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In Pursuit of Liveness

Interactive Lighting Design for the Theatre

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the degree of Master of Science Interactive Digital Media

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Summary

This paper questions if the development of technology in stage lighting design has resulted in a loss of liveness inherently present in the medium of light before automation and computerisation. To investigate this question, I have looked in detail at the history of lighting design and technology from the age of the outdoor Greek and Roman amphitheatre, to the present day. I pay particular emphasis on the work of Adolf Appia and Edward Gordon Craig, as innovators in using the medium of light as an artistic medium in its own right. I explore the term liveness, using the debate put forth by Peggy Phelan and Philip Auslander as discussed in Matthew Causey’s Theatre and Performance in Digital Culture. I then study some examples of live performances that have used interactive systems either as another character in the play, or as a method for altering the space around the performance. The chapter on Lessness, questions how interactive elements could be used in a production I have been involved in. Olwen Fouéré very generously gave her time to talk about the motivations behind her choices in this production. This interview also gave me invaluable insight into a performer’s relationship with technology and design, and altered my thinking considerably. In the next chapter, I take Olwen’s comments and integrate them into questions about what constitutes a live performance, whether the audience needs to be in the same place as the performer, where the performer is found in a world of technology. In conclusion, I discover that to achieve a liveness in lighting design, it is necessary to both embrace the current technology, but also discover new ways for the humans to interact with it in a more rewarding way.
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In Pursuit of Liveness

Interactive Lighting Design for the Theatre

Introduction

“Light is the soul of the stage.” Exclaimed Adolf Appia in his introduction to Texts on Theatre. The origin of lighting design can be traced as far back as the Greek and Roman amphitheatres, which took their orientation from the sun. When theatre moved inside, first candles and oil, then gas and eventually electricity were harnessed to light the stage. Light became an interactive part of live performance through the work of Appia. He thought that it should, like the actor, become active. Before Appia, light was largely functional, and primarily used to light 2D painted scenery. Appia fought to “...give light its freedom.” He abhorred footlights, a common practice to light the stage and the scenery. Footlights distorted facial expressions, but in Appia’s view if the lighting did not serve the drama, the actor had no reason to pay attention to the lights. Appia considered lighting to be more expressive than the static painted scenery, he likened it to music, and the creator as musician. This revolutionary thinking saw him use lighting in live performances like never before. It became truly interactive.

Edward Gordon Craig also contributed to the development of light as a dynamic living medium. He did not think of light and colour as a means towards naturalist description, but as contributions to the dramatic expression. He used lighting changes dynamically, as in his production of Much Ado About Nothing. “The lighting was not simply switched on and left at that, but used to reveal the dramatic setting by degrees.” His set designs were transformed with light. His model theatre ‘The Screens’ were made of solid 3D structures. “The scene would come to life, and attain its full expressive power, through light. The light travelled over it, animating it, creating atmosphere and transforming it.” He also used light as a character in his production of Bethlehem. “When Mary drew the coverings from the cradle, there was no doll inside to represent the baby Jesus, but light streamed up from its depths into the faces of those gathered round it.” To use light, something that

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1 Beacham, Richard C., 1993, p 5.
3 Beacham, Richard C., 1993, p 60.
5 Babet, Denis, 1966, p 126.
6 Babet, Denis, 1966, p 54.
had up until then been purely functionally, to now represent the Lord Jesus Christ, was a huge development for the light as an artistic medium. This began the journey of light becoming an interactive part of live performance.

Outdoor performances are at the mercy of the weather, the lighting conditions shift minute by minute. Productions lit by candle light, oil and gas have constant movement, the light bends and shifts with every move the performers make. Limelight is heaved into life as human operators rock back and forth on bladders of gas. Appia and Craig’s creative visions drove innovation forward. With the electrification of theatres in the 20th century, resistance dimmers took over from the wicks of candles and oil lamps, and the valves of gas lamps. Early electrical dimmers were manually operated, and each change was vulnerable to human error. The digitising of lighting is when the artform really started to change. There are many positives to digital control and computer automation, and at first look these positives far outweighed the negatives. However, on closer inspection it is possible to consider that innovation in creation and control of lighting design have trapped the medium, and divested it of its ‘liveness’.

This research paper sets out to recognise the moment when light broke free and became a medium to dynamically interact with. It then explores how innovations in technology, admittedly mainly positive, have resulted in a loss of the ‘live’ quality of light. It looks at past works exploring interactive technologies in live performance, and considers if this work can return the ‘liveness’ to light. Finally I use Olwen Fouéré’s most recent performance of Beckett’s Lessness to explore the potential and failings of an interactive lighting system, and to ask of her experience as a performer interacting with technology.
Chapter 1. A brief history of Lighting Design in the Theatre.

Lighting design in the theatre today is a powerful tool. It can convey many things, from where and when the action is taking place, to what genre the story belongs to, and can even alter the mood of the scene. Throughout history, lighting has influenced the very performance style of the actors. For today’s audience, so used to watching drama unfold on a screen, lighting tells them where to look onstage. For example whether to look at the stage in a wide shot or a close up shot. The dynamic shifts in lighting design in a live event are as powerful as the art of editing. The suspension of disbelief a theatre audience brings with them allows the art of lighting design to become more abstracted when appropriate. Lighting design has always been present in live events, and has often been responsible for many of the characteristics we associate with different eras of theatrical performance.

This chapter takes us quickly through a history of lighting design from the Greeks and Romans to where we are now. Throughout this chapter I shall be highlighting methods and innovations that continue to develop lighting design, whilst simultaneously beginning to reign in its ‘liveness’.

*Fig. 1: Odeon of Herodes Atticus in Athens*
In the time of the amphitheatre, the Greeks would specifically write and produce their plays so they could use natural light. They would stage the plays at a time of day that made sense to the story. Often they would hold very long intervals of two to three hours to allow the sun to set for the second act. The constant movement of the Earth and the ever changing seasons meant that light was continually moving and changing. However in an amphitheatre of 25,000 people lit by natural light alone, there was no way to tell the audience where to look. Therefore the Greeks used very large gestures and masks of stock characters and emotions to tell the story to the person sitting at the very back.

The Roman’s also used natural light, but they began to put on more plays in the evening. They used candles, oil lamps and torches. They also used a “cresset”, which is a metal basket filled with flammable materials.

*Cresset lamps used in Roman Amphitheatre, circa 1050 AD.*

These lamps were wielded by the actors, creating dramatic effects onstage. This changed the style of theatre with the ability to direct the audience’s attention to specific parts and characters onstage.
In the Medieval and Liturgical era, plays were mainly produced by the church and performed inside. Inside the church was lit with tens, hundreds, up to thousands of flickering candles. These candles were made from tallow, a type of rendered animal fat, and gave off a lot of heat, smoke, and drippings\(^7\). Tallow is a tasteless, odourless, waxy, white fat which can be got from vegetable sources such as cacao, or can be extracted from animal suet such as that derived from cows, horses and sheep. Mutton tallow was very common. It was not a pleasant environment to be in, and so the churches switched to the more expensive beeswax candle. Outside the steps of the church, plays were performed by journeymen in daylight, here the cheaper tallow candles were used for special effects. For example, the Pageant Wagon HellMouth put coloured fabric and different coloured liquids in front of the candles to make effects like the flames of hell.

\(^7\) Rees, Terence, 1978, p 17.
Moving into the Renaissance and Elizabethan Era, theatre became more secular, produced by the common man and moving inside. It primarily relied on chandeliers to light both the auditorium as well as the stage. The chandeliers again used tallow candles, billowing out thick black smoke and dripping wax onto the audience, who were always fully lit. At this time they were not only coming to the theatre to see a play, but to be seen themselves. All manner of food was sold amongst raucous conversation. Amongst the chaos, the chandeliers had to be flown in every twenty to thirty minutes, to allow the snuff boys to reshape the candle, trim the wick and collect the drippings. So for an actor to be heard in this environment, they had to come down stage, as close to the audience as possible, and speak in a loud boisterous voice using exaggerated gestures.

As disordered as it sounds, a number of improvements managed to happen during this era. At this time, the architect would also work as the scenic and lighting designer. Sebastian Serlio, 1475 - c. 1554, is credited with the first written reference of lighting design in the theatre. He talks of three different types of lighting design:

- General lighting for the actors and the audience.
- Lighting for the scenery.
- Lighting to create dynamic shifts.

He also writes about a “Bozze”, the first lighting instrument. It was a candle, with a polished barber’s base positioned as a reflector. The reflector’s purpose was to redistribute light and push it in a particular direction. In front of the bozze was a glass jar that was flat on one side, curved on the other and filled with coloured liquid. We recognise this today as a lens and colour filter.

*A Bozze ca. 17th AD. The curved bottle focuses light, while the contents change the colour of light.*
Nicola Sabbatini, 1574 - 1654 created the first dimming system in this era. A tin can on a pulley system was simply lowered over the candle, covering more and more of the light.

*Cylinders with cords to dim the lights.*

Another architect by the name of Joseph Furtenbach 1591 - 1667, wrote about the four different types of lighting fixtures that were being used, and what purpose they served.

- Glass Oil Lamp, general lighting above the stage.
- Mica Reflector Lamp, positioned in the wings. The reflector was coated with the mineral mica, which pushed the light from the wings onto the stage.
- Leaning Light, used as a footlight, was simply a wedge shaped block of wood with a candle on it, directed towards the actor on stage.
- The Standing Light Box was a box with reflective material inside to light small places.

During the Restoration era, a number of theatrical practitioners helped to increase the use of light as a design field. David Garrick took over as the manager of Drury Lane Theatre in London
around 1765. He removed the disruptive chandeliers, and moved all the sources of light to behind
the proscenium and across the apron. He moved lighting sources closer to the actor, and started to
hide them, giving the audience the suspension of disbelief. Richard Brinsley Sheridan took over as
manager of Drury Lane in 1784. He finished what Garrick had started, and completely masked all
lighting sources from the audiences’ view, thereby making the actor the brightest thing onstage.

Up until the 1790s, theatres were lit exclusively by candles, torches and oil lamps. Around
the 1790’s, William Murdock found a reliable and economic way to use natural gas for lighting. Gas
was installed by running miles and miles of rubber tubing into the building and to the different
lighting fixtures. In between the supply and the fixtures was a contraption called a gas table that
controlled the brightness of the light by adjusting how much gas was given to the fixture. For the first
time, different sections of the stage could be illuminated independently. The auditorium lights began
to dim, and the audience’s attention shifted away from their fellow theatre goers to the action
onstage. By creating a brighter stage, the audience could see the actor and their expressions with
more clarity, and so the style of acting became more natural.

A Drummond Limelight and it’s bladder bag, O for oxygen, H for hydrogen.

Two further improvements happened during this time. In 1825, Richard Drummond created
the Limelight. The Limelight was a lighting instrument that had a cylinder of calcium oxide on one
end, and a flame mixed with equal parts hydrogen and oxygen on the other. Mixing the two together
created a very bright white light, which was often used as a follow spot. While the Limelight was a
steadier light less susceptible to air currents than candles, oil or gas, it still had its own living lungs.
Operators called Linemen would sit on bags and bladders full of the different gases, rocking back and
forth to get the mixture of the flame just right.

The Arc Light was invented in 1809, and seen in theatres in 1846. The Arc Light consisted of
two carbon rods that, when current flowed through them, created an arc of bright, harsh light. These
were used for general lighting and as follow spots. The rods of the light had to be constantly
readjusted, as the arc would burn the rods down. It took a talented operator to get the brightness
level just right.
In around 1878, Sir Henry Irving took over as manager of the Lyceum. He became known as the first lighting designer. He had the idea of changing the scenery in a blackout, a convention we are very familiar with today. He was also the first to plunge the audience into darkness, making them focus on the stage. Limelight gave a greenish light, and gaslighting a greenish yellowish light. Before them, actors were lit with warm candles and oil lamps, tinted in reds and blues. Irving started to use techniques we know today as colour correction, applying thin paints onto the Limelight boxes to change the colour of the lights. He also broke up the lines of gas control, so that different colours of light could be controlled at different levels, utilising colour mixing, as well as creating brighter and darker spots on the stage. This resulted in the first technical rehearsals, which were not needed before now as there were no complex cues. Now with different lines of gas control separating different areas of the stage and the ability to change and mix colours, the operators needed to rehearse. Irving was the first to treat light as a creative and expressive medium.

Selection of lighting devices from 15th - 19th century.

The era of electricity. Joseph Swan came up with the first lightbulb around 1878, Edison followed not long after with another prototype in 1879. Edison is credited with inventing the light bulb but this is not strictly true, what Edison did was invent the first commercially viable light bulb.
The first theatre to use a fully electrical service was the Savoy Theatre in London around 1881. The entire theatre was lit with 1,200 Swan bulbs. The first performances to use this electrical system were a series of performances by Gilbert and Sullivan. There were a lot of technical issues during the first performances. The light bulbs worked, but the infrastructure was not there yet. The power supply could not handle the load, so throughout the performance the lights rose and fell and rose and fell.

The electric light created a lot of changes. It was the first static source. No longer an undulating flame of candle and gas light, no more dancing shadows and dancing light. There was less heat, no fumes, it could be controlled easily with less operators. By 1907, the first 500w light bulb was invented. In 1913, they invented the 1000 Watt bulb, The Fresnel, the first ellipsoidal reflector spot light was created in 1920. The Parcan was created around 1940 (my favourite lamp!).

Control of the lights and how we cue them for the stage is one of the biggest innovations that happened within the 20th Century. One of the first ways to control lighting was a saltwater dimmer. Vats of saltwater that had electrical contact on the bottom. As the contacts became closer to each other the light got brighter, using saltwater as a form of resistance. Water and electricity don’t mix very well, it also took a lot of work to keep the water filled in the vats, and to keep the mixture of salts just right. These dimmers also produced gas that was harmful to the operators.

This mode of control was unreliable. No two performances ever looked the same. The next type of control was called a resistance board or a piano board. Instead of using water to increase the resistance they used different coils placed between the power feed and the lamp itself. But these dimmers were very hot and very loud, they were often placed far off stage, so the operator couldn’t see what they were doing on stage. The next innovation was called an autotransformer dimmer. Rather than shifting the resistance this dimmer used coils to change the voltage going to the light. The saltwater dimmer, the resistance dimmer and the autotransformer dimmer were all examples of direct control. It wasn’t until World War II that it became possible to use remote control operation. One of the inventions that led to being able to use this remote control dimming was the invention of the thyatron dimmer, which basically works by turning the electrical signal on and off very fast. This creation made dimmers much smaller, and it was at this point that the lighting operator was able to move to the back of the auditorium and actually see the changes they were making onstage. This dramatically changed the nuance of lighting cues by helpfully being able to see what was happening in real time!
Strand light console, circa 1950.

When it comes to control, the first lighting boards were manual, with no way to store information. Some of the lighting boards that came out looked like an organ that could be played. It is worth spending some time exploring Fred Bentham’s Strand Light Console, in use from 1932. It was designed and operated based on the Wurlitzer Organ; a specially made church organ which remotely controlled banks of resistance dimmers connected to constant-speed motor driver shafts via magnetic clutches. This desk changed the method of lighting control from a complex on-stage mechanical device to a remote control located where the operator could actually see what was being lit. The Strand Light Console allowed the operator to control many elaborate lighting changes, slow and fast, without delays in between. The operator was in full view of the stage, and could react immediately to the action. “An experienced console operator quickly learns to think of his lighting instinctively in terms of the console controls, and consequently operation becomes second nature like driving a car. Lighting is no sooner thought of that it is translated into fact upon the stage, and the operator can see it.”

The first time a full computer control board was used, it was for the 1975 production of Chorus Line on Broadway. The designer Tharon Musser requested use of the board. Chorus Line at the time used 96 dimmers, and was considered a huge show. One advantage of the computer board is that rather than having to manually set every cue for every single performance, you can set the cues once during tech and the computer board saves the cue in it’s memory. The lighting design becomes the same night after night. The era of automation had begun.

There are many pros to automation in the theatre. Absolute control of levels, speed and direction. “Theatre automation allows us to do with motors and control what we are unable to do

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8 Bentham, Fred, 1976.
physically.” Mark Ager defines automation as: “The technique of making an apparatus, a process, or a system operate automatically by mechanical devices, replacing human labour.” But it is the replacement of the human which sits at odds with the ‘liveness’ of the theatre. How can a pre-programmed computer react to a live performer, who brings to the stage each night a unique, nuanced performance for a different audience each time?

The Digital Age

In the 1980’s lighting moved from analog to digital, and the unification of communication protocol Digital Multiplex one of the most important developments in lighting control. Dimmers went from being *played* to being *fired.*

As technology developed, it became necessary to employ automation. There are many arguments for automation:

- High level of control.
- Absolute control of speed.
- The ability to accurately position moving scenery or performers.
- The ability to preprogram show cues so that the same move can be performed repeatedly.

But this last point in favour of automation antagonises the concept of ‘liveness.’ In Peggy Phelan’s *Unmarked,* she states that; “Performance is defined through its non-reproducibility. The nature of performance deteriorates as it is enfolded in technological reproducibility.” Philip Auslander counters that the liveness is an “artifact of mediatization” and that because of this state “live does not precede the mediatized and cannot claim superiority because it came first.”

In Matthew Causey’s *Theatre and Performance in Digital Culture,* he explores how technology has impacted on the concept of ‘liveness’. Causey disputes Phelan, and suggests that the ontology of the performance, its ‘liveness’ which exists before and after mediatization, has been altered within the space of technology. The Now, the Immediate, is changed by its relation with technology. He allows that the mechanics of illusion in theatre have been fundamentally altered in the rise of virtual representation. The actor has become a body in an artificial space, extended, challenged and reconfigured by technology. Performance has also been extended, challenged and reconfigured and has taken on the ontology of the technological.

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9 Neville, Tom in Ager, Mark & Hastie, John, 2008, p 29.  
10 Ager, Mark & Hastie, John, 2008, p 27.  
12 Auslander, Philip, 2008, p 11.
This artificial space, according to Appia, is a space not intended for the actor. By his reasoning, if the space is not intended for the actor, they should not be expected to interact with it. Virtual representation can be extended to include the intelligent lighting systems we see today in most venues.

We have reached a point today when it is rare to encounter a venue that doesn’t have intelligent lighting such as moving lights, LED technology or media servers. This equipment requires computers and automation to reach its full potential, but in reaching these heights have we lost the liveness of theatre? Has lighting design lost the liveness that is so essential to live performance? Without liveness, David Z. Saltz argues, theatre has no reason to exist.13

With the increased use of interactive elements in theatre and live performance, the essence of ‘liveness’ has the potential to return. Saltz believes that live performance is inherently interactive. By this reasoning, any technology in live performance needs to be interactive also. Saltz considers most technology used in live performance to be linear media, and he uses this term to distinguish his work with interactive media. He considers interactive technology as giving us the ability to create new kinds of instruments, to be able to ‘play’ once more.

Work has begun on exploring methods to make lighting design an interactive process. Exploring Stage Lighting Design using Visual Objectives (Shimizu et al.), admits that in comparison to other interactive mediums, lighting design tools are primitive. Considering lighting design is an abstract and exploratory process, it should be rapid. Interactive exploration needs to be immediate. Human observers, on average, do not perceive inherent latency of displayed content if the overall latency of the system is below 6.04ms (standard deviation 4.33ms).14 The study uses a Gibbs sampling method15 to generate a lighting design onstage based on images chosen by the designer. The method is intended to allow lighting designers of all levels to quickly create and communicate complex designs. The study uses selected images and creates expected results onstage, however the system could be used to create different results by randomising the images and generating an unexpected design onstage. This improvisation is generated quicker than a human could programme, and the lighting design can play in real time with a live performance.

Much work with interactive media is done with dance, for example the work of Louis Philippe Demers. In his paper, Interactive and Live Accompaniment Lighting for Dance, he describes five available sensors, Pad, Video, Analog sound, sonars and 3D Ultrasound. Of the five, four are

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14 Bermano, Amit H. et Al., 2017, Eurographics Volume 36, p 313
15 Gibbs sampling is a Markov Chain Monte Carlo (MCMC), a sampling algorithm where each random variable is iteratively resampled from its conditional distribution given the remaining variables. It’s a simple and often highly effective approach for performing posterior inference in probabilistic models.
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cconcerned with the body in space, explaining why dance is an art form most suited to this type of exploration. He uses the term ‘live lighting’ to describe the interactive lighting design as a style with its own unique qualities. His work disrupts the linear flow of the performance, and Demers considers this disruption to be fundamental when working with interactive systems. His argument for interactive nature of the design is;

The outcome of a dynamic control of a media could not be recorded efficiently, that a strong relation has been established between gesture performance and statements, that the interactivity generates combinations not yet derived or envisioned and even further impossible to exhaustively describe.\(^{17}\)

But what of work other than dance? Is it possible to artificially create a live interaction between a performer and computer? In a performance entitled \textit{IT/I}, for example, the answer is yes. In the next chapter we will examine \textit{IT/I}, alongside one other interactive theatre performance.

\(^{17}\) Demers, Louis-Philippe, 1993, p.5.
Chapter 2: Two Interactive Theatre Case Studies

- Escape is Out of the Question. Louis-Philippe Demers.
- “It/I”. Claudio S. Pinhanes

Escape is Out of the Question

The first example is the explorations of live lighting by Louis-Philippe Demers. He developed an interactive system, @FL, which gave him the ability to control light in a traditional sequential cue manner, but also with behaviours and algorithms that gave more dynamic movement to the light. He identifies a number of sensors used in his work, pad sensors, video sensors, sonars, 3D ultrasound. These sensors use the body in space as input, however he also uses analogue sound as input. Here we look specifically at the project Escape is Out of the Question, which uses voice data from the performer in addition to sensor integration to convert the lighting into a performer of it’s own.

Louis-Philippe Demers is a multidisciplinary artist using hybrid approaches. He uses the term “interactive and live lighting” to describe a design style with its own respective qualities. The term “live lighting” is of particular importance, as Demers states that “The dynamic quality of light is essential. Interactive and live accompaniment is yet another instance of achieving this goal for performance.”\(^{18}\) He experiments in using new technologies to light professional performances. These experiments allow the choreographer and performers to work with the lighting designer, not only work on the human voice and movement but also with the light, getting away from the design of static tableaux or moments in the lighting and allowing the performance and the lighting to work more dynamically. He regards lighting that is not interactive as static, and posits this as a problem by considering the belief of Joseph Svoboda.

That a fundamental aspect of scenography and furthermore, the “complete state” is to be able to create a dynamic element capable of expression which strength is equal or even sometimes superior to the interpretation. The stage then becomes a performer and not only a silent backdrop.\(^{19}\)

The development of lighting technology is now at a stage where computer input can create an alternate spectrum of design not achievable by the human designer. Demers developed @FL, an interactive control system for lighting and media. DMX has been the control standard for lighting equipment since the 1980’s, controlling dimmers for generic lights, and the extra parameters, such

\(^{19}\) Burian, Jarka, 1974.
as intensity, colour, pan and tilt direction, in intelligent fixtures. Lighting consoles generate the DMX signal to these dimmer packs and intelligent fixtures. @FL implements the DMX signal directly, bypassing the console. In *Escape is out of the Question*, Demers uses the voice as a primary input to the interactive system, to support the statement of the piece while giving some readable information to both the audience and the lighting system. The links between the staccatos of long sustained notes were established with the movement of the light. When the performer entered the stage, her voice attracted a beam of light, and then another one, and so on until the whole group of lights was moving towards her. The voice was controlling the length of the light pan; the longer the sustain, the longer the sweep. As she travelled closer to center stage, the vocalisation was shorter, generating smaller pans and more abrupt changes. The voice analysis filtered the output of an IVL PitchRider and generated high level features about register and length. These features either started events or stopped them. Other sections of the performance included staccatos and vibratos. For each staccatos, a sudden beam movement was happening. The performer could literally give the beat for the beams “enhancing a hectic interpretation of voice…”.

The interactivity of the lighting design in *Escape is Out of the Question* would not have been possible without the use of @FL. A human designer or operator would not be able to calculate the directional values quick enough to respond immediately to the performance. They would also struggle to deal with multiple instructions, those of pitch and length of note asking the lighting to perform two instructions simultaneously.

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*IT/I*

*Joshua Pritchare in IT/I.*

*IT/I* is a two-character theatre play directed by Claudio S. Pinhanes, art direction by Raquel Coelho and performed by human actor Joshua Pritchare. The human character, *I* is taunted and played with by an autonomous character *IT* on a computer-controlled, camera mounted stage. In his work, Claudio S. Pinhanes defines computer theatre as a performance that happens in a space shared by the human performers, computer performers and the audience, it cannot happen remotely\(^{21}\). For him, action is the basis of theatre, and, as such, needs to be fully incorporated in whatever model a computer is running during a computer based theatrical performance. Computer theatre is a way of enhancing the artistic possibilities and experiences of actors and audiences. Pinhanes uses Robert Rowe’s example of an interactive musical instrument built to sense a virtuoso musician’s gesture, enabling them to control a computerised element to the acoustic sound of the instrument\(^ {22}\). From this example, Pinhanes identifies three terms to discuss different aspects of computer theatre. Hyper actors, computer actors and computerised stages. A hyper actor expands their body to be able to trigger lights, sounds and images, also to control their final appearance if

\(^{21}\) Pinhanes, Claudio S., 2001, p 1.
\(^{22}\) Rowe, Robert, 1993.
their image or voice is mediated through the computer to expand its sensor capabilities by receiving
information through earphones or video goggles. They also are given the ability to control physical
devices like cameras, set pieces, robots and theatre machinery. The computer actor is a computer
programme that assumes the role of one of the characters in the play. The computer displays the
characters actions through some output device such as video screens, monitors, speakers or requires
a control system which decides what to do ‘independently’ of the actions of the human actor. A
straightforward representation of computer actors would be a humanoid character displayed on a
stage screen. Computer actors could also be computer generated objects which do not exist in the
real world or normally interact with people. Computerised stages are computer theatre systems
which are concerned with the expansion of the possibilities for the stage, set, props, costumes, light
and sound. Computerised Stages are not characters or representations of characters of a play.
Scripted computer theatre systems are supposed to follow the sequence of actions described in a
script. Improvisational theatre relies on well-defined characters and situations, and has immediate
connections with developing characters for computer games.

*Three camera sensor system in IT/I.*

The production *IT/I* shows how an interactive system is successful in creating a true dialogue
driven narrative between two characters, with the initiative shifting from one character to the other,
as determined by the plot. The sensor system comprises three cameras rigged in front of the stage.
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The computer character IT is a non-human body composed of computer graphics. IT can speak through images and videos projected on two back-projected screens, through speakers connected to a MIDI synthesizer, and through the stage lights controlled by a MIDI light board. The story is controlled by the computer character. The play follows the “less choice, more responsiveness” paradigm for interactive stories, which prefers the importance of responsiveness of characters and environment over choice among story alternatives. Scene two illustrates an example of the computer character IT becoming annoyed at I due to his actions. In scene two, I is instigated to play by an image (a picture of a family). When I makes a pose, the camera shutter opens with a burst of light and the corresponding camera shutter sound. On the other screen, a CG television appears, and, when I gets close, the television starts to display a slideshow composed of silhouette images, taken by the camera. After some pictures are shown, the camera calls I to take another picture. This cycle is repeated until I refuses to take yet another picture and stays in front of the television, provoking an irate reaction from IT, which throws CG blocks at I while flickering the lights and playing loud noise. This scene also shows an instance where the human actor can respond to his own emotional provocation. The number of ‘take picture/watch TV’ cycles is not predetermined; the human actor can decide to refuse to play when he, as a performer, believes his character (and maybe the audience) has reached the emotional potential to do that.

‘Take picture/watch TV cycle.’

Pinhanes states that theaters have rarely employed any electronic equipment except for light and sound control\textsuperscript{24}. Relating to ‘liveness’, using automatic, semi-autonomous computer actors, they reiterate that the computer actors should be built as reactive autonomous systems that sense the action on stage. Otherwise the magic of performance and the energy of live theatre are lost as the human and computer actors are not responsive to each other or to the audience. In \textit{It/1}, like in a traditional theatre play, the overall development of the story is predetermined and known by all actors, but the details of the actual performance are modified each performance based on how the other actors are performing their roles, how the audience is reacting, and so on.

\textit{IT/1} was performed six times at the MIT Media Laboratory for a total audience of 500 people. Watching recordings of the performance, it is interesting to note that many in the audience were very young children, who had no idea about the technologies at work. What they are observing is a man learning to interact with the world around him, learning to play with his new friend. Their focus on the performance and their delight in the relationship between \textit{i} and \textit{IT} is testament to the success of the interactive programme in responding to the human actor in a live performance. The makers clearly observed that the audience easily understood the computer character’s actions and intentions. The play managed to keep the “suspension of disbelief”.

\textit{Young audience participation in IT/1.}

\textsuperscript{24} Pinhanes, Claudio S., Bobick, Aaron F., 2003.
In final remarks, Pinhanez reiterates that it is certainly possible to have a computer theatre system which just produces output from a pre-determined and pre-timed computer script, but the results can be expected to be devoid of richness and life. Computer theatre seems to be worthwhile only if the computer actor also follows the actions of the human actor and adjusts its reaction accordingly. Action and reaction are essential to the vitality of theatrical performance and must be incorporated, implicitly or explicitly into any computer theatre system.

Moving forward and thinking of how to work with a lighting design in an interactive process, it could be helpful to follow Anne Valentino’s tips on programming in Be Prepared! Programming Lighting is More Than Just Punching Buttons. Multiple lights can be recorded into groups. With Electronic Theatre Control (ETC) desks, the order in which the lights (as channels) are imputed affects how the desk recalls the information. For example, channels recorded into a group in the order 1 through 10 will be processed sequentially from channel 1 to channel 10. Channels recording into a group in a ‘mirror out’ order will be processed from the centre of the group, 5 and 6, out to 1 and 10. She suggests recording groups in different orders to access for effects. These groups could be accessed by interactive systems to make effects more dynamic. Reference data could be used in the same way; focus, colour and beam palettes can all be recorded ahead of time.
Chapter 3: Case Study: *Lessness*.

*Lessness* is a piece of prose by Samuel Beckett, written as *Sans* in 1969 and translated by Beckett into English in 1970. Part of his lyrical fiction genre, the poem seems to defend the persona’s private world against the absurdity of life in the large world. However the power of the words are dissolved by Beckett himself when we learn how it was composed. It is constructed from sixty separate sentences that Beckett chose from a container, apparently at random.

He wrote his sixty different sentences in six families, each family arising from an image. Beckett wrote each of these sixty sentences on a separate piece of paper, mixed them all in a container, and then drew them out in random order twice. This became the order of the hundred twenty sentences in *Sans*. Beckett then wrote the number 3 on four separate pieces of paper, the number 4 on six pieces of paper, the number 5 on four pieces, the number 6 on six pieces, and the number 7 on four pieces of paper. Again drawing randomly, he ordered the sentences into paragraphs according to the number drawn, finally totalling one hundred twenty (Cohn 1973).25


Olwen Fouéré found the text in 1970 before she became an actor. The special edition, not long published, caught her eye as an extraordinarily beautiful object in itself, and she knew one day she would do something with it. The piece may aspire to be a nonlinear stream of consciousness, but it cannot escape from linear presentation. Our human minds cannot help but to try and make sense of chaotic input and discern patterns in it from which meaning can be derived.26

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Fouéré is a virtuoso performer who has no trouble learning huge and daunting texts. She has read and performed *Lessness* many times over the years, but found those experiences became all about her as the embodiment of an oracle. She wanted to find a way to offer it to give the audience an experience similar to hers when she first read it in that small book. “Each word was kind of like a stroke of paint or a piece of stone in this very minimal edifice.” With past performances of *Lessness*, it became all about the actor, the antithesis to what Beckett was striving for. “The actor’s urge to speak meaningfully must be balanced against an enigmatic text that troubles certainty, a text structured with planned accident.” Beckett had that same experience, attempting to convey the sentences on radio, with each family of sentences spoken by a different voice. He found the differences among the radio voices too marked; “they should be shadings of a single voice - that of the omniscient narrator who knows so little.”

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27 Interview with Fouéré and Shiels. 23rd May 2021.
28 McNaughton, James, 2016, *Journal of Beckett Studies*.
29 Cohn, Ruby, 1973, p 262.
Olwen Fouéré in Lessness, Barbican, June 2015.

Fouéré wanted to become that narrator, to become a transmitter, to disappear as a performer. She repeatedly recorded herself speaking the text, and then played the recordings back, repeating what she heard from her headphones without interpretation or emotion. The audience experience was exactly that, each night Fouéré took to the stage, unknowing the performance, and spoke the words as they were played back to her. The experience was a transformative one, creating a tension of relentless words that ebb and flow. Lessness depicts an endlessness of a world in which time has passed or is yet to pass. Fouéré becoming the non-being allowed each performance to be endless, to have existed and yet to exist.

Irish Times interview with Fouéré, July 2015
Olwen Fouéré in Lessness set, Barbican, June 2015.

The design for Lessness needed to support Fouéré work of unknowing the performance. The beginning concept was a landscape, barren, unending and timeless. Fouéré existed on stage as the body, “Grey face two pale blue little body heart beating only upright. Blocked out fallen open four walls over backwards true refuge issueless.” Olwen’s delivery as a transmitter inspired the company to consider transmitting the visual information through many different times and formats.

Projected light with ‘burnt’ edges.

Olwen sat at a table, a microphone in front of her, an angle poise desk lamp to her right. A screen hung behind her. The content of the screen began with a Super8 film, removing the material from the present. We first recorded a nondescript landscape, communication from another place, a devastated place, however being confronted with an actual image immediately put the prose in too literal a setting. Lessness suggests a landscape where endlessness is changeless, timeless, issueless and therefore a true refuge. We went back to a distilled version of the idea, simply light. Playing blank Super8 film and recording it with a digital source created waves on screen, which would speed up, slow down or go in reverse depending on the speed of playback. There was a wonderful, slightly burnt frame, it was like footage found in some kind of abandoned building as a lost document. “it’s a particular kind of nothing, it’s a nothing that kind of speaks to us.” Whilst the visuals were projected, they depicted only light, and so this example fits the study of interactive light adequately.

The plain blue rectangular light, projected above the actor, appears like a fallen megalith, smooth, enormous, and scored at its edges. In this form, it suggests the text’s own puns, the ‘scattered ruins’ (197–200), and other motifs in the text as well: ‘four square all light’ (197, 200) or ‘single block grey crack overrun’ (198, 201), and even the promise of blue.

Beckett composed the prose seemingly at random, as “the only honest thing to do.” How could we create a linear playlist from start to end and call it an honest response? A traditional way of

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32 Cohn, Ruby, 1973, p 264.
33 Interview with Fouéré and Shiels, 23rd May 2021.
34 McNaughton, James, 2016, Journal of Beckett Studies.
cueing would see the same sequence night after night, which was in antithesis with what Fouéré and Beckett were trying to achieve. Without experience in existing interactive systems (yet), a basic solution was found using QLab. A finite number of files were created, forward (slow, medium and fast) and backward (slow medium and fast). The six options could be but were not necessarily related to the six families that Beckett had composed; True Refuge, Gray Endlessness, Little Body, Past Verbs, Future Verbs and All Gone From Mind. The first cue triggered the base file of Forward Slow. The other files, or effects, were loaded onto hot keys and programmed as LTP (latest takes precedence) to ensure they would override the base cue. The operator was free to choose what file to trigger, when and in what sequence. The impulse for this was personal to the operator and the solution was successful at a surface level, but was not without its deeper problems.

The system created a disassociation between the operator and performer. The text was delivered to Fouéré over headphones and a tape deck, which she controlled herself. She would become an interpreter of what the audience were semi perceiving on the screen. The initial impulse to begin came from her, with no way of communicating to the operator. As the performer, Fouéré was not aware of how the light was responding to her, however the audience were. This could be seen to support her role as non-being, but in actual fact the audience were experiencing an act of two people, transmitter of text and operator of light.

How could an interactive system responding to the performer yield a better result? As the designer and operator, I had been in rehearsals with Fouéré for weeks previous, and so felt I had an honest response to her performance. However my response each night was never wholly in line with what Fouéré was experiencing, instead I took whatever way the day had changed my subconscious and let it create impulses on phrases that stood out to me in the moment. This method was vulnerable to outside interactions, distractions and lapses in concentration which the seemingly endless prose was very liable to cause. A few months later the performance toured with a new operator, uninitiated in the process, who was given the daunting instruction to ‘Go with whatever effect feels right when it feels right.’

As the performer in Lessness is sitting static behind a table, only audio data is of interest. Using audio input to control the undulating projection behind Olwen would, I believe, make for a more honest performance from the images. For example, the speed of the waves could be controlled by the speed at which Olwen is speaking, a speed that changes every night. The direction of the waves could be reversed with a trigger word, for example “blue”, but only spoken at a certain volume to give Olwen more control. This trigger word was a method I sometimes employed when operating the waves, but missed some cues due to multiple events happening at the same time. Olwen, being
aware of the rules of the waves behind her, would be free to play with the speed, tone and loudness of her delivery confident in the knowledge that the mise en scene surrounding her was reacting to her instructions. Many existing interactive systems use motion sensors, and as such many interactive performances are rooted in physical theatre and dance. The next chapter will detail examples of interactive systems that use audio input to an artistic element to the live performance, in work by Louis-Philippe Demers and Claudio S. Pinhanes.
Chapter 4. The Live Experience

The question at the centre of this paper asks, has lighting design lost the element of ‘liveness’ that it once had? The dynamic and unpredictable sources that were used before the safety of the digital computerised age meant that light was constantly moving and changing. I admit that computerisation and automation of lighting design has many positive aspects; absolute control of levels and timings, the freedom to control hundreds of lighting instruments at once whilst in direct view of the stage, the ability to programme and execute complicated effects with intelligent moving lights. However as a designer I yearn for the ‘life’ of a flickering candle or oil wick, the physical human input required to balance the gases in limelight, the manual work required to shift levels up and down. The strand light board designed based on the Wurlitzer organ allowed the operator to literally play the lights. How has the live experience changed from those past eras to the present?

To answer this, it is necessary to return to the idea of ‘liveness’. As discussed, Phelan and Auslander have debated the ontology of performance and the nature of liveness. Phelan argues that live performance is defined through its non-reproducibility. The live nature of performance deteriorates as it is enfolded in technological reproducibility. Causey disputes this, suggesting that the ontology of liveness in performance has been altered within the space of technology. Liveness has existed before and after mediatisation. Auslander goes a step further, suggesting that audiences who believe each live performance is unique are wrong. He continues, denying that live performance functions to bring performers and spectators together. He questions whether the spectator has to be in the same space as the performer at all, conceding that live performance may afford social prestige to the spectators who can boast to have been present at a live event which carries the value of being memorable by peers. I cannot agree with him in this regard, it is my opinion that the liveness of theatre needs to take place in a space where the performance and spectators are present together. Chris Salter’s condition of ‘situated action’ supports this opinion. He eliminates purely internet-based, networked or telepresence performance, and instead insists in ‘physical, real-time situatedness involving collective, co-present spectating, witnessing and/or participation within the framework of a spatiotemporal event’. These past two years have taught us that there is a human desire to hold experiences together. In Matthew Reason’s Documentation, Disappearance and the Representation of Live Performance (Basingstoke: Palgrave Macmillan, 2006), he speaks about “the wider social phenomenon and experience…, the public experience of the event.”

35 Auslander, Philip, 2008.  
The experience of being in a theatre audience is always going to be largely about something very different from simply sitting down and watching a play… the acuteness of this social experience was heightened by the live nature of the theatre performance - the real presence of the actors, the danger of something going wrong, the risk of missing something all provide an urgency to the situation, increasing levels of tension and potential discord within the audience. Like the complex realness of the live actors, so is the theatre audience a heightened, intense and peculiarly real environment.37

How does interactivity sit in a live event? A performer can interact with the world around them and their fellow cast. They can manipulate props, open doors, put on costumes. They can wipe off makeup, sing or play musical instruments, whisper or shout into microphones. In what way can they manipulate the light around them? When they turn on a light switch, very often they are still not in control of the light in the room. Their actions are anticipated by the lighting operator, who is waiting with bated breath for the ‘operator visual’ cue. An operator visual cue is necessary due to the delay between the stage manager saying “Go”, the operator hearing that, registering the instruction and pressing the correct button. This delay would be noticeable by the audience, as we have learnt that human observers, on average, will perceive inherent latency of displayed content if the overall latency of the system is above 6.04ms (standard deviation 4.33ms)38.

When asked if a way of interacting with lighting might appeal, Olwen Fouéré was interested. She would need a small monitor so she could see how her vocal timbre was affecting the image. She would like to see what would happen if she left a long pause and then said three words together, or if her pitch went up. She questioned what calibration she as a performer would have to do, and if the system could programme different states of mind. However she was concerned about losing the live element of a second interpretation from the human operator. She details another experience of working with sound engineers:

It’s like when I’m doing Riverrun, the difference between Alma operating and Benny is quite noticeable. I remember Benny took over operating in Edinburgh, and he hadn’t operated before, it had always been Alma, and the first couple of days I was completely thrown, I thought oh fuck this isn’t working everything just didn’t feel right, and then eventually Benny’s way became, I could only describe Benny’s way as more rock and roll, and actually I thought that was great! And my performance kind of adapted to it, and when Alma would

operate again I would feel, oh it’s all much quieter, it was kind of interesting, the differences. But they both had wonderful qualities in themselves.39

This is a potentially negative aspect of an interactive lighting design, controlled in isolation by the performers. There is also extra time for the performer to learn how to work with the technology, taking time away from traditional rehearsals. Budget is likely to increase. The control of the designer by necessity needs to be relinquished, as unexpected outcomes from performance to performance are undeniable. If we give full control to the performer and they forget to turn the light switch on, they are left performing in the dark. For Olwen, her interaction with technology and designers/operators is not about relinquishing control, but rather more like she and they are in sync, working together. “I see it as not so much as relinquishing control as making sure that we find that place, and then it’s wonderful, then it’s like making another piece, it has its own music.” Néill O’Dwyer asks, “At what point does the human recede into the background, so that the technology itself emerges as the thing in question, and the audience’s experience of it is performative, as opposed to ancillary?” For Olwen, in a piece involving technology interacting with the performance, she feels it’s important to make a feature of the interactivity. If the audience thinks that everything has been pre recorded, they lose the tension between the machine and the actor. It’s important to keep that tension alive so the audience can feel the interactivity. “It’s a bit like the tension between two actors, if we’re both off doing our own thing, you lose that push pull thing, something fundamental is lost.41

39 Interview with Fouéré and Shiels, 23rd May 2021.
40 O’Dwyer, Néill, 2021, p 11.
41 Interview with Fouéré and Shiels, 23rd May 2021.
Chapter 5: Conclusion

This paper has looked at lighting design through the ages. It is clear the idea of light as a living thing was not at the forefront of those trying to harness it. Every iteration of lighting design has sought to control and contain light, reflecting, focusing, altering colour, dimming intensity. Digitising lighting control allowed for maximum control of all these elements, and allowed lighting to operate in tandem with other stage effects in a predictable fashion. It was at this point in the life of lighting design that I first encountered the art form. My frustration with the technology came from my experience of working with sound and video artists, who had the ability to play and improvise with their art form, and generate unexpected outcomes by introducing interactive algorithms. I found the current way of controlling and operating lighting to be unsatisfactorily static, and sought to study why that was. What was it about light that made me want to set it free, as Appia did? It is my suggestion that different eras of lighting design throughout history have unconsciously celebrated its inherent liveness. Open air amphitheatres accepted the change in time of day and weather, candlelit indoor performances worked with flickering wicks, and handheld oil lamps danced around the stage manipulated by the performers. Gas introduced a volatile fuel controlled by valves and fed in by miles of tubes. Limelight is a living breathing light, oxygen and hydrogen breathed into the source by bladder operators. Even in the era of electricity, the intensity of light was controlled by large manual dimmers, pulled up and down by human labour.

Automation, replacing human labour, has many benefits as discussed above. Initially, at the beginning of my research, I thought the idea of introducing interactive computer programmes into a predominantly automated system would recreate an element of liveness that I feel lighting is currently missing. However, as my work developed, my thinking changed. It seems to be the missing human element that is the main problem. IT/I, although a successful example of an interactive computer character driving narrative, still required a human actor’s presence on stage in order to illustrate to the audience the relationship between them. Escape is Out of the Question needed human voice data and a professional singers training to control a dynamic lighting design. Considering Lessness as a potential candidate for an interactive system would need Olwen’s presence and voice data to work. In the same way that the audience are given clues to how Olwen is receiving the text by wearing visible headphones, to illustrate the tension of her interaction with the screen behind her would require a visual or aural cue. Otherwise the assumption could be one of a pre-recorded sequence. In my interview with Olwen, she described her experience on a show called Angel Babel:
Roger (Doyle) and I went to Steim studios in Amsterdam to look at all the sound interactive things that you could do and we ended up choosing this kind of sensor lab idea. So I was wired up, each of my fingers was wired up on either side, and my whole body was wired up actually, and I’d record like this (taps finger) and play myself back with that (taps other finger), all these things at my disposal. …the big thing I remember learning from it was how important it was in all of these interactive things, where you are making a feature of the interactivity, that people still feel that, because very often you go to see these interactive things and you think it’s all prerecorded, there’s something lost in that tension between the machine and the actor… Because an awful lot is lost, if you lose that sense of interactivity…

Director Leon Ingulsrud describes it as a “multi-layered piece that stands by itself each night as the computer reacts differently all the time.” This is the liveness I am chasing, but it might not be achievable from an interactive programme alone. Rather it’s about finding a way of operating that allows a human a tangible experience of controlling light, whilst also adding an element of unpredictability, at least from a human perspective.

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42 Steim Studios is a ‘network laboratory’ for experiments in sound art and electronic live performance.
43 Interview with Fouéré and Shiels, 23rd May 2021.
Bibliography

Appendix 1 - Interview with Olwen Fouéré, 23rd May 2021

Olwen: It kind of grew… it was so beautiful in the Project, because we had the screen, (which was) much bigger than the one we had in the Barbican… which was perfectly in proportion with the long table which we had used in Galway Arts Festival, and we had this great chasm of darkness behind us, so it was just beautiful and the screen suspended like it was trying to communicate to the audience, it was just gorgeous. That was it’s best iteration I think, I was really happy with it there it was really gorgeous.

SJ: What was it about the text that inspired you to find a new way of performing it?

Olwen: The text I came across it before I became an actor, not long after it was published in fact, and I still a visual artist at the time, or going in that direction. It was this beautiful edition, it was really small, signature edition. I remember picking it off the shelf in Hoggis Figgis, and looking at it and just leafing through it and going, this is extraordinary, so beautiful as an object in itself but also I felt, I’m going to do something with this someday. And at the time I thought it would be a painting or something, or some kind of graphic work. Then I was asked to do a reading for a Beckett Festival somewhere in Trinity, and I said I know what I want to read, I want to read Lessness. So I read Lessness, and as I was reading it I went, this actually really works as a live performed work. And then I did it with Judy Hegerty Lovett a couple of times in different places and I was never happy with that one because it became all about the performer, it became all about me as some kind of embodiment of an oracle or something, and I felt, that production I felt took the piece away from the audience and onto me, it’s the only way I can describe it. It became about a kind of performance of something. And when the opportunity to do it again arose, I remember saying to myself, I want to try and offer it to an audience, a little bit like my experience of having read it in that little book. Which was, each word was kind of like a stroke of paint or a piece of stone in this very very minimal edifice. So that was how I approached doing it that time and the idea had been that I would just read it and you wouldn’t see me at all, you’d maybe see the book and my hands. And then (Kelly) really felt that you needed to see my eyes, that was how we developed into this idea. The screen was always going to be there, when the Barbican asked me was there something I’d like to do, I said yes this piece Lessness, and I talked a bit about this idea of it being like a communication from another place, like a devastated place, like a war zone or something. And in my mind I said it’s a bit like a Pathé news report, that this person is giving this report, and that there’s some kind of footage that’s almost impossible to decern, and that’s when they said, oh there’s this little cinema, which we then went over to see. And that was when the screen became a more important aspect of it. Like a more concrete aspect of it I suppose. So then it was the idea that I would be in some way interpreting, like a news caster or an interpreter, of what the audience was kind of semi perceiving in this screen. And of course the more we put on stuff, the less it needed to be and then it just needed to be light, and then that wonderful accident of filming the super 8, and digitally transferring it had these waves, we’d never be able to do that, and the wonderful burnt, slightly burnt looking outside, it really was like a bit of footage you found in some kind of abandoned building as a document of something. That whole process of just coming to, what we need to shoot is just nothing really, but it’s a particular kind of nothing, its a nothing thats kind of speaking to us.
SJ: Would it be an option to take your vocal level or frequency, would that be a way of controlling those waves, is there a certain note of speed that could trigger the waves to start in a different direction

Olwen: When you first told me about that, I was going, there’s something about the liveness of that response, which is so beautiful, that fact that it is actually, something else, not me, something else responding or communicating and I am another element. So the idea of it being two interpretations is actually kind of good in a way, but I was also thinking it would be really interesting to experiment with this live interaction with the screen. I think I’d want to have a little monitor in front of me first as I’m doing it to be able to see what the effect of my vocal tembre is, so create it in that kind of way and then it could be behind me, but my instinct is if we do it that way then maybe I’ll want to see what happens. Like I want to see what happens if I leave a long pause and then say three words together, and if my pitch goes up, so it would be really interesting to see what kind of calibration you’d be looking for, to make that interaction as live as possible to different elements in the voice. I have no idea how you would do that, maybe you’d have to program different states of mind, its a difficult one, I’d be very tempted to experiment with it anyway, definitely. But I did like the live element of you or when it was John Crudden, or whoever was doing it

SJ: I agree with you having the live interaction with another person is really interesting, and I think a way of going forward with that would be having more options or having a more flexible operating system. Did you discern any difference between myself operating and John operating?

Olwen: Because I couldn’t see, I never knew, which was really annoying. I remember sometimes hearing Kelly saying oh maybe go faster on that and I’d be going yeah but maybe not, but on the other hand I had to surrender, that was part of it too, I just had to surrender to this other thing. So I’m sure it did vary, it must have. It’s like when I’m doing Riverrun, the difference between Alma operating and Benny is quite noticeable. I remember Benny took over operating in Edinburgh, and he hadn’t operated before it had always been Alma, and the first couple of days I was completely thrown, I thought of fuck this isn’t working everything just didn’t feel right, and then eventually Benny’s way became, I could only describe Benny’s way as more rock and roll, and actually I thought that was great! And my performance kind of adapted to it, and when Alma would operate again I would feel, oh it’s all much quieter, it was kind of interesting the differences. But they both had wonderful qualities in themselves, so it’s like the old days of lighting operating and all that kind of stuff where people would do it manually.

SJ: I learnt lighting design on a tiny manual board where you were physically moving things to create changes.

Olwen: And that’s how Alma and Benny operated the sound, we got them to have this kind of a board system, so that they could do it manually, I mean there would be some of it digital, but a lot of it was just following something I would do, so they had to watch the performance and when I did this with my arm they would go… and all that kind of stuff, so more like that old style, and similar to the Lessness thing, so there is definitely something to be said for it, in the way of engagement with the other artist in the piece, as opposed to it just being locked into a computer. Even in the evolution of the culture of stage lighting design or sound design or whatever, I think it’s really interesting, that
involvement. I just did this thing in Sydney Festival, it was a gorgeous piece, but our sound designer who had just had a baby and all that, he wasn’t in on rehearsals, and yet he’d composed masses of stuff, but when he came in, with his musicians and his sound design, it never completely connected, because it was all pre done, and his work was great but it was a real proof to me that they really need him or they in the room to be able to be part of that evolving process. Most people don’t really do that now, are not paid enough to be in the room everyday. I’m working on To The Lighthouse at the moment and Jose is going to be filming it, he’s in most days, Jose works like that, he’s in most days just watching, and sometimes he just picks up the camera and starts filming a bit of the rehearsal and stuff like that. I do think yeah, I agree with you, I think something is lost by that live involvement being not there so much, in other ways of course it works out better, but it’s a balance isn’t it.

SJ: As a performer, could you talk about what it feels like to relinquish control to a sound designer or to a lighting designer while you’re in a live environment with a live audience.

Olwen: I never really see it as relinquishing control more that we’re in sync, when we’re working together, you know when your working together and when you’re not, it’s like that transition with Benny it’s like, I couldn’t adapt to his way, and he could feel me fighting, up in the box he said, I could see you fighting he said, he could feel me fighting whatever he was doing or whatever the volume was or whatever the thing was, and then when we got into our thing, it was like being two actors really. So I see it not so much as relinquishing control as making sure that we find that place, and then it’s wonderful, then it’s like making another piece, it has its own music.

SJ: It feels like lighting needs to become more like sound, and playable and become its own instrument.

Olwen: Do you mean live sound? Do you feel lighting needs to move into being operated live in that way as well? Because the tech is the tech, but a performance in tech will continue to evolve and change and everything like that.

SJ: Absolutely, and lighting kind of stops on opening night.

Olwen: So you kind of feel everything else needs to keep doing that as well. Now that we’re talking about music you do see that sometimes happening, very often badly, in rock concerts or music concerts, but there is a kind of live element to it, put on the red and the green, you know whatever. It never seems to be quite fixed, and there is something about that, but obviously in a more sophisticated way. I think it does depend on the piece, certainly Lessness, I mean I would like to try the experiment of whatever the live interaction would be but then it might become more about that interaction, so it would make it more actor centred in a way, and for me it was quite important to have this sense of the other coming through.

SJ: So maybe it’s more about the ‘other’ being more flexible.

Olwen: So it wasn’t just a choice of 6 different modes, that you had one mode that you could move. I think it is about making the thing not just da da da da, it’s almost thinking about how your body,
how your body would move something, as opposed to jumping to different cues and things like that.
I should talk to you about this piece that I did in 1999 called Angel Babel, where we had an
interactive sound system. Roger and I went to Steim studios in Amsterdam to look at all the sound
interactive things that you could do and we ended up choosing this kind of sensor lab idea. So I was
wired up, each of my fingers was wired up on either side, and my whole body was wired up actually,
and I’d record like this (taps finger) and play myself back with that (taps other finger), all these things
at my disposal. And at that time digital media was in no way as evolved as it is now, but there was six
people on the sound desk and one person on stage. But it was a fantastic piece, but the big thing I
remember learning from it was how important it was in all of these interactive things, where you are
making a feature of the interactivity, that people still feel that, because very often you go to see
these interactive things and you think it’s all prerecorded, there’s something lost in that tension
between the machine and the actor, and it’s somehow keeping that thing open and alive so that
people can feel that interactivity, as opposed to just thinking oh that worked very well sound and
light and everything. Whether it’s a question of the sound designer on stage, or that you always feel
that place in between them, so that you’re conscious that when somebody goes ‘ah’, that it’s ‘ah ah
ah’, it’s not just a recorded thing. Because an awful lot is lost, if you lose that sense of interactivity,
because the audience don’t get that, and it’s very easy to lose site of it when you’re making
something, that element still needs to be there. It’s a little bit like the same tension between two
actors, if we’re both off doing our own thing, and you lose that push pull thing, something
fundamental is lost.
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