-47.

CHAPTER 2: ZOOS

Imagine a young child going to the zoo for the first time. They might see the huge elephants and the funny striped zebras. Then, they enter a building, the lights are dim and many of the lights are red and purple. Suddenly, a zoo keeper begins to speak about the animals behind the glass wall. These animals are nocturnal, but they are presently wide awake and can be seen clearly, even though outside this space there is daylight. This is an obvious example of controlled lighting in a zoo. In this example, it is important that the lighting designer emulates night, encouraging the nocturnal animals to be active. Anyone can turn the lights off in a windowless room and simulate night, but the challenge is to enable guests to visit creatures that only move at night without disrupting their normal activity.

Zoos are built to allow humans to observe, analyze, and learn about animals. To properly design a zoo, it is necessary to design environments similar to the species' native habitats. One of the primary elements in an animals' habitat is lighting, for example, some penguins must have light that mimics the sun in Antarctica. If the time of day and lengths of days are not represented properly in their enclosed man-made environment, this species is unable to reproduce. Similarly, during the design process of the Georgia Aquarium, "the

big picture challenge on this whole project was to balance our desire to do what the themed exhibits needed of the theatrical lighting treatments with the unwavering demands of the keepers of the fish.”⁸ The lighting designer is essential in re-creating these environments.

The earliest zoos were simple collections of animals held by private individuals. Most royal families had private menageries of animals, not only native to their country but exotics brought to them from faraway lands. Around 1500 BCE Queen Hatshepsut, of Egypt, built one of the earliest documented zoos. Five hundred years later Chinese rulers did the same. These animals were held in large steel cages, or rooms of houses, lit only by candlelight or sunlight that spilled through windows. In 1739, the French royal menagerie was moved to the Jardin des Plantes in Paris, France, making it “...the first animal collection in a park setting.”⁹ This collection led to many other parks and exhibits that helped promote animal research. The London Zoological Society, founded in 1826, allowed animals to be studied in relative freedom.

In 1907, Carl Hagenbeck had the idea of using a moat to enclose animals. The moat allowed people to observe animals more closely and was the precursor

⁸ Michael S. Eddy, “Fish Tales, Lighting and Projection at the Georgia Aquarium,” *Live Design Magazine*, May 2006, 39.

⁹ Anthony and Patricia Wylson, *Theme Parks, Leisure Centres, Zoos and Aquaria* (Harlow: Longman Group UK, 1994), 71.

to the development of more natural habitats. In 1926, the London Zoological society built a large zoo, approximately seventy miles outside of London, England, devoted to the study of animals. Then in 1931, Whipsnade Wild Animal Park became the first public zoological park. These two new animal habitats were the predecessors of today's evolved parks.

As animal habitats have advanced through the years, lighting within these habitats has grown in importance. Scientists have learned, the more natural the environments, the healthier the animals. This knowledge has led to a demand for formally trained theatrical lighting designers who are able to accommodate and enhance realistic dwellings. In habitat parks, lighting designers are responsible for: 1) re-creating time of day 2) helping enhance inviting and safe environments for guests and animals, and 3) creating safe lighting effects for theatre-like shows performed with animals.

When walking into the Broadway production of *Lion King*, one may expect to be taken into a magical world representing the pride lands of Africa. Similar expectations may exist when walking into the lion exhibit at the San Diego Zoo in California. Between the stage and zoo experiences, a difference in light does exist, when the light on Broadway shines into Simba's (the lead lion character's) eyes; the actor playing Simba is not surprised or scared. However, if lights at a zoo were to shine directly into a lion's eyes, the lion would back away.

The lights would have caused the lion to feel vulnerable with his sense of sight having been compromised. In turn, this lighting choice could hinder the visitors' ability to view the lions in the exhibit.

A good example of how designed light can enhance a visitors experience is available at the gorilla exhibit at the Atlanta Zoo in Georgia. A young child may feel transported into the wild when walking into the glass room that offers a view of the gorilla habitat. This viewing area is brightly lit allowing guests to see each other and read material posted on the walls, while keeping the spectators behind thick reflective glass, hiding them from the gorillas. As people gather in the viewing room it is common for gorillas to approach the glass, enticed by their own reflections. On occasions gorillas have been known to walk right up to the glass and lean against it, as the glass is cooler then the rocks in the field. However, if the gorillas could clearly see the people watching or if the glass had been warmed by lights placed too close to the glass, the exhibit would not be the success that it is today.

Comfort is important for animals when they are performing. Animal performers require a different and more thoughtful design, balanced with stringent safety regulations. During traditional dance performances, a lighting designer must be aware and considerate of dancers' safety. When working with animals, a lighting designer must be equally attentive, ensuring that lights are not

blinding the animals before and during stunts. In shows with sea lions, otters, and seals, water on the performance surface is used to avoid injury. The lighting designer must be aware of the reflective nature of wet surfaces and be cautious to avoid glare.

Zoos produce many opportunities for professionally trained lighting designers. The history of zoos shows that people have learned more about animals and their needs. This advancement is bound to continue creating more opportunities for lighting within zoos. Additionally, many zoos annually produce new animal driven productions.

[In 2006] SeaWorld parks across the U.S. have unveiled the most ambitious entertainment project in the brand's 41-year history, a new production called 'Believe'. Nearly four years in the making, 'Believe' showcases SeaWorld's majestic killer whales performing awe-inspiring choreography, an elaborate 3-story set including panoramic LED screens and an original musical score written exclusively for this show.¹⁰

Shows of this scale and importance are developing in zoos around the world and are at a caliber that demands the skills of a professionally trained lighting designer. All of these advancements give trained lighting designers more prospects within zoos.

¹⁰ "Sea World Launches 'Believe', the Most Ambitious Killer Whale Show in Park's History." [Internet], available from www.buschgardens.com/SWF/ftp_press_release_articles; accessed 4 March 2007

CHAPTER 3: MUSEUMS

Interestingly, zoos are considered by the American Association of Museums to be a type of museum. It is believed that there are over 17,500 museums in the United States of America, with over eight hundred million visitors per year. This is but a fraction of the numbers of visitors to the hundreds of thousands of museums around the world.

Museums allow their patrons access to impressive works of art, interesting scientific artifacts, and historic objects. From the Louvre in Paris, France to the Forbes Magazine Galleries in New York, New York lighting designers play a significant role in museum presentations. Lighting: exhibit objects, interactive exhibits, and elaborate eye catching entrance ways, are all the responsibility of a lighting designer.

The term 'museum' came into popular use during the 17th century, but the concept of a museum could be applied to the state supported research institution encouraged by Ptolemy in Alexandria, Egypt early in the 3rd century BCE. At that time within the 'Great Library' in Alexandria, Egypt resided a Museum-like area within which were housed instruments, animals, hides, elephant tusks, statues, and portrait busts. Unfortunately, the collection was destroyed in 270 CE.

It wasn't until the 18th century that the first public museums appeared in the western world. Prior to that, private collectors maintained collections in their homes. Often they would designate a room to display their objects of interest. Calling them 'cabinets of curiosities', treasures were placed on stands with candles suspended high above to illuminate them. Often friends and fellow collectors were invited to admire the collections.

At the same time, places including the Vatican's Museo Sacro and Florence's Uffizi palace were opened to the public; however, it was difficult for ordinary citizens to gain admission. In 1753, Sir Hans Sloane gave his extensive private collections to the British government, becoming the foundation for the British Museum. France followed suit in 1793 when the new French Republic opened the Louvre, allowing people to view the treasure of the new republic. And by the 19th century, public museums were flourishing throughout the Western world.

The Getty Museum in Los Angeles, California is one of the best known modern museums in the Western world. While attending the Getty Museum, the experience begins with a fantastic ride up a steep hillside on a tram. Everything in the stations, from the seats to the cars is white. Initially, the light surrounding visitors appears natural, but under closer scrutiny visitors may notice that light is glowing from the tops of tall pillars that extend to the roof. Exiting the tram, one

finds a large white concrete world, where many steps and terraces lead to an oddly shaped building. Everything appears to be under natural sunlight, yet after a closer examination hidden lights are found giving accent to different elements of the building.

This building was designed by the famed architect Richard Meier. Meier is known for his architectural designs and his use of clean white lines. Richard Meier was heavily influenced by one of the great contributors to the modernism movements, French architect Le Corbusier (Charles-Edouard Jeanneret). Le Corbusier encouraged the design of architecture with light;

Light and illumination are inspirable components of form, space and light. These are the things that create ambiance and feel of a place, as well as the expression of structure that houses the functions within it and around it. Light renders texture, illuminates surface, and provides sparkle and life.¹¹

As long as lighting designers for museums remember to “...render texture, illuminate surfaces, and provide sparkle and life,”¹² their designs will be successful.

¹¹ Le Corbusier, “The Chapel of Notre Dame du Haut, “[Internet]; available from http://www.itgsecchi.it/archivio%20progetti/AS%2002-03/strasburgo/chapelle_ronchamp.htm; accessed 13 March 2007.

¹² Le Corbusier, “The Chapel of Notre Dame du Haut, “[Internet]; available from http://www.itgsecchi.it/archivio%20progetti/AS%2002-03/strasburgo/chapelle_ronchamp.htm; accessed 13 March 2007.

Lighting designers for museums have four basic and essential responsibilities. The first and foremost of these is illumination. Illumination includes concern for patrons' safety and comfort, but most importantly illumination must focus on the objects within the space. It is necessary to be able to view the objects. Patrons need to be able to see the three dimensionality of each brush stroke on an oil painting, seeing where the paint has created ridges and valleys on what was initially a flat surface. The lighting can either mask those fine details or make them evident. Many people believe paintings to be two dimensional objects, until seeing them in person, under good lighting. Not only is the texture necessary, but the true colors within the exhibit must be revealed as the artist intended. Additionally, if museum patrons desire to know more about the objects displayed, the written materials that give biographical or descriptive information must also be clearly illuminated, without glare.

Second, lighting must help enhance interest and direct guests. By varying the type and location of the light sources, additional interest can be achieved which keeps the viewers from becoming disinterested. A variety of lighting can also help guide guests through a space. In traditional musicals, as a song develops and a soloist begins singing, the lighting designer may highlight the soloist with a spot light to draw the audiences' attention to that one person. Likewise, the designer for a museum can move viewers through an exhibit space

by dimming the areas between objects, creating a natural flow, as people are innately drawn toward brighter areas.

Care should be taken to make sure harmful heat or ultraviolet rays that can fade or degrade ancient objects are avoided. For example, when a Gutenberg Bible is placed on display it must be in an area protected from sunlight, and the illumination must be monitored and equipped with ultraviolet reducing lenses and filters.

Lastly, it is necessary for the designer to create a design that is flexible. Exhibits commonly change and shift. As art exhibits travel from one museum to another or new art works are added, flexibility within the exhibit space is needed. A flexible design will allow for smooth transitions from one exhibit to another without exorbitant amounts of time and money being required. A museum lighting designer influences the overall functionality of a museum and is important in the preservation and presentation of art objects on display. “[Art and architecture are] ...the masterly, correct and magnificent play of masses brought together in light.”¹³ Without a well trained lighting designer this mastery of light and objects will not be achieved to the standards necessary for a quality exhibit. Theatrical lighting designers have been formally trained to manipulate

¹³ Le Corbusier, *Towards a New Architecture*, 13ed, trans. Frederick Etchells (New York: Dover Publications, 1986), 10.

light and objects making theatre designers a sought after commodity for museum lighting design.

Our objective when lighting our modern galleries, especially the one dedicated to Color Field painting, is to help artworks appear as a natural extension of the white wall. The lighting should subtly "pop" works off the wall without making them look "spot lit." If the relationship between the wall and the work is perfect, it will appear almost to float on the wall; Gene Davis's piece almost vibrates. This is opposite from the way we light installations in our nineteenth-century galleries where paintings are hung on deeply colored walls.¹⁴

¹⁴ Smithsonian American art Museum, Eye Level, "Museum Lighting: How We Do It", [Internet]; available from http://eyelevel.si.edu/2006/07/museum_lighting.html; accessed 25 April 2007.

CHAPTER 4: RETAIL STORES

...Warner Bros. and Disney discovered something about lighting design: In stores selling entertainment as well as merchandise, lamps, light fixtures and colored light created as much interest as wall fixtures, wall moldings and flooring. "Warner Bros. came in with theatrical PAR fixtures set against a black ceiling, with an overall store design aimed at recreating a theatrical setting..." Suddenly, light fixtures and colored light joined the other elements of design as an equal visual partner in creating retail environments. Almost every retailer clamored for an entertainment design, complete with a theatrical lighting package... Still others have continued to push the limits of lighting design to enhance the entertainment value of their store designs.¹⁵

It is naturally progressive to move from viewing art in museums to selling objects in retail stores. Retail stores can be defined as locations used to sell consumer goods and services. The visual appearance of retail stores vary depending on three main elements; what they sell, who they sell to, and where they are located. However, the overall goal of all retail stores is the same; to sell products to consumers and make a profit. The retail industry is an extremely competitive business, and many companies have realized that well lit stores sell more products.

Nike, Gap, Nordstrom's, and even the Sunglass Hut at a local mall, have recognized that lighting can aid sales. Good lighting helps to encourage

¹⁵ Retail Traffic, "Lighting Gets its Day in the Sun", [Internet]; available from http://retailtrafficmag.com/design/interiors/retail_lighting_gets_day/; accessed 25 April 2007.

customers to enter, makes customers feel comfortable, and helps make merchandise more appealing. A store with drab, dull lighting is less likely to attract customers, especially when in proximity to stores that have warm, welcoming atmospheres.

People have shopped in open air markets, bargaining and buying everything from food to cloth for as long as we have been living in communities. The first known markets were devoted to food. As farming communities developed, the first markets traded surplus harvest goods for other needed commodities. Archeologists measure how advanced civilizations were by analyzing their markets. In general, more advanced civilizations had larger markets.

Most markets were outdoors, lit only by the sun. If indoor Neolithic markets existed (however none have been excavated) it is assumed that they would be similar to the housing in Catalhoyuk, Turkey, circa 6500 BCE. “Catalhoyuk in the Konya Plain of south Anatolia is the largest and most complex Neolithic settlements to be excavated.”¹⁶ Homes in this settlement had ladders leading to openings in the roofs that served as main entrances into the

¹⁶Spiro Kostof, *A History of Architecture: Settings and Rituals* (New York: Oxford University Press, 1995), 50.

dwelling. This design was used to keep the living quarters cool during the hot summer months and allowed natural sunlight to fill the space. The interior walls of the dwellings were white, reflecting sunlight throughout the home. There is no evidence of man-made lighting used in these homes or any of the early market places. So, it can be assumed that most markets opened and closed with the sun.

In the Old Kingdom of Egypt, the large markets in Cairo and Alexandria contained stalls with everything a family could afford. Open from sun up to sun down, the markets not only provided a place to obtain goods, but were a place for the community to meet and exchange ideas. During the Dark and Middle Ages, markets were a bright spot in the lives of people who were struggling. As the Middle Ages gave way to the Renaissance, travel became common place and markets became a place for people to view new items brought from all over the world.

Shops were another location for people to obtain goods. They do however differ from markets. Shops are everyday all weather indoor establishments while markets are often transient. Historically, shops have been family owned and these families commonly lived in the back of their shops or above them. Like earlier markets, these shops primarily functioned during sunlight hours.

Department stores were a relative late comer to the world of retail. In 1838, Le Bon Marché was opened in Paris, France by Aristide Boucicaut as a small shop. By 1852 it offered a wide variety of goods under one roof and is considered the first true department store. Once electricity became common, department stores took advantage, keeping their stores open after dark by illuminating them.

Harrods is very much a city within a city. Covering 4.5 acres, with over 1 million square feet of selling space, the store generates 70% of its own electricity from its own generators, draws water from its three artesian wells – the deepest of which is 489 ft – and operates 40 lifts that cover 39,800 miles per year. Our switchboard takes 7,000 calls a day, and the famous facade is picked out by 12,000 lightbulbs – of which 300 a day are changed by the store’s electrical engineers.¹⁷

Harrods set the standard for department store lighting when they added their 12,000 lightbulbed façade.

A retail lighting designer’s responsibilities can differ depending on the type of merchandise a store is selling and the store’s location. The designer is responsible for; the exterior of the shop, which must be noticeable and interesting; the entrance, which needs to be inviting; the ambiance within, which

¹⁷ Harrods, “Harrods, A Kind of Magic”, [Internet], available from <http://www.harrods.com/Cultures/en-GB/History/history04.html>; accessed on 28 March 2007.

should be welcoming and comfortable; the merchandise, which needs to look as appealing as possible; and the customers' ability to easily navigate the store. Navigation includes assisting the customer in locating necessary work stations such as registers and fitting rooms.

When walking through a mall there are a large number of shops from which to choose. The shop that catches one's eye is most likely to attract business. Lighting can help grab that attention. A nicely lit sign that is as appealing in daylight as it is at night is the first way to attract customers into a store.

As the sun sets in Austin, Texas, the Nordstrom's department store becomes illuminated. Each letter of the Nordstrom's marquee glows with a white light and there is an intricate pattern of light and shadow filling the sides of the solid brick building. Under closer inspection it is noticeable that the lights and shadows create tree branch shapes. From a distance it is difficult to see, but there are small leafless trees surrounding the perimeter of the building. The lighting designer chose to decorate the exterior of the building with an image of nature by placing a single recessed fixture at the base of each tree and focusing (angling or aiming) the lights upward through the branches of the trees, toward the building façade.

When looking at the exterior of a store, often there are a number of display windows presenting items being sold. These displays often use professional designers to ensure that the objects are alluring. When designing a window display, the best possible angles of light are used, color is carefully chosen, and the intensity of the lighting is strategically planned, seeking clarity without distraction.

Many designs use indirect lighting to create a comfortable interior environment.

To light the store itself, the majority of the units are recessed in the ceilings and, says Fong, "are almost entirely aimed at merchandise. Very few are aimed at the floor. Most of the lighting is bounce light, off the merchandise."¹⁸

A number of stores have sconces on their walls, while other department stores use chandeliers for ambient light. No matter how the light is dispersed throughout a store, the requirements of lighting within an interior retail environment consist of; making all merchandise visible and enticing, encouraging a flow from one area to another, and the items should be represented properly, revealing their correct colors.

¹⁸ Live Design, "A pair of Nike Towns: New venues in Miami and London sport sleek looks", [Internet]; available from http://livedesignonline.com/mag/lighting_pair_niketowns_new/; accessed 24 April 2007.

To promote the movement from one section of a store to another, it is helpful to have well-lit items on the opposite walls, encouraging customers to cross from item to item. Most customers are likely to avoid dark corners; however, dark corners help disguise 'employee only' sections. Many times it is useful to vary intensities of light and fixture types throughout a store, in order to create a feeling of movement and change.

It is important that lighting throughout a store shows the intended color of items being sold. If a customer purchases a new black dress, steps outside into sunlight, and the dress then appears navy blue instead of black, the customer would be likely to walk back into the store, return the dress, and not purchase anything else that day.

Lastly, just as in museums, lighting in retail stores must be flexible. Most department stores shift inventory bi-weekly as new stock arrives. This constant change lends itself to track lighting which allows for simple adjustments in focus, saving time and money.

Many theatrically trained lighting designers have been able to make a seamless transition from theatre design into design for retail. With the competitive nature of retail, stores will continue looking for new ways to attract

customers, creating opportunities for professional lighting designers to enter the retail industry.

CHAPTER 5: RESTAURANTS

Many modern restaurants are themed. Some have a fifties diner façade, some are similar to walking into a rainforest, while others may be representative of Italy, Cuba, or Japan. To create a believable world separate from everyday life, designers are employed to produce a fitting ambiance while keeping a comfortable environment for customers to enjoy a good meal.

[In restaurants,]...choices are no longer limited to seats under a hot spotlight, or candlelit alcoves so dark that diners have to fumble for the first course. A wonderful sense of theatre has been thrown into the mix, and the result is restaurants that don't sacrifice good lighting for good looks.¹⁹

When the first reference to food establishments, as restaurants, occurred in the 12th century during the Song Dynasty in Hangzhou, China, there was little attention given to lighting, other than simple illumination. And it was not until 1782, when the Grand Taverne de Londres opened in France, that the convention of sitting at tables and ordering individual portions from a menu was developed.

Restaurants did not really become commonplace until after the French Revolution forced many unemployed cooks of the French aristocracy to start their

¹⁹ Randall Whitehead, *Lighting Design Sourcebook*, (Gloucester: Rockport Publishers, 2002), 162.

own establishments. By 1794, restaurants spread to the United States of America, with the first one opening in Boston. During this time, the lighting in restaurants for anything other than simple functionality was unexplored and it wasn't until the beginning of the 20th century that lighting became more involved.

One of the earliest themed restaurants was Trader Vic's. "Its South Pacific theme intrigues everyone. You think of beaches and moonlight and pretty girls. It is complete escape."²⁰ With its tiki torches, vivid colors and invention of the mai tai garnished with mini umbrellas, Trader Vic's was one of the first to adopt theatrical lighting. The popularity of themed restaurants increases the demand for professionally trained lighting designers. As in retail stores, an inviting well-lit entryway, with an easy to read sign could determine whether to stop, or keep walking.

There are many ways to encourage passers-by to notice a restaurant. Krispy Kreme Doughnuts has designed its main entrance to be noticeable. On either side of its arch there are recessed lighting fixtures placed in the ground, shining up. These fixtures have been designed to scroll through a number of colors. Additionally, a neon sign letting customers know of the availability of 'hot doughnuts now' is used.

²⁰ Trader Vic's: "About the Trader", [Internet]; available from <http://www.tradervics.com/about-0.html>; accessed 29 March 2007.

In contrast, restaurants like Hudson's on the Bend in Austin, Texas, well known for its unique and elegant cuisine, have much more refined exteriors. Driving down Highway 620 in Austin, Texas, a quaint hill country stone house can be seen. The house has miniature white lights strung from trees and a beautifully painted sign lit with a warm amber glow guiding you to the restaurant. Looking into the bay windows that encompass the front of the house, each table is garnished with a candle and the room has a soft warm atmosphere.

Accent lighting is used within restaurants to create a comfortably illuminated space with enough foot candles to circumvent hazards. Many restaurants use indirect lighting focused at the ceiling, helping to create a soft glow throughout the space. Architects and lighting designers work together to accommodate cove lighting, where a false ledge is built into the ceiling creating a space to hide light sources from the customers' view. When remodeling preexisting structures, cove lighting may be less practical, therefore, large glass, metal or ceramic shades can be used to create a similar effect. Designing light to fill a room indirectly reduces harsh shadows and blinding shafts of light. Indirect fill lighting can help create atmosphere throughout a restaurant but individualized lighting creates more intimate spaces for each table. A further feeling of intimacy is often achieved by placing tabletop lamps, candles, or suspended pendant lights at each seating station.

At Benihana restaurants, people are preparing food directly in front of the customers. The chefs are well lit, while the atmosphere of the room remains soft and warm. Lighting is designed to give the chefs full illumination, helping avoid danger, while at the same time making the food look appealing.

Another important aspect of many restaurants is the bar, where greater theatrical liberties are often taken. There may be vibrant blue light creeping up from under the shelves where the bottles of liquor are displayed as if they are floating on water. Pendant lights made with beautiful red and blue blown glass, hang just out of reach. There are many options when lighting a bar but one of the common trends today is the appearance of light coming from unexpected places, creating a theatrical feel.

Restaurants have become much more theatrical.

“In June 2001 Montreal welcomed a new addition to its nightlife scene: Newtown, with a lounge, fine restaurant, and dance club on different levels...Owner Jacques Villeneuve wanted his establishment to stand out from the crowd, and chose Francois Roupinian to design the lighting for all the spaces. ‘The owner saw some of my work that I did in theatre...’ Roupinian says.”²¹

These kinds of entertainment dining experiences offer evidence that opportunities are developing for theatrically trained lighting designers within the themed restaurant industry.

²¹ Amy L. Slingerland, “Newtown,” *Lighting Dimensions Magazine*, March 2002, 24.

CHAPTER 6: THEME PARKS

Theme parks are a collection and culmination of most every form of themed entertainment. Within theme parks; concerts are performed, museums exist and there are hundreds of retail stores and themed restaurants. SeaWorld parks are a cross between theme parks and zoos, just as the Animal Kingdom at Disney World in Orlando, Florida is a zoo that is also a theme park.

Walt Disney Company, Universal Studios Inc., Warner Brothers Entertainment Inc., and Six Flags Inc. are some of the biggest names in the themed entertainment industry. Parks supported by these companies rely on widely recognized cultural icons to impart specific associations in the minds of their patrons, as they try to create inviting, exciting, and magical worlds. Themed entertainment has opened its doors to theatrically trained professional lighting designers, precisely because the whole park is one giant theater complex. From the stores and restaurants, to the rides, theatrical lighting enhances the total experience; including traditional shows that perform daily. These shows may be performed in traditional theatre spaces or may be in the streets of the park.

Imagine riding on the first rollercoaster to have decorative lighting. The ride consists of a simple sled passing by colored lanterns as snowflakes reflect their flicking glow. This ride might not impress today's generations, but was a

marvel in its time. This was in St. Petersburg Russia, in the mid 1800s, well before electric lights illuminated rollercoasters.

During the 16th and 17th centuries, “pleasure gardens” were built throughout Europe. These were the first permanent settings designated specifically for outdoor entertainment. Attractions included fountains, flower gardens, bowling, games, music, dance, staged spectacles and a few primitive rides. In 1650, large ice slides, supported by heavy timbers, became popular as a diversion from the cold Russian winters. In St. Petersburg, small wooden sleds used iron runners to glide down hills. This simple idea is the forerunner to the modern rollercoaster.

Opening in 1875, Coney Island, New York quickly became very popular. Coney Island had a variety of entertainment, including; cabaret entertainment, vaudeville acts, melodramas, fortune tellers, games, and rides. In 1884, LaMarcus A. Thompson introduced his Switchback Gravity Pleasure Railway to Coney Island. This device is considered the first true rollercoaster in America. When the 19th century flowed into the 20th century, electricity became more accessible and wide spread. As one of the first locations to take advantage of electricity Luna Park in Coney Island influenced the evolution of today’s theme parks.

When Luna Park opened on May 16, 1903, it was unlike anything anyone had ever seen... The lines, colors, and shapes were constantly changing. Rather than the usual center tower, there were spires and minarets everywhere... By 1907 Luna Park employed some 1,700 people and was illuminated by 1,300,000 electric lights, at a cost of \$5,600 a week.²²

By 1910 there were more than 2000 amusement parks operating in the United States. By the 1920's, some cities had as many as six amusement parks. Unfortunately, the Great Depression and World War II created a significant decline in the development of new parks and also forced a number of established parks to close their doors.

In 1955, Disneyland in Anaheim, California opened its doors to guests, at a cost of seventeen million dollars (that would be more than two hundred million dollars today). Disneyland was the most expensive amusement park built of its time. Despite initial skepticism, it enjoyed immediate success and drew 3.8 million people during its first season. In 1961, Six Flags Over Texas opened as the first regional amusement park. As more corporations opened large themed amusement parks, smaller family owned parks were forced to close. When Canada's Wonderland opened in Toronto in 1981, experts considered the

²² Public Broadcasting System, "Luna Park Opens", Coney Island [Internet]; available from <http://www.pbs.org/wgbh/amex/coney/peoplevents/pande09.html>; accessed 26 November 2006.

amusement park market to be saturated. This was proven wrong when in 1988, SeaWorld opened in San Antonio, Texas.

Currently, the amusement park industry is building faster roller coasters, more daring rides, and more spectacular shows. This desire for newer and larger “compelling places and experiences”²³ has led amusement park executives to employ more creative professional designers. The demand for these designers has allowed formally trained theatrical lighting designers to become an essential part of many theme park design teams.

When entering an amusement park, guests experience a world outside their everyday life. They might see colorfully painted building and shops, or cartoon characters mingling with guests. Lighting is used to help create this magical world. Lighting assists in directing the guests toward important areas of the park and away from the elements that should remain hidden. For example, large buildings encase dark rides. A dark ride is an attraction that takes place in an indoor environment. Examples include; Disney’s *It’s a Small World* and *Pirates of the Caribbean*, and Universal Studios’ *Spiderman* and *Revenge of the Mummy*. The buildings that encase these rides need to disappear into the background of the park ensuring that the details of each ride’s shape and size

²³ Themed Entertainment Association, 1.

remain a surprise to guests. It is part of the lighting designer's responsibility to aid in this illusion.

When working with light in an open air, outdoor setting, the ambient light from the park and daylight potentially hinder lighting special effects. These obstacles are avoided when the attraction is completely enclosed inside a structure. Dark rides are among the larger opportunities for a theme park lighting designer. Lighting designers are responsible for designing the queue, pre-ride, the ride itself, and finally the exit. Each element needs specificity and a detailed design.

The queue into an attraction is incredibly important. It is necessary to create a queue that moves quickly, or at a minimum has the illusion of movement. The guests need to be given interesting distractions while they are waiting and the tone of the attraction is established at the beginning of the queue. The queue leading into *Indiana Jones Adventure* at Disneyland is a maze of forest and caves setting the mood for the adventure to follow. The path is lit with torches leaving mysterious shadows on the walls of the caves. Guests are allowed to peer into dimly lit rooms, sometimes filled with skeletons. All of these elements help distract the guests while waiting in line for the ride.

Once the guest is through the queue, lighting must help enhance the introductory experience into the ride. This introduction is often referred to as the

preride or preshow. For example, as guests reach the end of the queue into the *Tower of Terror* at Disneyland, they enter the lobby of an old hotel. The lobby has glowing wall sconces, chandeliers with flickering candelabras, and broken patterns of light as if shining from cracked windows. All of these effects have been designed to enhance the guest's experience, setting the tone for the ride. In the *Tower of Terror* attraction, preshow continues into a private library where the design team has created an interesting method to give background and safety information to the guests. While in this library, the illusion of a major storm begins to form outside. There are blinding flashes of lightning and a moment where all electricity seems to be severed from the building. Once the indoctrination is complete the guests are ready to move to the ride.

After the guests are strapped into the rollercoaster car at *Space Mountain* in Disneyland, the car shoots off entering the illusion of outer space. The stars are simple specks of light. Without lighting, the effect of *Space Mountain* would be greatly reduced. A similarity that most dark rides share is that these rides often exist in a much smaller space than the ride appears to have. There may be only a few feet of clearance from one part of a track to another. It is essential to keep the illusion of traveling great distances in a ride like *Space Mountain*, even though the actual space traveled is minimal. In a small enclosed space every tiny ray of lighting is critical and the lighting designer must be meticulous with where

and how the lighting is positioned, revealing what is necessary and keeping all other elements hidden.

It is necessary to design the exit as interestingly as the entrance. This final touch helps keep the illusion alive, leaving the guests with a lasting impression of the attraction, while allowing guests' eyes to adjust to the bright daylight. An example of an effectively designed exit is at the *Indiana Jones Adventure* attraction. The design team has the guests exit in a similar manner as they entered. As the guests complete their travels through dark and treacherous caves they disembark the ride, where they are guided onto a path making their way through a dimly lit corridor until in the distance they see a glow of daylight at the end of the tunnel.

If children today could ride on the original *It's a Small World* attraction at Disneyworld, (which inspired and touched our hearts and our parents hearts), they might simply be bored, asking for *Pirates of the Caribbean* or *Spiderman*. As a result, the theme park industry is always interested in employing talented designers who are on the leading edge of entertainment and technology.

The similarities between theme park lighting design and traditional theatre lighting design are numerous. As these industries advance the connections between them will continue to grow. What is most important is the demand for creativity, creation and realization of ideas. Theatre designers have been asked to

create tornados on stage, turn humans into cats and lions, and create the impression of an entire day passing by in a matter of minutes. These illusions are built the same way, be it on a traditional stage or in a dark ride. It is this continuity that allows formally trained lighting designers to make an easy transition into the amusement park industry.

The goal of every new design, as stated in the handbook for the Themed Entertainment Association is; "...each project endeavors to be, in some way, unique and unlike anything that has been done before".²⁴ This design goal is easily in reach of the theatrically trained lighting designer as a designer for the stage easily transitions to design for themed entertainment.

²⁴ Themed Entertainment Association, 1.

CHAPTER 7: EXAMPLES OF DESIGNERS FOR THEMED ENTERTAINMENT

The concept of theatrically trained lighting designers working outside of the theatre is not new. There are many lighting designers branching out and working in themed entertainment. Most are working in many of the disciplines previously discussed. Ken Billington, Jules Fisher, Ted Mather and Ann Militello are four examples of professional theatre designers who expand their portfolios to incorporate themed entertainment designs.

Ken Billington

Ken Billington, a traditional theatre lighting designer, has forged a path into themed entertainment. He has over 80 Broadway credits that include a Tony Award and six nominations. He has worked with the Radio City Music Hall's Christmas Spectacular for the past twenty three years. Currently (2007), he can be found working at the Fox Theatre in Atlanta Georgia designing lights for the new Disney production of *High School Musical*. He is also credited with designing Disneyland's Nighttime Extravaganza *Fantasmic!*, and *The Poseidon adventure: KB Associates voyages to SeaWorld for a Journey to Atlantis*, at

SeaWorld, Orlando Florida. “Billington is equally at home designing theatre, television, opera, concerts, and architectural lighting.”²⁵

Jules Fisher

Jules Fisher holds the record for Tony nominations and Tony awards in lighting design, with eighteen nominations and eight wins. Mr. Fisher has designed over 200 Broadway and off Broadway productions, while designing many concerts including; Whitney Houston, Kiss, Simon and Garfunkel, David Bowie, the Rolling Stones and many more. Some of his film credits include; *The Birdcage* (1996), *Chicago* (2002), and *The Producers* (2005). Jules Fisher is one of the principles for Fisher Dachs Associates. This company was built to offer services in theatre planning, design and consulting for performance and entertainment projects. The company was built by theatrically trained designers who have recognized the demand for theatre designers in and out of traditional theatre and dance.

²⁵Live Design, “Meet Ken Billington”, [Internet], available from http://livedesignonline.com/news/show_business_meet_ken_billington; accessed on 14 March 2007.

Ted Mather

Ted Mather started a company that recognizes the demand for theatre designers outside of traditional theatre and dance. When visiting his website (<http://www.tml.d.net>), we learn that “the firm specializes in integrated theatrical and entertainment architectural lighting design services to museums, exhibit designers, architects, and owners.”²⁶ Mr. Mather has worked on over 15 Broadway musicals and plays. His project credits included; the Nike store in New York, and the Mirage Volcano in Las Vegas. With a BFA and MFA in theatre lighting design he is taking advantage of the numerous opportunities that exist outside of traditional theatre and dance.

Ann Militello

Ann Militello is an example of a theatrically trained lighting designer who has expanded her horizons. She is the founder of Vortex Lighting, located in Hollywood California. She has designed on and off Broadway, worked in many regional theatres, opera houses and with numerous dance companies. While

²⁶ Ted Mather Lighting Design [Internet], available from <http://www.tml.d.net/>; accessed 14 March 2007.

attaining recognition as a major contributor to theatre lighting design she also, designed; *The Amazing Adventures of Spider-Man* at Universal's Island of Adventure, Orlando, Florida. She has worked as a Disney Imagineer, designing *Mickey's Toontown*, and *Roger Rabbit Cartoon Spin* at Disneyland, Anaheim, California. Ms. Militello has designed concerts and tours including; the Pearl Jam Binaural Tour, The Gin Blossoms and the Philip Glass Isamu Nogucci Museum. She has also designed a number of music videos and special events including "The Big Turn On" (the unveiling of the new 42nd street façade in Times Square New York).

CONCLUSION

In the previous chapters examples of themed entertainment are summarized. These examples are only a few of the innumerable venues and opportunities outside of traditional theatre and dance that are available to formally trained theatrical lighting designers. After a considerable number of personal interviews, discussions and extensive research within the themed entertainment industry, it has become abundantly clear that the demand for theatrically trained lighting designers is evolving.

Top executives from Universal Studios and major lighting companies, lead designers from Walt Disney Imagineering, and architectural lighting designers, all confirm the value and desirability of formally trained designers within the themed entertainment industry. The ability to create theatrical magic, with positive attitudes and professionalism, are some of the more coveted characteristics themed entertainment executives appreciate in theatre designers. An example of appreciation for formal training was exemplified, when students from The University of Texas at Austin presented a project to Universal Studios in California. The class, 'Design for Themed Entertainment', had students fully design an original theme park attraction. Upon the completion of their design, they traveled to Universal Studios and pitched their work to creative executives, designers and engineers. At the end of the presentation, the top executive in the

room was astonished with the students' level of competency, creativity, and professionalism. They exceeded all expectations and in fact, surpassed the quality of many professional presentations he had attended in the past.

When examining the themed entertainment industry as a whole, the list of opportunities for designers is extensive. Beyond the aforementioned industries discussed in this report themed entertainment includes: hotels, cruise ships, television programs, films, music videos, animation projects, parades, corporate events, industrial events, product premiers, conventions, conferences, circus productions, cityscapes, landscapes, architecture, religious venues, aquatic presentations, casinos, award shows, parties, weddings, installation art, and numerous others. There are, in all probability, tens of thousands of themed entertainment venues around the world that at any given time are utilizing the skills of theatrically trained lighting designers. Ken Billington, Jules Fisher, Ann Malitello, and Ted Mather are just four prominent designers of the many who are working in the themed entertainment industry.

As mentioned in chapter three, there are over 17,500 museums in the United States of America, alone. There are over 935,000 restaurants in the USA and approximately eight million worldwide. The hotel industry consists of numbers exceeding 47,590 in the USA and over 300,000 worldwide.

These statistics, that give the sheer number of venues available to designers, is phenomenal but the themed entertainment industry is also expanding. “Attendance at America’s approximately 600 parks and attractions has increased every year during recent times, except in 1994 & 2003 due to very cold, very wet summers and in 1998 due, again, to some poor weather and fewer visitors from Asia.”²⁷ This growth in themed entertainment does not stop with theme parks. “The total number of films released continued to increase in 2006 with 607 films released. This is an 11% increase over 2005's 549 films.”²⁸ Therefore, both the amusement park and film industries are growing, helping to create more opportunities for designers.

Extensive knowledge bases, professionalism, creativity, and positive attitudes associated with theatrical trained designers are desirable qualities that themed entertainment companies look for in their employees. In conclusion, there are innumerable opportunities for theatrically trained lighting designers within the large and growing themed entertainment industries.

²⁷ International Association of Amusement Parks and Attractions [Internet], available from <http://www.iaapa.org/modules/News/index.cfm?fuseaction=Details&mtid=3&iid=1051>; accessed 1 April 2007.

²⁸ Motion Picture Association of America, “Research and Statistics” [Internet], available from <http://www.mpa.org/researchStatistics.asp>; accessed 1 April 2007.

BIBLIOGRAPHY

- “A Pair of NikeTowns: New Venues in Miami and London Sport Sleek Looks.”
Live Design [Internet]. Available from
http://livedesignonline.com/mag/lighting_pair_niketowns_new/. Accessed
24 April 2007.
- American Hotel & Lodging Association. “2006 Lodging Industry Profile
[Internet]. Available from
http://www.ahla.com/products_info_center_lip.asp. 1 April 2007.
- Clapton, Eric and Will Jennings, “Tears in Heaven” [Internet]. Available from
<http://www.eric-clapton.co.uk/ecla/lyrics/tears-in-heaven.html>. Accessed
4 March 2007.
- Concert, *Dictionary.com Unabridged (v1.1)* [Internet]. Available from
<http://dictionary.reference.com/browse/concert>. Accessed 3 March 2007.
- DMOZ Open Directory Project, Casinos. Available from
http://dmoz.org/Games/Gambling/Casinos/By_Location/North_America/.
Accessed 1 April 2007.
- Eddy Michael S. “Fish Tales, Lighting and Projections at the Georgia Aquarium.”
Live Design Magazine, May 2006, 36-41.
- Flynn, John E. and Samuel M. Mills, *Architectural Lighting Graphics*. New
York: Reinhold Publishing Co., 1962.

“FX Magazine Congratulates The Lighting Design Award’s 2007 Designer of the Year, Mark Major of Speirs and Major Associates.” FX Magazine [Internet]. Available from <http://www.fxmagazine.co.uk/story.asp?sectioncode=9&storycode=1347&navcode=199>. Accessed 25 April 2007.

Gorman, Jean, *Detailing Lighting: Integrated Lighting Solutions for Residential and Contract Design*. New York: Whitney Library, 1995.

Harrods, “Harrods, A Kind of Magic” [Internet]. Available from <http://www.harrods.com/Cultures/en-GB/History/history04.html>. Accessed on 28 March 2007.

International Association of Amusement Parks and Attractions [Internet]. Available from <http://www.iaapa.org/modules/News/index.cfm?fuseaction=Details&mtid=3&iid=1051>. Accessed 1 April 2007.

Jankowski, Wanda, *Creative Lighting: Custom and Decorative Luminaires*. New York: PBC International Inc., 1997.

Jankowski, Wanda, *The Best of Lighting Design*. New York: PBC International Inc., 1987.

Kaplan, Michael, *Theme Restaurants*. New York: PBC International Inc., 1997.

Kostof, Spiro, *A History of Architecture: Settings and Rituals*. New York: Oxford University Press, 1995.

Le Corbusier, “The Chapel of Notre Dame du Haut” [Internet]. Available from http://www.itgsecchi.it/archivio%20progetti/AS%2002-03/strasburgo/chapelle_ronchamp.htm. Accessed 13 March 2007.

Le Corbusier, *Towards a New Architecture*, 13ed, trans. Frederick Etchells. New York: Dover Publications, 1986.

“Lighting Gets its Day in the Sun.” Retail Traffic [Internet]. Available from http://retailtrafficmag.com/design/interiors/retail_lighting_gets_day/. Accessed 25 April 2007.

Live Design, “Meet Ken Billington” [Internet]. Available from http://livedesignonline.com/news/show_business_meet_ken_billington. Accessed on 14 March 2007.

Marling, Karal Ann, ed., *Designing Disney’s Theme Parks: The Architecture of Reassurance*. New York: Flammarion, 1997.

McHugh, Catherine. “Revisiting the Motherland: Jason Boyd Sees American with Natalie Merchant.” *Lighting Dimensions*, March 2002, 46-51.

McKennon, Joe, *A Pictorial History of the American Carnival*. Vol.1. Sarasota: Carnival Publishers, 1971.

Moody, J.L., *Concert Lighting: Techniques, Art and Business*, 2nd ed. Oxford: Focal Press, 1998.

Motion Picture Association of America, “Research and Statistics” [Internet]. Available from <http://www.mpa.org/researchStatistics.asp>. Accessed 1 April 2007.

“Museum Lighting: How Do We Do IT.” Smithsonian American Art Museum, Eye Level [Internet]. Available from http://eyelevel.si.edu/2006/07/museum_lighting.html. Accessed 25 April 2007.

National Restaurant Association. "About the National Restaurant Association [Internet]. Available from <http://www.restaurant.org/aboutus/>. Accessed 1 April 2007.

Public Broadcasting System, "Luna Park Opens", Coney Island [Internet]. Available from <http://www.pbs.org/wgbh/amex/coney/peoplevents/pande09.html>. Accessed 26 November 2006.

"Sea World Launches 'Believe', the Most Ambitious Killer Whale Show in Park's History." [Internet]. Available from www.buschgardens.com/SWF/ftp_press_release_articles. Accessed 4 March 2007

Slingerland, Amy L. "Newtown." *Lighting Dimensions Magazine*, March 2002, 24-26.

Ted Mather Lighting Design [Internet]. Available from <http://www.tmltd.net/>. Accessed 14 March 2007.

Themed Entertainment Association, *Project Development Guidelines for the Themed Entertainment Industry*, 2nd ed. Burbank: Themed Entertainment Association, 1999.

Trader Vic's: "About the Trader" [Internet]. Available from <http://www.tradervics.com/about-0.html>. Accessed 29 March 2007.

Turner, Janet. *Lighting*. London: B.T. Batsford Ltd., 1994.

Whitehead, Randall, *Lighting Design Sourcebook*. Gloucester: Rockport Publishers, 2002.

Wylson, Anthony and Patricia, *Theme Parks, Leisure Centres, Zoos and Aquaria*.
Harlow: Longman Group UK, 1994.

The vita has been removed from the reformatted version of this document.