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Incandescent Edges of the Future: Performance Creation with Virtual, Augmented and Carbon Realities

Kates, Beth

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UNIVERSITY OF CALGARY

Incandescent Edges of the Future: Performance Creation with Virtual, Augmented and Carbon

Realities

by

Beth Kates

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
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Abstract

The emerging technologies of Augmented Reality and Virtual Reality provide the potential to change the traditional forms of theatre in unprecedented ways – fundamentally changing methods of designing, making, and performing theatrical storytelling. These emerging technologies offer new modes of audience interactivity and engagement. In the face of a changing world, these digital portals provide means of profound human connection and ways to transcend time, digital space and physical place. These are ways to overcome limitations on our physical movement due to the current pandemic and the restrictions that (can and should) come from the effects of climate change. Through these technologies we expand the practice of collaboration and the nature of human connection. Uninhibited by real-world physics we are liberated from the historical boundaries of storytelling and world building, better able to explore different world-views and expand notions of creation, performance and spectatorship.

This thesis is an examination of audience experience, creative collaboration, devised and collective creation in the spaces where it intersects with technology and design. It examines how that space can be kept fluid and creative, and how the combined elements can impact each other. My desire for this fluidity drives my curiosity around what we theatre-makers need to know about VR and AR that will allow for creative collisions. How can we create the conditions necessary for this alchemy, growth and symbiosis to occur? I argue that there are new methods to be found when approaching these emerging tools; that there are practical, tangible ways to begin to adapt our practices to allow for their integration, and that we are at the inception of a new form of performance—another phase of the “theatre that survived the theatre” (Kiesler).

Preface

This thesis is original, unpublished, independent work by the author, Beth Kates.

Some of the research conducted for this thesis, specifically for *Bury The Wren* extended reality project and theatrical performance, forms part of a collaboration with Neil Christensen, MSC student in the Department of Computational Media Design, at the University of Calgary.

This thesis has been professionally copy edited for grammar, punctuation, and style.

Acknowledgements

The intention of my research at the University of Calgary was to be resolutely interdisciplinary—and it is with deep gratitude to my co-supervisors, Dr. Bruce Barton and Dr. Christian Jacob that it was. Thanks to them I was able to explore theatre and computer science uninhibited, un-siloed, and tremendously supported. This freedom allowed my collaborator Neil Christensen and I to dive deeply into our collaborative research, and expand our personal, intellectual and creative capacities. We stand in the future because of this. I am so thankful and grateful for Bruce's calm and generous demeanor, his fierce intellect and beautiful artists heart. Our conversations at the round table challenged, fed and inspired an incredible amount of creative and intellectual development. I am forever changed.

In this thesis I speak about alchemy, magic and Doctor Theatre. I believe this trinity was guiding events in November 2017 when Dr. John Aycock invited me to a lunchtime event in the Computer Science building. There I met Christian who warmly invited me to come try his labs VR set up, and after a brief chat was quite sure that I should meet someone named Neil Christensen. The alchemy of those moments has changed the path of my life. Christian's grace, giant virtual brains and fantastic voyages has inspired ever since, and his belief in the power of storytelling is a significant contributor to the achievement of *Bury The Wren*. I am deeply thankful too for the giant *human* brains of the other students in the Lindsay Lab; Tim Davison, Sasha Ivanov, Justin Kelly, Katy Etemad, Natasha Shevchenko and Erin Brintnell whose questions and ideas inspired at every meeting.

My colleague and comrade Neil Christensen... his incredible talents have pushed me to learn, do, and be more. His humor, kindness, empathy and intellect have made the last few years

truly special and turned *Bury The Wren* into the achievement that it is. In his thesis Neil called us an “unstoppable force,” and I know no better way to describe it. Working together it felt like we could do anything, and the incredible trust between us, (built almost instantly), is something that I will treasure forever. At so many points in the making of *Bury The Wren* it felt as if it was beyond us—in the good way—as if we were being guided by other forces, something that does not happen often in art or life. Together we created something special—the beginning of the future—and it would not have been as beautiful and full had it not been for Neil.

From the highest mountain I shout my gratitude for the stunning Val Campbell. She imbued Annie with such grace, beauty and empathy that the character became something I could never have imagined; such is the magic of actors. Val’s warm and generous spirit filled the room and never faltered, even as she gave voice to Annie’s unbearable grief and enormous love multiple times a day. It was an honor to dig through wardrobe storage, sit in wig fittings and bear witness to her remarkable work. I am doubly indebted to her for the friendship, care and guidance she has offered me during this degree. I would not be where I am without her.

Thank you to Val Planche (Val 1) whose fearlessness and curiosity brought Annie alive, and gave her shape and breath. Her energy filled our creation room in the most beautiful way, electrifying the process and inspiring all amazing kinds of creativity. This is a special gift.

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Ben and Aaron Chaisson have both made huge sacrifices (and hundreds of meals and thousands of cups of coffee). They have ensured that I’ve come through this intact and loved. I am so thankful and so very lucky to have them both in my life, and here in Calgary.

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Jennifer Brewin. My sister in arms. Thank you. For all of it.

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I thank the Donnellys—their spirit of resilience and their unrested souls.

Then there is the litany of people who helped tremendously in any number of ways, personally, professionally, creatively, child care-ly ... reminding me where I am on the path and who can only be thanked in alphabetical order: Ian Arnold, Christine Brubaker, Katie Barnes, Rebecca Comer, Mike Czuba, Sarah dDamba, Ian Garrett, Tai Amy Grauman, Sarah Gusso, Franceen and Sheldon Kates (my parents), Dr. Lindsay Lachance, Zach McKendrick, Sharlanne McStay, Arthur Milner, Emily Porter, Sensei Gary Raposo, Andrew Soren, Melissa Tapper, Taylor Kluck, Nathan Pronyshyn, Judi Pearl, Lina Wesley, and Brian and JoAnn Workman.

Finally...Paul Thompson, beyond mentor. Eternal. I am returning from Alexandria.

Dedication

For my son,
Aaron Chaisson -
who is the future.

(and for Annie)

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I Introduction

All true alchemists know that the alchemical symbol is a mirage as the theater is a mirage. And this perpetual allusion to the materials. and the principle of the theater found in almost all alchemical books should be understood as the expression of an identity (of which alchemists are extremely aware) existing between the world in which the characters, objects, images, and in a general way all that constitutes the virtual reality of the theater develops, and the purely fictitious and illusory world in which the symbols of alchemy are evolved.

Antonin Artaud (*Theatre and its Double*, 49)

The emerging technologies of Augmented Reality and Virtual Reality provide the potential to expand the traditional forms of theatre in unprecedented ways, fundamentally changing methods of designing, making and performing theatrical storytelling. These emerging technologies offer new modes of audience interactivity and engagement. In the face of a changing world, these digital portals provide means of profound human connection and ways to transcend time, digital space and physical place. These are ways to overcome limitations on our physical movement due to the current pandemic and the restrictions that (can and should) come from the effects of climate change. Through these technologies we expand the practice of collaboration and the nature of human connection. Uninhibited by real-world physics we are liberated from the historical boundaries of storytelling and worldbuilding, better able to explore different worldviews and expand notions of creation, performance and spectatorship.

With the influx of so-called ‘digital theatre’ during the pandemic, we are also seeing performance work presented, with rare exception, on 2D screens. The immersive and volumetric qualities of Virtual Reality remove those screens and create embodied experiences for the audience. As I will demonstrate in this thesis, I believe that these emerging tools of Virtual and Augmented Reality (discussed at length in the following pages) offer theatre-makers a rich

creative palette and are extremely viable and valuable for the development of new forms of theatre.

My perspective and experiences as an artist-scholar contribute to the discussion of these new realms in practical and material ways. I am a Canadian designer of *mixed reality* (here meaning video, projection, virtual reality and augmented reality), lighting design, set design and occasionally costumes for theatre and live performance. I have been working professionally since I was sixteen; However, I began engaging with the creation of image at a very early age. When I was little, I drew so much that my mother used to say I should have been born with crayons for hands. This affinity for image led me on a path through studying visual art intensely from the age of seven, doing lights for rock bands at fourteen, and eventually to a career in theatre and performance.

Having spent the last thirty years as a designer, collaborator and one of the first successful female Canadian video designers, I have a long history of integrating the digital into my design aesthetic and practice. It is my distinctive use of technology – engaging it as an improvisational tool and developing methods of dramaturgical integration into the early stages of the creative process – that has led to the unique project at the centre of this Masters thesis: *Bury The Wren*.

Generated from an idea that has long been germinating to tell the story of a woman erased from history, *Bury The Wren* is an important progression in my creative practice as I move from defining myself as a designer into a renewed role as a generator and an artist-scholar-researcher. This is, importantly, the first project since a high school production in 1992 in which I have assumed the role of leader and director of a creative work.

Groundbreaking virtual reality theatre designer Mark Reaney describes theatre as “the original virtual reality machine” where audiences can visit “imaginary worlds which are interactive and immersive” (qtd. in Dixon 363), while Virtual Reality (VR) guru Jaron Lanier’s vision of VR is that of a “mass theater of spontaneous shared imagination and dreaming” (Lanier, “Frontier”). Theatre is, by its nature, a hybrid artform or, as scholars Chapple and Kattenbelt call it, a “hypermedium ... that can contain all media” (23). This remarkable facility to integrate many disciplines makes theatre a fundamentally hybrid art form that is porous enough to combine with cutting edge emerging technologies.

What this form of digitally-expanded performance should be called is complicated and is part of a current discourse among practitioners and scholars. While ‘intermediality’ has unquestionably helped to provide a frame for these modes of performance, marketing departments and, indeed, the general public, continue to think of them as ‘multimedia’ performances. I, personally, move between the relatively new term ‘mixed reality’ (MR) and the even newer ‘multiple reality’ (MuR), though I always feel like they need to be accompanied by an explanation in their common usage. Computer science has begun commonly using ‘extended reality’ (XR) when referring to AR and VR, which doesn’t always transfer to a performative context since theatre already is an ‘extended’ reality.¹

The project at the centre of this thesis, *Bury The Wren*, is poised between the two disciplines of computer science and theatre and brings together three distinct forms – VR, AR and live theatrical performance – to create a nuanced and sophisticated new practice: *VR Theatre*. This uncharted territory engages with emerging technological tools and draws from

¹ Though the Performance and XR Conference will take place in October 2020 in Canada, so this term may be viable in theatre, too. <https://www.performanceandxr.com/>

many theatrical creation traditions. It is a melding of all of my interests and an example of transdisciplinary practice.

Although this is a Theatre Studies thesis, it is imperative to me that elements of Computer Science are well-covered here as they are critical components to the development of the central creative work, just as they are creative elements themselves. As this thesis straddles the worlds of Theatre and Computer Science there is an array of terminology and frames of reference presented in this document. I acknowledge that many of these terms will be foreign for readers from each discipline. I have attempted to provide lay-terms and clarification within this thesis and have supplemented it with a glossary at the end of this thesis to aid in the interpretation of the computer science focused information. All words in the glossary will be [hyperlinked to the glossary](#) and identifiable by their blue font and underline.

I.i Important Definitions

I.i.i *Virtual Reality (VR)*

VR is the experience of complete 360-degree immersion via a head mounted device (HMD) in a digitally-created visual environment where no element of the physical (carbon) world is visible (fig. I.1). From a spectator point of view, theatre scholar Alison Oddey describes VR as being “able to incorporate computer imaging, sound and sensory systems, in order to put spectators in a direct feedback loop with the technology itself and the world it simulates” (Oddey, “Spectatorship”



Figure I.1 Kates wearing the Vive Pro Wireless VR HMD used for *Bury The Wren* © Beth Kates 2020

85).² Jaron Lanier, the American computer scientist and artist widely credited with being the person who coined the computer science term ‘virtual reality,’ explained in 1989 that “virtual” is technical jargon and that it “means something that exists only as an electronic [computational] representation, which has no other concrete existence” (Heilbrun 110).

² The history of the term ‘virtual reality’ can be traced back to Antonin Artaud’s use of “réalité virtuelle” in 1938’s *Theatre and it’s Double* to describe his concept of theatre and “the purely fictitious and illusory world” it creates (Artaud 49). As well, in the 1950s philosopher Susanne Langer wrote in *Feeling and Form* about the space contained in a work of modernist painting, sculpture, architecture, and dance as creating a “virtual world” (Lanier, *Dawn*; Leddy, “Langer”). Jaron Lanier acknowledges this lineage in his book *The Dawn of the New Everything*. In 1996, in the introduction to *Immersed in Technology* Mary Anne Moser writes about how the Banff Centre “long ago abandoned the term ‘virtual reality’... for the less sensational ‘virtual environments’” (Moser x), something that did not stick.

I.i.ii Augmented Reality (AR)

AR is when digitally-created or -mediated imagery is layered over the visible physical (carbon) world. This is currently done by engaging with a device like a tablet, smartphone, or through AR glasses like Microsoft's HoloLens (fig I.1.1) The reader may choose to experience AR by following the instructions in [Appendix C](#) to engage with an object from the central case study of *Bury The Wren*.



Figure I.1.1 Kates wearing Microsoft's HoloLens 2 in 2019. © Beth Kates 2020

Computer scientist Ronald Azuma is generally credited with defining Augmented Reality and guiding its early development. In his oft-cited 1997 thesis, Azuma offers this definition:

AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than completely replacing it. Ideally, it would appear to the user that the virtual and real objects coexisted in the same space

In his survey he also provides three characteristics of AR to “avoid limiting AR to specific technologies”:

1. It must combine virtual and real imagery
2. It must align/register computer graphics with objects or locations in the real 3D environment
3. It must do both of these in real time (Azuma 2)

As will be explored in this thesis, the history of VR and AR being used in theatre productions only dates back to the 1990s. The list of productions is growing though, so quickly that this thesis has been amended constantly during the writing.

I.i.iii Carbon Reality (CR)

Carbon Reality (CR) is a term I have coined. It is an effort to differentiate between the digitally-realised realities and our physical reality made out of carbon. In the differentiation I seek to also acknowledge that the digital realities are also ‘real.’ I am not attempting to under value the importance of the carbon reality, but I am attempting to highlight my belief that the digital reality is also an important and valuable reality.

I.i.iv Affect over Effects

The Oxford dictionary defines “affect” as a noun meaning: “A feeling or subjective experience accompanying a thought or action or occurring in response to a stimulus; a mental state, mood or emotion” (Oxford Dictionary). In the case of ‘Affect over Effects,’ coined by artist-researcher Ian Garrett, affect is concerned with guiding the audience to *feel* something during the production versus just *experience* it. In the context of engaging with digital technology in performance, *affect* here also refers to the *affective* outcomes of the design. Affective theatre results in an embodied physical and psychological reaction to the total experience. The technology being engaged with must have a dramaturgical grounding and should not just be used for its amazing technological *effects*.

L.ii Case Study: *Bury The Wren*

The central case study of *Bury The Wren* is an exploration of VR, AR, and live performance. The full text of the play is available in [Appendix A](#). A multi-sensory experience investigating the retelling of Canadian stories and themes of female erasure, *Bury The Wren* is a one-on-one live performance experience that focuses on the true-life tale of the Donnelly family who were massacred in Ontario in 1880. Through the untold female perspective of this historical event, we exhume the voice of Annie Donnelly who, with her husband Robert, survived the massacre and lived out her days among the murderers who were never brought to justice.

I have a long connection to the Donnelly story, detailed in Chapter 3. They, their memory and the caretaking of their legacy are hugely important to me. As is the case with many others who have explored this story, the Donnellys have a way of weaving permanently into one's life, and any opportunity to dig into the complex history is a welcome one. A work I co-created, *The Last Donnelly Standing*, fused that weaving for me and it is also where I 'met' Annie Donnelly, the historical character at the centre of *Bury The Wren*. Even in the writing of this thesis I have discovered information about the Donnelly story that I did not know previously, which will impact the next iteration of *Bury The Wren* or the next Donnelly project, as there will inevitably be one.

The Last Donnelly Standing also created a connection for me between technology and the Donnelly story. It was the technology in combination with the live performance that provided us as the makers access to ephemeral and invisible tensions in that story. The digital design was created live, which was, in part, what led to the impulse to make *Bury The Wren* as digitally 'live' as it could possibly be.

I.ii.v The Project

*Bury The Wren*³ begins as the audience of one (whom I call the ‘participant’) enters a black box theatre and then an empty room created by four dark grey fabric panels. A guide helps the participant put on a wireless HTC Vive Pro head mounted device (HMD) and they enter VR. It is pitch black until a book fades in, floating and spinning. Slowly, walls made of mud emerge from the blackness; The participant has no avatar. A female performer enters the physical room but remains invisible in VR throughout the performance. “I am Annie Donnelly” she says. “Welcome to my grave.” From there this solo performer tells her story, primarily through gentle engagement with unique virtual objects mapped to a Vive Tracker (see detail in Chapter 4, subsection “[Vive Tracker](#)”). Only the participant can see these virtual objects. They are the portals into Annie’s story.

Once the performance begins, the technical crew of the theatre silently populate the empty room with CR objects, some of which are the CR versions of the virtual objects. Several of these objects are engaged with by the performer and participant, while remaining unseen in VR. Towards the end of the experience the VR immersion switches to AR within the same headset and a mediated version of the performer and performance space is seen in the headset. Shortly after the switch, the performer removes the headset from the participant and leaves the (now altered) theatre space as the performance concludes. The details of this entire experience are investigated at length in Chapter 4.

In this thesis I examine *Bury The Wren* through a combined Computer Science and Theatre Studies lens and through data analysis of the Research Ethics Board Approved study that

³ Original production at the University of Calgary: March and April, 2019. Full production credits listed in [Appendix D](#).

was conducted during the performances in March and April 2019 ([Appendix B](#))⁴. Here I investigate the audience experience of this new form. In the creation of the performance I intentionally foreground the *human*, using human voice, human contact and audience interaction to do so. Paying very close attention to the participant experience, I attempt to see to what degree I can weave the technology into the imaginary space so that the technology can be introduced without needing to (over)explain it or pretend that it isn't there.

Looking closely at process, design, form, function, technology and storytelling, I investigate ideas about what was central and important to that audience experience, questioning the place of the technology to uncover where it facilitates or obstructs the relationship between the participant and the performer or story. From these investigations I seek to understand how those experiences may impact future creation with these emerging technologies. *Bury The Wren* also provides an important step in the development of my concept of what 'digital dramaturgy' means, and how it applies to both technology development and the act of performance and performance creation.

I.iii Game Engines & Real Time Rendering as a Theatrical Tool and The Offer of Reactive Liveness

II There are many computer programs involved in the creation of 3D objects, [textures](#) and characters, but it is in the game engine software that the final worldbuilding occurs. Game engines, like [Unity](#) and [Unreal Engine](#), are the current standard for creating digital 2D or 3D virtual worlds for exploration in VR, games and movies. Historically game engines have been

⁴ Co-creator Neil Christensen's [thesis](#) examines the project through a Computer Science lens, with a visual art complement.

proprietary to the companies developing games, but [Unity](#) and [Unreal Engine](#) have altered the game engine landscape by providing their software for free to anyone – an action that has democratized and expanded their uses. The last few months have also seen a shift in terminology away from ‘game engine’ and into “Real-Time 3D Creation Tool” (Unreal) or “real-time 3D development platform” (Unity, “Unity for all”). Unreal also declares the tool as “[c]ontinuously evolving to serve not only its original purpose as a state-of-the-art game engine” but also to provide “creators across industries the freedom and control to deliver cutting-edge content, interactive experiences, and immersive virtual worlds” (Unreal, “Unreal Engine”).

A game engine, or real-time 3D creation tool, is the software system where lighting, objects and landscapes are combined with virtual cameras, user interaction and interfaces to build a navigable 3D world. They are complex programs that serve to synthesize and, in many cases, simplify the programmatic tasks required to be executed (like applying real world physics to game objects, and user input) in the building of a game or 3D world. They employ reusable components or assets (like trees, clouds, glowing orbs, etc.) and have large user communities that share or sell [plug-ins](#) and other assets. These reusable components are then employed uniquely in the building of a 3D world, not unlike the old analog game of “[Color-Forms](#)” or even the process of a cut-and-paste collage. Game engines include a rendering engine that is employed to achieve ‘real time rendering.’

Real time rendering refers to the dynamic processing of image, shadow, light, object [collision](#) detection, [physics engines](#), etc., that react in real time to user input. In the fourth edition

⁵ Hollywood has also been heavily involved with pushing the software development forward as a form of filmmaking termed ‘virtual production’ has taken root in the filmmaking pipeline.

of *Real-Time Rendering* the authors provide this succinct definition of real-time rendering, stating that it is:

concerned with rapidly making images on the computer. It is the most highly interactive area of computer graphics. An image appears on a screen, the viewer acts or reacts, and this feedback affects what is generated next. This cycle of reaction and rendering happens at a rapid enough rate that the viewer does not see individual images, but rather becomes immersed in a dynamic process. (Möller, et al. 1)

The responsive capabilities of real time rendering were key in guiding how Christensen and I intended to work with the chosen technology in *Bury The Wren* and opened up the possibilities of live improvisation and manipulation of our virtual world. Before there were any ideas about what we were going to do, we knew that we would utilize real time rendering capacities and that the performance world would be built using the Unity game engine and Steam VR. For me, a *real time* virtual environment that immerses, reacts and responds to the participant and performers actions makes game engine technology an inherently theatrical tool.

II.i Magic, Alchemy and the “Mysterious Identity of Essence”

“Any sufficiently advanced technology is indistinguishable from magic.”

Arthur C. Clarke’s 3rd Law (qtd in Lu “Three Laws”)

“Alchemy and the theater are so to speak virtual arts, and do not carry their end – or their reality – within themselves.”

Antonin Artaud, *Theatre and it’s Double* (48)

Throughout this thesis I will speak about *magic* and *alchemy* in an attempt to provide a framework to the ephemeral qualities and unpredictable occurrences that present themselves in the creation and performance of theatre. ‘Stage magic’ is a commonly used term to describe

techniques employed on stage that create moments of astonishment and amazement in the audience. As we all know, what appears to be magic is actually very good sleight-of-hand or, as Clarke says, “sufficiently advanced technology” (qtd in Lu “Three Laws”). The technology we engage with in the creation of stage magic allows increasingly complex and inexplicable moments to occur on stage.

My mentor Paul Thompson has used the term ‘magic’ as “a recognition that there are a number of forces shaping and surrounding people and events; forces that we’re normally not aware of most of the time And theatre is a way of plugging into that aliveness, of connecting with it and showing it” (qtd. in Wilson 13). This other use of ‘magic’ in relation to theatre, for me is intertwined with ‘alchemy.’ It is the mix of the spiritual, ephemeral, intangible and unknowable that resides in the combinations of all the pieces that create a work of theatre.

The practice of alchemy, dating from the medieval and early Renaissance eras, was a branch of study concerned with the transformation of baser metals into gold – a forerunner to modern chemistry – while it was also considered “a system of philosophy that dealt ... with the mystery of life and the formation of inanimate substances.” Alchemists believed they were scientists and enchanters, and the practice is frequently associated with “chemistry, astrology, occultism, and magic, blended with obscure and abstruse ideas derived from various religious systems and other sources” (Hutchinson). Relating theatre and alchemy, the French theatre-maker Antonin Artaud states that:

There is a mysterious identity of essence between the principle of the theater and that of alchemy. For like alchemy, the theater, considered from the point of view of its deepest principle, is developed from a certain number of fundamentals which are the same for all the arts and which aim on the spiritual and imaginary

level at an efficacy analogous to the process which in the physical world actually turns all matter into gold. (Artaud 48)

The alchemical elements of theatre reside in the hearts and minds of the people involved in the making, the stories we are collectively inhabiting and exploring, the design and technologies we are engaging with and the spaces we gather in together to create the art work. The magic is what happens when they are combined and make gold – inspiring, fulfilling, creative acts. When I speak through this thesis of magic and alchemy, I speak of this rare occurrence when artistic gold is formed from the gathering of theatre makers.

II.ii Digital Dramaturgy and Integration

My concept of digital dramaturgy is an ever-evolving part of my practice. I position it at the leading edge of new ideas around expanded dramaturgies. It currently has three aspects that I believe facilitate the holistic integration of digital media (here understood as image-based digital media) into the performance work. First, there is the dramaturgy of the *digital into the text*, whether existing, in process or devised. This approach also aims to allow for ‘spaces’ to be left in the text for the digital to enter. Examining and searching for deep connections and relationships between the digital image and the text, this first aspect of *digital dramaturgy* seeks ways to employ the digital in order to exchange or reduce text elements or express story points without text. Points of connection within the existing ideas or writing are sought so that the possibilities inherent in the digital might be revealed to the writer or devisors.

Next is the dramaturgy of the *digital content* itself, which examines the aesthetic and story that is being told by the digital imagery to ensure its own intrinsic clarity. The other important branch is the dramaturgy of the *technological systems* that get the digital content into

the live performance. This is what A.F. King refers to as “technodramaturgy,” which consists of “the interplay between traditional dramaturgies and the innate, often concealed dramaturgies of technical systems themselves, whether software, hardware or mechanical” (King 326). This includes the control systems that will get it to the stage, the various kinds of inputs (cameras, game engines, live video compositing, etc.), the displays on stage and even the tools used to create the content. This step examines what equipment creators choose and *why* and considers how the technological choices of implementation impact what integration and storytelling possibilities exist for the piece. All of these aspects of digital dramaturgy continue to grow and change as new technologies emerge and new forms of performance come into being.

II.iii Project Goals and Research Questions: The Beginning of the Future

How do we experience this grey area between 'real' reality and mediated reality? Can we really hold onto these distinctions? Theatre is actually a great place to experiment with that – we have the live bodies, and we can create the mediatised world around them – how do they bleed into each other?

Marianne Weems (qtd in Marranta “Mediaturgy”)

Bury The Wren is situated in several realms of exploration, each with their own attendant questions: design and digital scenography; storytelling; performance creation; reality, perception and presence; technology and technological development in game engines and real time rendering. I believe it is imperative to examine how VR and AR can integrate with the creation and performance of theatre *as* these technologies continue to emerge. VR and AR have existed at the extreme edges of theatrical creation since the mid 90’s, as witnessed in the work of Mark Reaney, Char Davies and others who receive brief mention in Chapter 2. These tools are only now, in 2020, coming into a stage of relative accessibility. Although we are years, if not decades, away from widespread adoption of these tools in common theatrical practice, the sooner we

begin to explore the aesthetic and dramaturgical possibilities inherent in them the better prepared for the future we theatre-makers will be, and the greater the likelihood we can help them develop into flexible collaborators. What can we learn *now* about audience experience, performance and creation within these new realms that will help us in the *future*?

Bury The Wren is the product of this complex question. Like my collaborator Christensen, I was very interested in exploring the idea of ‘reality’, and what the different realities of these technologies could offer the performer, participant and creators. Through *Bury The Wren* I have started to build a working vocabulary and have concretely begun to explore modes and methods of theatrical engagement with VR and AR. I am excited by what might we be able to create, and what we can create right now.

II.iv Research Questions

Our research questions elicited many answers which will be explored throughout this thesis. For as many answers as we got, new questions arose, and continue to as the technology shifts and changes.

Our primary research questions were:

- How can we tell a compelling story by combining the emerging tools of AR and VR with live performance?
- Are there methods to ensure that technology will not be at the forefront, but story and narrative will – *affect over effects*?
- How do we blur the lines between the different realities we are accessing and what are the affect and effects of that blurring?

- What dramaturgical and devising tools exist to help develop this kind of hybrid work, and what do we have to develop for or alter within the creative process to collaborate with these tools?
- Specific dramaturgical questions that guided development: Which were the real objects that Annie had brought to her grave? Why did she need to use VR to tell this story and how was it protecting her? Is VR the only place where she was free to share this vision of herself?

It is important for the reader to know that the impulses that created *Bury The Wren* were intuitive and grounded in Christensen and my histories as makers and thinkers. The entire developmental process was approached from a place of knowing how to make a technologically-oriented performance work. I know the vocabulary and I can speak tech to non-tech-minded people so that they understand, just as I can speak ‘theatre’ and ‘art’ to tech-minded people.

This thesis is an examination of audience experience, creative collaboration, devised and collective creation in the spaces where it intersects with technology and design. It examines how that space can be kept fluid and creative and how the combined elements can impact each other. My desire for this fluidity drives my curiosity around what we theatre-makers need to know about VR and AR that will allow for creative collisions. How can we create the conditions necessary for this alchemy, growth and symbiosis to occur? I argue that there are new methods to be found when approaching these emerging tools; that there are practical, tangible ways to begin to adapt our practices to allow for their integration; and that we are at the inception of a new form of performance, another phase of the “theatre that survived the theatre” (Kiesler).

II.v Chapter Review

[Chapter 1 “Lit Review”](#), is a literature review that begins with an overview of Object Theory and Immersive Theatre Theory, where I also examine intimacy and manipulation in immersive theatre. Diving into the theoretical texts, I begin with Alison Oddey’s *Devising Theatre: A Practical and Theoretical Handbook* and briefly examine Tina Bicât’s *Costume Design for Devised and Physical Theatre*, the only text I could find that focused specifically on designing sets or costumes for devised theatre, as opposed to designing processes, pieces, etcetera. The following texts deeply relate to my central enquiries around performance and technology, and many of them focus on technology as key players within intermedial works. The works engaged with include Freda Chappel and Chiel Kattenbelt’s *Intermediality in Theatre and Performance* and Sarah Bay-Cheng et al.’s *Mapping Intermediality*, each of which provide an in-depth examination of the growth and shifts within the implementation of ‘new media’ and performance technology in theatre over the past 25 years. I also engage with Jennifer Parker-Starbuck’s challenging concept of “Cyborg Theatre.” Most significant, for this thesis, is Steve Benford and Gabriella Giannachi’s *Performing Mixed Reality*, as it holds many important and guiding thoughts alongside a plethora of fascinating case studies, but it was their ideas around “trajectories” (15), “interactional trajectories” (117), “tangible interfaces” (124) and “transitional states” (267) that have provided insights and terminologies that have helped me grapple with some of what we created in *Bury The Wren*. I briefly look at *New Media Dramaturgy* by Peter Eckersall, Helena Grehan and Edward Scheer and Bonnie Marranca’s writing about “mediaturgy” (Marranca, “Performance as Design” 16), which were formative in my own thinking about digital dramaturgy. This leads into a short section on “Trailblazers” which include Jaron Lanier, Mel Slater and Char Davies. VR legend Jaron Lanier’s prescient and enthusiastic

thinking around the potentials of VR is highlighted here. Lanier's artist-mind is unique among the computer scientists that I engaged with, and, as one of the inventors of VR, his visions for the technology becoming a way for us to share our dreams with each other have been key to revisit throughout the creation of *Bury The Wren*.

Discovering the research of cognitive and computer scientist Mel Slater provided me with another perspective into the humanistic potential of VR and the ways in which it could and does connect with us as humans while it alters (or has the potential to alter) our state of being. Spanning the "Lit Review" and "Practitioners and Personal Influences" in Chapter 2 is artist Char Davies, whose essay about her early, groundbreaking exploration of VR Performance *OSMOSE* invented terminology to help understand and situate this kind of work.

[Chapter 2, "Practitioners and Personal Influences"](#) highlights two influential theatre and performance practitioners whose work deeply integrates digital technology: [Robert Lepage](#) and [The Builders Association](#). Included are important works by early and contemporary practitioners of the hybrid of VR and live performance, namely the work of [joe jack et john](#), [Jordan Tannahill](#), [Kalle Rasinkangas](#), [Joris Weijdom](#) and [Paul Cegys](#). Chapter 2 includes a brief examination of *BIOBOXES: Artifacts of Human Experience* by Theatre Replacement, a production that included no digital technology but which was concerned with intimacy in storytelling from a performance and design perspective.

[Chapter 3, "Methodology and Practices"](#) focuses on various methodologies employed in the creation of *Bury The Wren* and in my practice of working with digital technology and performance. I focus on devised and collective creations, and design- and digital-design-driven creation. Within my discussion of those methodologies I continue to explore the work of many artists and scholars mentioned in Chapter 2, with a focus on Paul Thompson. In this section I

examine the importance of designing an iterative, emergent creative process based in the Practice as Research methodology. Chapter 3 offers a self-reflective look at my practice, with case studies of works that informed my current research, including *Bigger Than Jesus*, *The Last Donnelly Standing* and *Between Breaths*.

[Chapter 4 “Bury The Wren: Project, Technology, Process, Performance and Ghosts”](#)

provides an in-depth examination of the central case study of *Bury The Wren*, closely examining the project, the technology, the process by which the piece was made, the emergent forms invented and the methods of creation discovered. A review of salient portions of the research data collected during the performances of *Bury The Wren* are also included in this chapter.

Chapter 1 Lit Review

As we move deeper into the fourth industrial revolution, the first decades of the 2000s have proven to be a rich time of writing about the integration of digital media (projection, video, sound, etc.) with theatre. I have worked with innumerable texts in the process of this project, thesis, and degree – many of which could be considered in this chapter; Dorita Hannah, Rachel Hann, Janet Murray, and Brenda Laurel among them. The most carefully considered exclusion is Steve Dixon's *Digital Performance: A History of New Media in Theatre*. This exhaustive work is referenced throughout the thesis, but not covered in this Lit Review section. It is unquestionably an influential book for me, but it is so monumental that there is not a concise and effective way to summarize it in this section.

There is a multitude of new dynamics and new forms to uncover, discover, and invent in the combination of theatre and digital technologies, particularly *emerging* technologies. While the projected image has been part of live performance for over 100 years (or more if one references the caves at Lascaux⁶), I have been looking at terminology and definitions that are most immediately relevant to more contemporary times. Over the last two decades, there has been a great deal of grappling with meanings and terminologies for these new forms. 'New media' and 'multimedia' were commonly used in the late 90s and early 2000s, especially when describing the works of artists such as Robert Lepage and The Builders Association. Digital

⁶ In 2012, Paleolithic researcher and filmmaker Marc Azéma & Florent Rivère released a paper outlining their discoveries from close examination of the paintings of animals in the Lascaux caves in France. Their discoveries revealed that the artists had "developed techniques to show how animals moved," and they broke down this movement "by the juxtaposition of successive images" (Azéma and Rivère 318). The viewing of each image by the "fluctuating light from a lamp or hearth" would then "be reconstituted for the observer, as in an animated film. Azéma and Rivère concluded that the Palaeolithic artists had "designed a system of graphic narrative" which led to "the principle of sequential animation" (323), effectively creating humankind's earliest moving image integrated into a physical space. A representation of this animation can be seen here: <http://antiquity.ac.uk/projgall/azema332/>

media is no longer “new,” and while we engage with *multiple* forms of digital media, the term “multimedia” is not quite complex enough to reflect what is happening in theatre and performance that engages with digital media.

Emerging technologies like VR and AR actively play with spectators’ perception in ways we have not previously encountered. As these technologies continue their rapid development, the process and forms created by their integration into performance become more complex. Therefore, it is necessary to continue to engage with the ways of describing what is emerging and changing. And so, we arrive in 2020 with a multitude of terms – intermedial, cyborg, and mixed or extended or multiple reality – as ways to describe these morphing forms of performance without any of the terms being definitive. I, as is witnessed in this thesis, move between *intermedial* and *mixed reality*, in part because the technologies and how we engage with them continue to develop. This lit review reflects that engagement, as well as my engagement with many of the historical and contemporary thinkers and trailblazing practitioners who have provided terms to help describe what I have seen, experienced, and am dreaming about for the future of theatre.

1.1 Object Theory and Immersive Theatre Theory

There are many emerging and existing critical theories that could be engaged with to define and understand the interdisciplinary entanglements of the complex, hybrid, intermedial work that populates my practice and areas of interest. Immersive Theatre Theory and Object Theory are both substantive fields of theoretical research that are each deeply relevant to this study. Both theories underlie this whole thesis, so, acknowledging their importance, I offer a brief overview of the key aspects and scholars of each.

1.1.1 *Object Theory*

The story told by *Bury The Wren* focuses on the objects encountered in physical and virtual life, making the production significantly object-oriented. As detailed in Chapter 4, it is also object-*initiated*, the performance having been created through engagement and collaboration with the objects that also perform in the production. Therefore, Object Theory (illuminated by authors like Bruno Latour, Jane Bennett, and Karen Barad) could very easily guide another approach to this thesis. While it is present in my thinking here, it will not be a guiding theory.

Turning directly to performance studies scholarship, Marlis Schweitzer draws from Latour's *Politics of Nature*, writing that by "challenging narrowly anthropocentric narratives, we understand the physical materials not as inert human possessions but instead as *actants*, with particular frequencies, energies, and potentials to affect human and nonhuman worlds" (Schweitzer 2). A new materialist mode of thinking, when applied to performance, gives artistic agency to both the humans and objects "entangled" in performance. Schweitzer asserts that new materialist "scholars do not deny the importance of human subjects, but rather trouble traditional Western hierarchies that place humans at the top of the 'great chain of being' (see Lovejoy) by insisting on the dynamic collaborations that occur daily between human and non-human entities" (Schweitzer 5). *Bury The Wren* is a rich territory to engage with through an Object Theory lens, given that creation of the work was rooted in objects (both carbon real and virtual) that share primacy with the human presence in the performance of the play. I believe that Object Theory is important to the critical thinking around future ideas of hybrid AR/VR/Performance creations, and how objects are virtuosic "actants", as Latour calls them, and have agency, even in their virtuality (quoted in Allen, 8).

In reviewing the object-oriented work of Philippe Quesne and Vivarium Studio, Richard Allen observes that the “human is a co-creator in a world of objects and inhuman processes ... one that enables a rethinking of what it might mean to be a human as an object amongst many other objects” (Allen 11). This provides a theoretical grounding for the importance and role of the object and the human in a mixed reality context where, like in *Bury The Wren*, the human does not hold a place of superiority in the storytelling, but is entangled with the object/actants and requires their presence and agency to be able to tell their part of the story. Frequently in *Bury The Wren*, it is the objects that ‘force’ the live performer to move to different parts of the story, making the object a scene partner as opposed to simply a prop.

As Allen writes, “all objects can be defined by how they transform, disrupt or modify something else, reconfiguring the relations of any social arrangement” (Allen 8). Rupturing the binary of subject-object, this view of objects “attempts to reconfigure the role and nature of agency with respect to how material objects might be understood, *reinstating nonhuman elements as active co-creators* in establishing social, cultural and political effects” (Allen 8, emphasis mine). Allen’s assertion of non-human co-creators is especially appealing as I have, for many years, referred to my computers and programs as “collaborators.” I find this realm of thought compelling in traditional theatrical contexts, as it challenges old ways of looking at traditional design elements, but it is especially intriguing when exploring objects in the digitally created realities of AR and VR. I believe this mode of thinking allows us to consider the digital object in ways that transcend their historical uses as gamified instances like magic portals or weapons and allows them to become partners and collaborators in the digital and hybrid space. I attempted to imbue the object-collaborators in *Bury The Wren* with this kind of agency.

1.1.2 *Immersive Theatre Theory*

The term *immersive theatre* is used to describe a form of performance that often happens outside traditional theatrical venues, or uses traditional venues in a non-conventional⁷ way. (fig.

1.1 to 1.5) The *immersive* qualities include surrounding the spectators in an environment that is crafted and augmented in order to engage the full sensory spectrum, often to a heightened degree, thereby *immersing* the audience in it. It is frequently interdisciplinary, and there are often participatory elements and requirements to engage with the environment. Immersive theatre is a “contemporary performance practice involving a visceral and participatory audience experience with an all-encompassing, sensual style of production aesthetic” (Machon 35).



Figure 1.1 The exterior of Toronto's Theatre Passe converted into a synagogue for 2010's *Yichud*. Each exterior facing window was also covered with a stained-glass applique. Patrons who were not familiar with Theatre Passe Muraille often believed that they were entering a real synagogue. © Beth Kates

⁷ I have transformed existing theatre spaces into immersive environments on several occasions. Most notably with 2011's *Yichud* by Julie Tepperman, where, as the Set, Lighting and Costume designer, I transformed both Theatre Passe Muraille (Toronto) and Academic Hall in Ottawa. Both venues were traditional theatrical spaces, with a stage and fixed seating. These elements were considered and modified and the entirety of each venue was transformed to become an immersive theatricalized, and realistic version of an orthodox Jewish synagogue.

Among the many principles of immersive theatre, the most immediately relevant to *Bury The Wren*, and to my greater practice, is that of intimacy and the relationship between the spectator/“immersant”/audience and the performers (including objects). Scholars such as Ben Anderson, Adam Alston, Bruce Barton, Rose Biggin, Josephine Machon, and many others have investigated the concerns around intimacy, and the potential types of intimacy, that can be engaged with inside immersive theatre. It is likewise important to consider the dynamic of the artist-audience relationship and the ethics of the invitations and contracts made between the artists and the audience in the process of engaging in an immersive performance.

In *Immersive Theatre and Audience Experience*, Rose Biggin identifies the unique aspects of immersive theatre in the “apparent freedom” of the spectators to wander through a “spatially innovative



Figure 1.4 *Yichud* at Theatre Passe Muraille, 2010. The entire interior of the theatre was a performance space and every corner was adapted to look authentically like a synagogue (from the constructed walls that contained the Torah in fig 1.2, to the false stained glass windows in fig 1.3, to the modified box office in fig 1.4). On more than one occasion I brought a Rabbi to the ‘ark’ (shown above), to prove that behind it was a brick wall and not the sacred scrolls of the Torah.



Figure 1.2 © Beth Kates 2020



Figure 1.3 © Beth Kates 2020

environment, usually scenographically rich and multisensory,” often engaging with a “non-chronological and/or impressionistic approach to narrative.” Much of immersive theatre includes “interactive elements or characters, often with an emphasis on empowerment, choice or freedom for the spectator” (Biggin 2). The



Figure 1.5 *Yichud* main performance space. © Beth Kates 2020

experience is also “likely to be multi-sensory, making use of exploratory experiences of space and relationships with performers” often including the senses of touch and smell, which “are not normally significantly part of the semiotic equipment of theatre” (White, “On Immersive Theatre” 222). Explorations of the combination of AR, VR, and live performance can find grounding in those recognized aspects that combine to form immersive theatre, as they share concerns in “the possibilities of spectatorship, participation, and scenography” (Alston, “Making Mistakes” 62).

Understanding and foregrounding the embodied experience of the spectator in an immersive theatrical production also holds equal weight when considering the experience within emergent technologies. Josephine Machon importantly points to the impact that this multi-sensory experience of immersive theatre can have on the body and internal life of an “interactor” (or spectator), writing that:

[T]he intersensual activity of the interactor in immersive practice includes acts of observation that trigger embodied watching. This is a noticing of internal feelings (both

emotional and sensational) as much as external occurrences – a giving attention, moment by moment. In such instances, even when shifting back to look on, the watcher remains active, attending to the moment, to what it looks like but, more significantly, what it feels like, both internally and externally. (Machon, “Watching” 40)

The sensory-rich nature of immersive theatre significantly differentiates the form from the traditional proscenium or framed theatre. This sensory immersion requires a variety of different forms of care to be taken of the “interactors,” to safely bring them into the world of the performance. Machon provides examples of how immersive practitioners use transitional states in the form of “pre-performance rituals and framings to acclimatise the interactor within the work.” These rituals often use sound, scenography, and costume to introduce “characters or guides who initiate interactors into the world,” spectators are often brought into “waiting rooms which gently steep [them] in the outlandish environment” (40). With these actions, the participants find themselves in, as Benford and Giannachi call them, “key transitions” (Benford and Giannachi 267). They slowly merge into the new, created world, with their imagination and senses heightened. This intensified awareness and embodied perception of their surroundings provide the “interactors” with a sensory language to help understand, navigate, and participate in the experience (Machon, “Watching, Attending, Sensemaking” 40).

Examined thoroughly in Chapter 4, “key transitional states” are integrated into the performance of *Bury The Wren*. Phases of immersion were engaged with before plunging the ‘interactor’ into VR to prevent potential cognitive overload of being thrown into a virtual world. The gradual immersion also allowed the fluidity of realities as we melded digital and carbon worlds organically.

1.2 Intimacy in Immersive Theatre: Caretaking and Politics

Intimacy is one of the most seductive components of immersive theatre. The potential, nature, and role of intimacy are important, if not central, points of focus in the creation and presentation of these works. Intimacy is foregrounded, and immersive theatre takes into consideration when and how to engage in intimate interactions with the spectators. Bruce Barton writes that we can understand intimate interactions in immersive theatre as a “performative intimacy” where, among the participants, there is “a willingness to self-disclose.” This willingness is combined with “full, positive, and mutual attention; openness to physical contact and connection” and a “shared understanding” that “is valued and pursued outside the context of extended aesthetic, commercial, or emotional contracts.” Barton asserts that this “performative intimacy” is “predicated on the devaluation, even rejection, of fictional, thematic, and organizational predictability and familiarity” (“Paradox as Process” 580).

An important example of “performative intimacy” can be found in Theatre Replacement’s 2007 production of *BIOBOXES: Artifacting Human Experience*. The show is a series of six one-to-one solo performances that take place in a series of tiny immersive theatres (bioboxes) worn on the performer’s shoulders. The stories embodied in each small box contained a significant narrative of personal experience and an attempt to correct erasure – themes that tie in deeply to *Bury The Wren*. The bioboxes themselves are placed within a larger immersive environment of a performance space, so that the audience is first immersed in that large space, viewing the series of boxes from the outside, before entering into the tiny biobox theatre.

Once inside, these bioboxes place the performer no further than 18 inches away from the immersant, demanding a “full, positive, and mutual attention; openness to physical contact and connection” (Barton, “Paradox as Process” 580), almost to the extreme. The audience is

implicated in each story by their physical presence, and there is a “shared understanding” (or contract) of engagement, interaction, openness, and deep listening. Short of closing one's eyes and plugging one's ears, there is no way to be a fully passive audience member.

The scenography of the tiny box-worlds is as transformative as the most physically epic of productions. Using dollar store bike lights, a paper “oleo” of images, tiny figurines making a little village, and even mysterious treats to eat—the carefully crafted storyworld of the bioboxes creates a *scenography of intimacy* with each minute detail considered for its dramaturgical and scenographic weight. While *BIOBOXES* is an exploration of immigrant stories, it has always held for me a powerful exploration of intimate scenography as an integrated partner. In these micro-performances, even the smallest most delicate shift of “set” became monumental. Each box was a surprise, and each performer and piece of scenography was delightfully revealed. The *experience* of intimate connection with each performer in each box was unlike anything I had encountered in the theatre before. *BIOBOXES* fundamentally changed the way I felt about intimacy in theatre.

Intimacy, especially the physically-close kind explored in *BIOBOXES*, in immersive performance requires that the “shared understanding” or contract between performer and audience member includes the safety of both the performer and the audience member. Strategies must be enacted to address audience safety (caretaking), as well as ways of overcoming audience inhibitions. These contracts must also address limitations for audience members who may be “unburdened” by inhibition, which takes into consideration the safety of the performers and other spectators (Barton, “Paradox as Process” & “Performing the Paradox”; White, “On Immersive Theatre”). Highlighting the importance of the “rights and safety of those working in its spaces,” Biggin notes the importance of ensuring that “work calling itself immersive negotiates questions

of intimacy and exchange, and in particular the relationship between money and power that is inevitably at play in these environments” (Biggin “Labours of Seduction” 73).

Biggin emphasises the inherent political dynamics at play in the use of intimacy in immersive theatre, writing that “artistic choices” made in the design, directing and crafting of a production “will reveal whose experiences have priority in the space, and how this priority is embodied in the moment of performance” (73). This draws attention to the care that must be taken in developing the protocols and affordances in the relationship(s) and contracts that exist between the audience and the artists in an immersive setting. Josephine Machon also stresses the importance of the contract with the audience, writing that in order “to allow full immersion in these worlds” a ‘contract for participation’ must be “shared early on between the spectator and the artist, inviting and enabling varying modes of agency and participation” (Machon, “Watching, Attending, Sensemaking” 35).

1.2.1 Manipulation and Control in Immersive Theatre

Immersive theatre intentionally transcends the “frame” or proscenium of traditional presentations and, in doing so, reveals new modes of spectator manipulation. As Biggin notes, many immersive productions employ “strategies of seduction,” calling upon “pre-familiar structures from nontheater events or environments – going out for dinner, visiting a nightclub or strip club,” which each carry their own “cultural baggage in terms of gender, power, commercial transaction, and the idea of personal service” (Biggin, “Labours of Seduction” 73). While the currency of the erotic in Biggin’s example heightens the risk of exploitation and harmful manipulation of either audience or performer, that risk is present in all immersive work where the historical boundary of the fourth wall is disassembled.

The potential for deep (possibly negative) manipulation and control must be something that is considered and questioned. How are we manipulating the audience? Does the manipulation cause risk or harm? Is the manipulation ethical? Is it self-serving, or does it serve the storytelling and audience experience? If spectators are concerned with “what is being done to me?”, what is the impact on the performance and the audience experience? While issues of ethics and safety can be addressed thoughtfully in the ‘contract’ made between the spectator and the artists before and during the event, reviewers and scholars of immersive theatre have brought criticism to the ways that the immersive experience manipulates (Alston, “Immersive Theatres”; White, “On Immersive Theatre”).⁸

While cheerleaders of the immersive form laud the potential it holds for intimate connection in fulfilling and visceral multisensory events that exceed the traditional experience, Gareth White offers compelling critical views on the audience's perspective. Through reflections on his personal experiences as a spectator, White suggests that the experience is not fulfilling for all and that “many people have found this form immensely frustrating.” He notes that, for participants, the “layers of physical experience interfere with the process of reception and response to a performance that seems to be on offer” making that very performance “in some way out of reach” (White, “On Immersive Theatre” 229).

Issues around intimacy and audience manipulation were a primary concern in the creation and presentation of *Bury The Wren*. Knowing that VR can alter the experience of reality in ways

⁸ Immersive theatre events provide the audience a *sense* of agency, intimacy, access to the interior of the work, and therefore a perception some kind of special connection intimate connection to the work, the artists, or the performers. However, the audience is serving a purpose in the work in one form or another, and is therefore being manipulated to perform actions that serve the creators of the work and not the audience. The sense of agency or of being “inside” the work (White “On Immersive Theatre”) is false.

that can ‘trick’ the brain into believing what is real, we acknowledged our ethical responsibility to provide a safe experience at the inception of the project. These ethical concerns guided the creation process, foregrounding the audience experience and requiring us to develop modes of creation that ensured we (as the creators) maintained audience safety as a central objective of the performance. This is explored at length in Chapter 4.

Immersive theatre theories and practices have an undeniable connection to the immersive qualities of VR and AR. The understandings and discoveries made over the decades of immersive practice provide a rich resource as these emergent technologies and theatre become more entangled.

1.3 *Devising Theatre: A Practical and Theoretical Handbook* by Alison Oddey

Devised theatre is also covered extensively in Chapter 3, as it factors in significantly to the creation of *Bury The Wren*. As the title indicates, Alison Oddey’s book, *Devising Theatre: A Practical and Theoretical Handbook*, is a clear and detailed examination of the process of devising theatre, which is the creation of a performance work from a central stimulus (ie. a theme, historical event, object, etc.). While there are prompts and “guidelines” offered within this text, the thread through the book reminds us that “[d]evising is dependent on [the] people” who are involved in the creation of the work. The process and the result are therefore informed by "their life experience and motivations, why and what they want to devise, and the pathfinder process chosen by them to explore their particular set of circumstances" (148). Oddey also highlights how there is no “single theory that can embrace this amorphous subject” (140). This certainly reflects my extensive experience in devising theatre, and the need to stay flexible in the crafting of the process. This is further amplified when Oddey writes that “[e]very time a group

devises a piece of theatre, it builds on previous experiences.” She notes that the “uniqueness” of each project “demands a fresh approach to working together, an open mind, and a willingness to trust to process” as opposed to deciding “in advance how the product will be created” (163).

Oddey’s observations highlight how the process of devising is new every time it is embarked on. It is responsive and influenced by those participating in the project, and “[k]nowing, using and reflecting the strengths of the people in the company are vital resources for the devising process and product” (Oddey 24). Throughout the book, there are constant reminders of and reflections on how important it is to remain nimble and open to what *and who* is in the creation room. Oddey asserts that it is “never the planned attempt to motivate ideas that produces results, but rather some spontaneous discovery that turns everything upside-down, and reveals a glimmer of light on the devising horizon” (Oddey 200).

The “guidelines” offered by Oddey are ten helpful cairns for crafting a devised theatre “pathfinder process” (148). These points, written in 1994, remain useful in 2020 as they are expansive enough to allow room for the inclusion of other world views (ie. Indigenous, LGBTQ2S, Dis/Mad/Crip creation methods). Oddey’s “Code of Practice” brings to mind the ‘working agreements’ that director Jenna Rodgers includes in her rehearsal process. This is a practice where *all* members of the team contribute honestly and openly to the shaping of a communal agreement of how the rehearsal/creation room operates, based on the specific needs of individuals involved in that process. Oddey’s guidelines to create the “model of an open-ended structure of a devising process” (Oddey 151) help the reader understand the complex, iterative, and reflective nature of a devising a work. Each point in this model requires time and thought at the beginning and throughout a devising process.

I employed many of these actions in the creation of *Bury The Wren* by intuition, thanks to my many years of working with and observing creators like Robert Lepage, Daniel Brooks, and Paul Thompson, all of whom are extremely well-versed in devised methods. Engaging with Oddey's book has provided me with ways to articulate parts of that "intuition" and be able to recognize similar conclusions and observations, like the one above of how the "planned attempt to motivate ideas" (Oddey 200) never really quite works.

Oddey's "Model of Process" breaks down a theoretical creation into stages of devised development. Helpfully, within this sample is a wide array of prompts, questions, and modes of observation for the devised process and attendant creations. Oddey is careful to point out that the components of this sample Model can be "swopped, re-ordered, or re-arranged" and that "the suggested structure is skeletal, flexible, and designed to encourage greater group awareness" (Oddey 154). The practical and theoretical components of this book provided me with strong reminders and some new ideas about how to build a "pathway" through a devised process.

Oddey does not overtly privilege any part of the devising team; Instead, she focuses on the idea of a collaborative company based on individual skills. This is precisely why I feel the devised process offered the kind of agency I desire as a designer, where I can participate profoundly in the creation of a performance. The suggestion of places for a hierarchy to be inserted into the process is highlighted in the third tenant of Oddey's Guidelines where she writes: "Establish leadership of the project (if applicable), and how this will operate in terms of company decision making. Delegate or form hierarchies according to skills and interests." Oddey also emphasises that a flexible sense of leadership is necessary, calling it an "outside eye" in the form of a director, team leader, or "a member of the company with that specific responsibility during a workshop session or rehearsal" (150). This is highlighted as being crucial to avoiding

the danger of “becoming preoccupied with talking and words” or falling into the trap of poor communication which “creates confusion between people to the extent that a group can complicate subject matter” (155). This affirms my historical observations, having watched devised processes *without* this kind of leadership devolve into lots of “talking and words” and spin completely out of control, resulting in productions that were often narcissistic, misguided, unclear, and under-formed. However, this “job” in a devised process, to me, remains a challenging form of leadership. How does one guide and shepherd without limiting the process and remembering that “the ideas, feeling, or vision have to come from the group” (150)? This question guided how I operated as the “leader” of the collaborative, devised creation of *Bury The Wren*, and is a question that could form the basis for an entire thesis. It is reflected on a little in Chapter 4, but it is one of the important takeaways from Oddey’s helpful and inspiring book.

1.4 *Costume and Design for Devised and Physical Theatre* by Tina Bicât

This concise and practical volume provides great insight into devised methodology from a design perspective. Bicât importantly brings her firsthand experience as a designer in the devised creation space, providing the reader with practical methods for how to be a strong design-focused collaborator. Offering clues as to how to maintain flexibility in the devised creation room so that it allows collaborative space for design to help guide the creation, Bicât’s writing gives voice to many of my own experiences in those rooms. Though the focus of the book is costume design, the methods and techniques are fully transferable to digital technology and offer important insights into the role that design plays (or can play) in the creation of a devised work. The text intentionally focuses on the designer, privileging that perspective for the

reader. This is an important point of view to hear reflected when considering the devised creation influenced approach within my practice, specifically with *Bury The Wren*.

Of particular resonance for me was an early, and important, statement by Bicat that “everyone in the devising workroom is there to help invent the final performance, and all share the responsibility for the development of the work” (Bicat 12). Further observations about the designer’s process in a devised realm and the “late night scramble to make practical sense of the inventions of the day in time for the next day’s rehearsal” (19) also sheds light on the invisible labour of the designer.

As Bicat notes, and I heartily agree, “[t]he best option for any devised performance is to have the whole creative team in rehearsal for most of the time” (55) and provide design offerings that are “open enough to stimulate, but not lead, the performer’s improvisation” (58). These contributions allow for a facilitated “design improvisation by people who cannot see through your eyes” (56). Being “on-hand” in rehearsal means that the designer is “able to design together [with the performer]”, and Bicat asserts that “[t]he most perfect state is for the [design] workroom [...] to be in, or to adjoin, the room where the director and performers are inventing.” When this happens, she notes, “the design and the making of the show can feed each other and grow together” (56).

Correlating more to the process I encountered on *The Last Donnelly Standing*, where I improvised video and lighting alongside an improvising performer, Bicat notes the potential usefulness “to the director and performers, for the designer to improvise alongside the actors.” This action can “help develop the story paths the players have chosen” or even potentially “change the path by offering a surprise” in the way that the emotional message of a group of objects is changed by the addition of a glove.” “[I]magine” she writes, “what would happen if

you took away a bottle standing in for wine, and replaced it with something that suggested a knife or a piglet or a bunch of orchids! The whole balance and story of the improvisation would change” (60).

When this mode of design improvisation works “it can integrate the design into the heart of the work” (60). Bicat acknowledges that “[i]t sounds chaotic and disruptive,” but that it actually “takes a remarkably short time to become an invisible and helpful producer.” The “useful benefit” of this process to the designer is that the rest of the team can *see* the way the designer thinking and that the designer is “a close and active participant in the process,” which results in a building of trust of both the designer and their ideas (61).

In the design-led process of *Bury The Wren*, which is examined extensively in Chapter 4, there were many points of interaction between the devised process of the performer and the design. Specifically, the costume, which became a *mélange* of different time periods, was developed and sourced with the performer, which provided information to the performer and the participant of our flexible time period. In particular, the costume was devised primarily *for* the performer as it was only seen by the participants briefly, which made it important that she felt comfortable and grounded in her costume and wig. The other relevant example is how simply having a human bone in the creation room created a point of connection in the story of invisible characters, guiding the development of the text, and critical engagement between the performer and the participant when the bone was exchanged. Both of these instances of design-led development reflect the benefits of including design into the process of devising theatre.

Highlighting the contribution of design as a problem solver, storyteller, and dramaturg, and foregrounding the importance of the inclusion of design, Bicat’s observations about the devised theatre process are incredibly valuable to the practitioner when considering how to

construct a creation process. Design and the designer remain centric in Bicat's explorations while emphasizing the important observation of the "combination of the ways in which different creative artists react to facts," noting it as "one of the factors that make devised theatre so rich in possibility" (Bicat 26). *Costume and Design for Devised and Physical Theatre* is a concise and articulate investigation and guidebook for designing in a devised process, but also for any designer considering modes of dramaturgical inquiry in their practice.

1.5 *Intermediality in Theatre and Performance* by Freda Chappel and Chiel

Kattenbelt

In 2006's *Intermediality in Theatre and Performance*, Freda Chappel and Chiel Kattenbelt mark the helpful introduction of the term "intermediality." They describe theatre as a "hypermedium", stating that "[i]t is because of its capacity to incorporate all media that we can consider theatre as a hypermedium, that is to say, as a medium that can contain all media" (23). This idea of 'theatre-as-hypermedium' has been useful in reflecting on my decades-long practice, and especially on the central case study in this thesis. Thinking about theatre as a 'hypermedium' has made it possible to confidently declare *Bury The Wren* a work of theatre from a critical context. Declaring theatre a 'hypermedium' is a recognition of its potential to be an expandable place of creativity that can contain a multitude of other art forms within theatre's embrace. The concept of theatre as 'hypermedium' helps to confirm my belief that there is indeed a place for the integration of VR and AR in this shape-shifting form.

Chappel and Kattenbelt go on to "locate intermediality at a meeting point in-between the performers, the observers and the confluence of media involved in a performance at a particular moment in time." Continuing the idea of 'in-between' they assert that the "intermedial inhabits a

space in-between the different realities that the performance creates,” holding a position as a “powerful and potentially radical force” operating “in between performer and audience; in between theatre, performance and other media; and in-between realities.” Chappel and Kattenbelt maintain that the theatre holds all these pieces and provides “a staging space for the performance of intermediality” (12).

Concretely stating this *in-between-ness*, Chappel and Kattenbelt go on to get a little closer to what I believe intermediality to be when they provide some flexibility in the concrete idea of ‘in-between’ to observe that “the intermedia is a space where the boundaries *soften*—and we are in-between and within a *mixing* of spaces, media and realities” (12, emphasis mine). Here in the mixing space “intermediality becomes a process of transformation of thoughts and processes where something different is formed through performance” and is located “as a re-perception of the whole, which is *reconstructed* through performance” (12, emphasis mine). It is in the observed “softness,” “mixing,” and “reconstruction” that I find myself more aligned with their thinking, and where I believe “intermediality” provides affordances for a mixing place of forms and realities and perceptions, represented by the integrations of digital technology. I see intermedial work as interconnected, interwoven, and (as I will use frequently in this thesis) *integrated*. It is the aim of digital dramaturgy—of a dramaturgical approach to the digital in live performance—to be embedded into the sinew of a work, not to sit in between forms or in between realities. All components of intermedial works should be integrated and in conversation with each other and within the hypermedium of theatre.

1.6 *Mapping Intermediality* by Sarah Bay-Cheng, ed., et al.

My belief in the thorough integration of media into intermedial works is more reflected in the web-like construction of *Mapping Intermediality*, where, in “How to Approach this Book,” Sarah Bay-Cheng notes that “[t]he project has developed organically as a network of situated concerns and engagements and thus is more an exercise in mapping, a journey charting a network of selected ideas and practices, than an attempt at exhaustive coverage, let alone fixity” (Bay-Cheng et al. 9).

It is the definition of “intermediality” proposed in this book that I align with and towards which I draw the threads of my own practitioner’s web. Asserting that “[i]ntermediality refers to the interconnectedness of modern media of communication,” this interconnectedness represents a “means of expression and exchange” wherein the various media “depend on and refer to each other, both explicitly and implicitly.” In this definition of intermedial performance, the integrated media “interact as elements of particular communicative strategies; and they are constituents of a wider cultural environment” (Bay-Cheng et al. 15).

This perspective on intermediality provides context for the observations I have made over the years on the value of the dialogues between the different media in an intermedial work. It is in the dialogues and the interaction of the elements, as Bay-Cheng notes here, that the new conversations are revealed. The editors go on to observe the exciting potential that intermedial work provides when they write about how these “principles of composition are closely related to new perceptions, and our interest is in how – singularly and collectively – intermedial performances may have elicited a new cultural way of seeing, feeling and being in the contemporary world” (18). This idea of a new way of “seeing, feeling, and being” feels deeply

relevant, and, as the work that I've been exploring with emerging technologies seems to be pointing to, it also feels quite true.

The construction of *Mapping Intermediality* itself is a reflection of the complex networks that comprise intermedial performance. “Conceived as a global network of multipl[e] interconnected ideas and practices,” one can enter the book in a variety of ways and select one’s own path (9). These many entry points provide a simulation of a web-like construction of ideas similar to the internet, which allows one to fall down the proverbial ‘rabbit hole’ to unexpected destinations. For me, engaging with this book from different entry points at each engagement meant that I was continuously discovering and re-discovering entries depending on the way I chose to access the writing. This allowed for new juxtapositions of thoughts and ideas that sometimes led to new discoveries.

The different sections of the book, called “Portals,” are a major structural component that provide “gateways into the network which afford a range of situated perspectives” (9). The next referenced work sits within the “Portals” structure. The dramaturgically-focused writing of Liesbeth Groot Nibbelink and Sigrid Merx and their contribution to *Portal: Pedagogical Praxis*, “Presence and Perception: Analysing Intermediality in Performance,” was one of the most significantly relevant perspectives to engage within *Mapping Intermediality*.

Groot Nibbelink and Merx observe that “[t]he clash between digitally influenced perceptions and embodied presence manifests itself particularly as a *disturbance* of the senses and results in a *blurring of realities*” (219, emphasis original). Noting that “[t]heatre makers often deploy digital media in the live performance in order to disturb clear-cut perceptual distinctions between fictional and real, physical and virtual, live and pre-recorded,” they assert that these “clashes” result in “gateways into the performance,” which helps to create an

“understanding of the performances” and “ignites reflection on perception itself” (219). This has been a valuable insight as I attempt to understand the intentional and unintentional dissonances in realities and perception that existed in *Bury The Wren*. The concept of a “gateway” created by these dissonances has put potential words to what we created, and I am intrigued by the idea that we may have ignited “reflection on perception itself” in people other than ourselves as the makers.

1.7 *Cyborg Theatre* by Jennifer Parker-Starbuck

While *Bury The Wren* is, according to Parker-Starbuck’s definition, a work of Cyborg Theatre, I find the term problematic—mainly due to the negative, dystopian, and violent connotations that the word “cyborg” conjures via popular culture (“[Terminator](#),” “[RUR](#),” “[Frankenstein’s monster](#),” “[Metropolis](#),” etc.). However, it does provide practitioners and scholars an evocative framework based on metaphor and history. As Parker-Starbuck writes:

Other terms—technological theatre, live media, digital performance, virtual theatre, intermedial performance, and mixed-media performance—while useful catch-all phrases, do not as specifically address the *interdependence between the live and the technological that the concept of cyborg does*. (Parker-Starbuck 6, emphasis mine)

My understanding of “Cyborg Theatre” is that the employed technology is not simply grafted onto a body but is *entangled* with the body and, therefore, the human aspect of the theatre being performed and experienced. “Cyborg Theatre” provides an acknowledgment of the depths to which technology is a dramaturgical entity. This recognition of the potential *interdependence* between the technological and the live is critical to our attempts to understand the forms emerging through the new modes of integration, intermediality, and cyborgian entanglement. It

is achieving this interdependence that has been my overarching goal in my decades-long practice, and that we were striving for in *Bury The Wren*. I believe it is a critical part of making compelling intermedial or mixed reality performance.

I argue that the word “cyborg” and the connotations of a “cyborg,” even when combined with “theatre,” privileges the technological over the human. With this work we are trying to do the opposite: *affect over effects*. One of the primary objectives of *Bury The Wren* was to bridge the technical and the human, merging them into each other – cyborgian, yes, but relentlessly and intentionally human. In the capturing of the performance process, there is a photo of the final image of the actor that the participant has – that of the character Annie Donnelly, with her hair circa the 1880s, her dress circa 1920, holding a Vive Pro headset – circa 2018, smiling at the participant as she exits the room. (fig. 1.6) This singular image represents the collision of eras and holds that this technologically driven work is not a technology-first work.

There are no cyborgs here.



Figure 1.6 Image from the end of *Bury The Wren* as Annie Donnelly removes the HMD from a participant
© Beth Kates 2020

However, Parker-Starbuck's concepts of *subject and abject technologies* and the *subject body* help expand and situate my ideas of digital dramaturgy and "integration," providing an intriguing framework for thinking about the hard and soft elements of our technological integration in *Bury The Wren*. Parker-Starbuck writes that, in a cyborg theatre, "subject technology emerges when what has previously been considered solely tool, prosthetic extension of the body, or system *begins to claim concepts of agency*. *Subject technology carries its own weight on stage*" (41, emphasis mine). The *agency* of the technology, and the ability for it to carry "its own weight on stage" provides depth to dramaturgical investigations of the digital components of intermedial theatre.

In the creation of *Bury The Wren*, the concept of subject technology gave rise to questions about how we were using the technology and what we were allowing it to *do* or *be* on its own. Holding the ethos of *affect over effects* close in every aspect of *Bury The Wren*, our goal was to provide the technology we were utilizing with real agency and reason to be present beyond its technological or aesthetic function. Our goal was that each instance of technology was one of subject technology.

For my practice, and in the growth of my concept of digital dramaturgy, "cyborg theatre" provides a weighted and specific framework for considering this emerging form of theatre that is blended with VR and AR. More usefully, "subject technology" is an effective way to try to classify and differentiate how the technology is operating.

1.8 *Performing Mixed Reality* by Steve Benford and Gabriella Giannachi

Scholars and practitioners are currently, or still, searching for a flexible, relevant term to replace what we used to call "multimedia performance." I am personally involved with two

different organizations, the Multiple and Mixed Reality Working Group and [Toasterlab Mixed Reality Performance Atelier](#), each of which is struggling with finding the right terminology to describe the work of our research and practices. ‘Intermedial,’ a term reflected above by several scholars, is commonly used in academic settings and by artist scholars, but rarely in the ‘common’ vernacular. To define what this work is, I find myself moving between ‘mixed reality’ and ‘multiple reality,’ as opposed to ‘intermedial.’ Benford and Giannachi have chosen ‘mixed reality,’ which, for me, draws attention to the entanglement of the various digital technologies that are integrating, capturing, presenting, and performing the various realities not embodied in the human performer. The image encapsulated in the idea of *mixing* is visceral and tangible – bringing to mind images of paint colours, brushes, and canvas textures combining to create something new.

Benford and Giannachi argue that mixed reality performance involves the mixing of real and virtual spaces to create a *hybrid space*” (68, emphasis mine), and is a “new form of interactive experience that integrates digital medial with physical settings and also combines interactivity with live-action” (263). It is “the staging of theatre performances in mixed reality environments” (2) whose “paths are designed along which real and virtual environments may be viewed and/or experienced in their relationship to each other,” while at the same time the “details from one ... have impact on the other.” Continuing, they assert that “in mixed reality performance, cultural, physical, and digital data can be juxtaposed or intertwined to generate a complex hybrid composition of fictional, physical and virtual worlds” (18). Expanding on Kattenbelt’s earlier assertion of theatre as a *hypermedium*, Benford and Giannachi assert that “mixed reality performance is an inherently hybrid form that draws on various elements of other forms of experience such as installations, theater, and games” (263).

The core argument of *Performing Mixed Reality* is that mixed reality performances are a complex mix of traditional performance and conventional and emerging computer game forms that combine into “hybrid structures that span diverse performance roles, time, and technologies” and therefore require a “new theoretical approach ... to capture both the essence and detail of mixed reality performance” (14). To achieve this new approach, Benford and Giannachi use the term “trajectories” to “indicate predicted and actual itineraries through mixed reality experiences” (15). Trajectories, in a mixed reality performance, are where a “participant’s experience is constituted by a journey through” a “sophisticated structure using computing technologies” (14). They assert that “trajectories pass through different *hybrid structures* that are combined to create the underlying structure of the performance” (260, emphasis original). Underlining that “trajectories embrace both embedded and emergent narratives” they, therefore, represent “not only a direction or path, but also a way of experiencing and performing mixed reality environments” (15).

Benford and Giannachi note that an “important characteristic of trajectories is that they establish a sense of continuity” for the participant, and the crafted trajectories “may often appear to be continuous, extending backward in time to reveal a coherent history of experience, and forward in time to suggest anticipated routes and possible future actions.” They point to continuity as a “desirable property” in mixed reality performances due in part to their “extended nature” and “embedding of digital media into extended physical spaces” (230). They emphasize the critical importance of designing and facilitating an overall trajectory that “consists of the trajectories of paths of observation and experience that facilitate one’s route through it” (15). The continuity of an overall trajectory “through the experience that establishes and sustains a sense of coherence” also importantly “enables participants to make meaning from their experience” (231).

Further, trajectories “in mixed reality environment paths are designed along which real and virtual environments may be viewed and/or experienced in their relationship to each other” (18) and therefore potentially impact each other. These trajectories are partially enacted in the various “interactional trajectories” or “the structures of interfaces in mixed reality performance” (117). ‘Interactional trajectories’ are of particular relevance to *Bury The Wren* and the object-interfaces that create the trajectories through that storyworld.

Of similar import to *Bury The Wren* is the concept of “tangible interfaces” highlighted by Benford and Giannachi. First presented to the human-computer interaction (HCI) community in 1997 by Hiroshi Ishii and Brygg Ullmer (as noted in Benford and Giannachi 123), “tangible interfaces” are when an object allows for a “*tactile* and therefore *tangible* experience of the interweaving of digital data” (122, emphasis original). In *Bury The Wren* most of the digital interactions that provide the trajectory through the story are manifested in the ‘tangible interface’ of the modified Vive Tracker, which is written about extensively in Chapter 4.

Benford and Giannachi explain that “through the use of tangible user interfaces ... the spheres of action are not only overlaid with the user’s environment, but are also juxtaposed against a digital world.” In these tangible interfaces, we find the “interlocking of data, objects, and environments” that represent the potential of “designing paths that interconnect physical and digital data” while also “designing physical environments which prompt specific sequences of affordances that establish trajectories through a collection of interfaces” (124). Tangible interfaces, therefore, provide critical entanglements of “data, objects, and environments” that allow for coherent trajectories through a mixed reality experience.

Asserting that “the design of an interface can steer a user’s experience of an artifact, its environment and their relationship with other visitors” while it can also importantly “be utilized

toward the generation of a mixed reality experience” (125), Benford and Giannachi highlight the theatrical storytelling and world-building potential in these interfaces. As is examined in Chapter 4, this engagement with tangible interfaces and how the interfaces create a mixed reality experience is reflected in our use of them in *Bury The Wren*. With its roots in HCI and the ability to ‘interlock’ the various elements of theatre, the concept of *tangible interfaces* is incredibly relevant to my central case study – itself an experimental intermingling of computer science and live performance.

The connection between tangible interfaces and interactional trajectories is found in the possibilities of an object to propel the participant through a continuous performance. A tangible interface provides a tactile connection to the trajectory facilitated through that connection to the embedded digital media of the performance. It is in the enactment and design of tangible interfaces implemented through the interactional trajectories that audience members are moved into and through various actions. This connection will be further explored within process and performance in Chapter 4.

1.8.1 *“Transitional States” and “Seams”*

Benford and Giannachi identify “transitional states” as moments in a performance where the trajectories must “carefully overcome key transitions” where “the continuity of experience is at risk” and needs to be “carefully sustained.” They consider “key transitions” to include: “beginnings, endings, role and interface hand-overs, real-virtual traversals, managing access to physical resources, and dealing with so-called ‘seams’ in the underlying technical infrastructure” (267). While these considerations may not be a departure from the considerations of the construction of a traditional devised theatre practice, the particular requirements of a mixed

reality performance highlight the similarities and draw attention to the significant differences.

The technology engaged within mixed reality performances create new and unknown transitional states (“real-virtual traversals,” technological “seams,” etc.) that Benford and Giannachi draw particular attention to.

Their examination of “seams” is particularly compelling and, as they write, a “useful metaphor” to help “think of the fabric of an experience as being stitched together from many parts.” The “hybrid space” involves the joining together of “initially disjoint physical and virtual spaces using combinations of sensing and communications technologies,” which, “[r]ather than being seamless,” are [...] these “threads [that] all too often become visible to participants” (63). Noting that, in their case studies, the seams had “varied impacts on participants” and that some of the studies exploited or wove the seams “into the structure of the experience” this highlight seams as a vital point of attention for designers to consider and becomes a key instance of a transitional state. Benford and Giannachi do not assert that perfection or “seam”-less design must be achieved for success, instead, they offer “strategies for how designers and participants might deal with these seams” (69). These strategies are:

1. Remove Seams
2. Hide Seams
3. Manage seams
4. Reveal seams
5. Exploit seams (67-68)

Using a devised method where “seams” are welcomed as turbulent spaces for action to occur (and where my work with Paul Thompson has encouraged that exploration), I find myself struggling between, on the one hand, the desire to make things seam-LESS and believing that it is important, and, on the other hand, the desire to embrace the seams. Embracing the seams is an

embracing of the capabilities of the technology and the people engaging with it. I will continue to wrestle with this idea throughout the thesis, and likely throughout the rest of my career, and indeed *Bury The Wren* both worked against some seams and embraced others. Benford and Giannachi's list identifying the different ways makers of a multiple reality performance can engage with seams provides a welcome and expansive approach that represents a valuable shift in thinking about technology and performance. To consider that the production does not have to be seamless – as is so often the driving force behind traditional theatre-making – is a relief to the maker.

These varied approaches do not diffuse the importance of the idea of transitional states; in fact, I believe they highlight its importance. The seams that are part of these transitional states, where we move from one key interaction or experience to another, remain fertile and important moments to explore in order to integrate them into the storytelling whether they are present due to the state of the technology or the state of the story.

1.9 *New Media Dramaturgy* by Peter Eckersall, Helena Grehan and Edward Scheer

Indeed, what is the “state of the story telling” in this mixed reality world? As one of the most recently published books on the subject, 2017's *New Media Dramaturgy* by Peter Eckersall, Helena Grehan and Edward Scheer offers an in-depth, case study based, examination of the growth and shifts within the implementation of “new media” and performance technology in theatre over the past 25 years. The topics in this book are of particular interest to me while grappling with my definition of *digital dramaturgy*. As I attempt to express the ways performance and emerging technology are integrated, and how that integration impacts the

resulting creations, so too are the authors seeking to “develop a language to describe, situate and understand how the practices of conceptualizing, designing, directing and reading / responding to performance are in flux in new ways.” The development of this language is “facilitated in part by developments in digital culture, and by a desire to respond to and harness these developments” (3).

The authors “approach new media in relation to the place – technical, artistic and social – it emerges from,” and in their conception of New Media Dramaturgy (NMD), “new media are considered in terms of their material properties as well as their sometimes-virtual effects or appearances.” They also include, in their consideration, “the technical specifications of a device ... where relevant to its aesthetic deployment” (2). The book analyses a wide range of works and contemplates “how the inclusion and use of technical elements – as key *players* in each work’s dramaturgy – alters the dramaturgical landscape, both for the works in question and for the concept of dramaturgy as a whole” (3, emphasis original).

NMD is a powerful acknowledgment of the materiality, interaction, and impact that performance technologies have on the creation and form of new media theatre. The authors extend recognition to the construct and limitations of the technologies and the storytelling capabilities inherent in that system infrastructure, highlighting how the proficiencies of the machines enable performance makers to create. This acknowledgment of the dramaturgy of the inherent in the system infrastructure is also an important component of *digital dramaturgy*.

I struggle with the term ‘new,’ and often argue that ‘new media’ is an old term. None of this technology is ‘new’ anymore. Even VR has been around since the 1960s (and more widely since the 1990s). In questioning how “new media dramaturgy” is a valuable term, the challenge

back to myself is that is ‘new’ not *new for me* as a practitioner. I found the author's explanation of their use of “new” helpful as it moves away from the conjunction with “media.” As they write:

It is a 'new' developed as a result of (or in tandem with) these advances in systems, media, material forms and technologies, when combined with new ways of thinking about and mobilising these—of generating new dramaturgical assemblages or possibilities. It is at the same time a 'new' emerging from the cultural and social processes that both surrounds and are embedded in the work of art. Furthermore it is a 'new' that seeks its political edge—one that pushes the limits of form and function within the artistic space in order to test bend and extend the realm of the possible, and at the same time to probe, questions and consider the state of things: relationships, connections, networks and structures. (4)

I agree with Eckersall et al. that technology has its own dramaturgy, collaborative potential, and agency that fundamentally alter how mixed reality performance is made and expands ideas about the stories we can explore. The stance that NMD takes in refusing “old binaries and notions that position the human and machine in opposition” (3) by urging that “dramaturgy in this context must mediate between these forces in a process in which *relations* between sensitive humans and hypersensitive machines occupy the aesthetic foreground rather than the entities themselves” (11, emphasis original) importantly brings the human and the machine into dialog with each other. These are ideas that I believe are critical to embrace in the process of creating “new media” performance. I am a sensitive human who deeply enjoys collaborating with my *hypersensitive machines*, being in a reciprocal agreement with them, and welcoming what the machines themselves bring to me as a practitioner and to the artworks they help create.

1.10 Various publications by Bonnie Marranca

New York-based theatre company The Builders Association is a primary influence on my creative practice. Their media-rich performances intentionally embrace technology as a collaborator, deeply integrating it into their productions. While researching their methods, I discovered a 2006 conversation between scholar Bonnie Marranca and Artistic Director of The Builders Association, Marianne Weems. Published in 2009, this conversation is where Marranca introduces her term of “mediaturgy” to Weems. The term, inspired by the work of The Builders Association, reflects an understanding of the importance of the integration of the technology in the dramaturgical process of creating a performance. Responding to approaches to the dramaturgy of technology, Marranca created the term to help distance the conversation from “the familiar use of ‘dramaturgy’ because of its historical ties to drama,” instead, using mediaturgy to place “media as the centre of study.” By doing this Marranca focuses the conversation and critical modes of understanding around “a work that embeds media in the performance rather than simply using it as illustration or decoration” (Marranca, “Performance as Design” 16).

It is in this distancing that I also find a personal challenge to my thinking. Quite simply, Marranca’s thinking and creation of this “mediaturgy” *spoke* to me as an artist. In it, I have found an accessible, artist-centric, and insightful conversation about ideas that are central to my practice. This is at once affirming, inspiring, and challenging. The challenge comes as I examine my practice, comparing and contrasting with others. It is challenging, too, as I continue to develop my concept of what I currently call digital dramaturgy. Marranca is intentionally distancing from ‘dramaturgy’ because of the aforementioned historical ties. The choice to privilege ‘media’ in the term has caused me to continuously question my use of the word dramaturgy and wonder if there is not a better way to describe what it is I and other practitioners

of mixed reality performance actually *do* – “the media of the performance vs. media in the performance” (Marranca, “Mediaturgy” 180).

In the 2006 interview, Weems reveals that “the technology and the technicians are present in the rehearsal space from the very first day” and that she firmly believes “this is how the pieces end up the way they do. . . . It's not even simply a design idea. It's an integral part of the storytelling.” Responding to Weems’ reflection about The Builders Association’s process, Marranca declares that it is the “dramaturgy aspect” that she is most interested in. Reflecting that what Weems is describing “is a concept of dramaturgy that moves beyond the play to an entire construct of research, collaboration, technicians and actors,” and that what The Builders Association is exploring are “new forms of dramaturgy—or what I am calling *mediaturgy*—the technicians are not just technicians, they are artistic personnel” (Marranca, “Mediaturgy” 180, emphasis mine).

While there are other critical thinkers (many noted in this very chapter) who recognize and speak about these complex relationships between technology, media and performance, Marranca stands out for several reasons. From my perspective, Marranca has a creator's understanding of the practice of media integration into performance. Encapsulated in the term “mediaturgy” is a clear appreciation of the importance of collaborating with technology and integrating it into the dramaturgical and creation process of a media-rich work. Within the term Marranca also acknowledges that design is a performer and that “it does require a different kind of spectator to be able to understand and analyze imagery,” further emphasizing that this is “why one needs certain new critical tools as a spectator and as a critic” (Marranca, “Mediaturgy” 177).

Marranca’s critical exploration of the relationship between text and image in theatrical performance first manifests in her 1977 publication *The Theatre of Images: An Introduction*. She

notes that “The Theatre of Images” is a “generic” term chosen to help define the work of a “particular style of American avant-garde” theatre productions and groups that “exclude dialogue or use words minimally in favor of aural, visual and verbal imagery that calls for alternative modes of perception on the part of the audience” (“Theatre of Images” 78). This “absence of dialogue,” she asserts, “leads to the predominance of the stage picture in the Theatre of Images” (79).

The term seems to have organically progressed into “mediaturgy” as time and technology have progressed. Marranca explains that

the ‘theatre of images’ grew from my view that there were many more languages of the stage than the drama, and that a theatre founded in images offered complex modes of perception and a new visual grammar. Knowledge was in imagery. I also concluded that it could not exist without the benefit of technology and that perhaps in the future experiments would lead to a theatre of total images.... Little did I imagine three decades ago where the new technologies would take us. (Marranca, “Performance as Design” 24)

In the introduction to *Developing Nation: New Play Creation in English-Speaking Canada*, editor Bruce Barton explains how “dramaturgy resists the mantle of stable definition and instead insists on perpetually redefining itself in relation to its context: the people, projects, and parameters it operates upon and within” (v). This porous flexibility of dramaturgy feeds Marranca’s “mediaturgy” and her attempt to corral and acknowledge the multitude of aspects one needs to consider in the creation, execution and consumption of technologically driven work. By creating this term, Marranca helps us as practitioners, critics, and consumers of mixed reality performance to understand and make meaning of what we do and see.

1.11 Trailblazers

What I love about virtual reality is the notion that computers could provide a way for people to share their imaginations with each other in new ways. I am not interested in replacing the physical world or creating a substitute for it. I am excited about the notion that you could get beyond this dilemma we all live with; namely, that we have infinite imaginations and are completely free so long as we retreat into our dreams and make everyone else disappear, but as soon as we want to share this with other people, we become very much not free. I would like virtual reality to provide a way out of that dilemma, where you have a world that's fully objective like the physical world but also completely fluid like the imagination.

Jaron Lanier, 1997 (qtd. in Brockman 48)

The exploration of what would come to be known as ‘virtual reality’ began in 1965 when Ivan Sutherland first published his thesis “The Ultimate Display” (Rehingold 224). No writing about these emerging technologies could be complete without looking at the true trailblazers of the form. I have omitted many of those trailblazers (including Brenda Laurel, Rachel Strickland, Diane Gromala, and Yacov Shrir and the other artists who created early VR work at the Banff Centre’s Art and Virtual Environments Project in the early 1990s) and, though I will only be touching the surface of the work of Lanier, Slater, and Davies, it is important to me that their thinking is *presenced* (Lachance 133) here in this thesis.

1.11.1 Trailblazer: Jaron Lanier

Jaron Lanier is credited by many as the person who coined the term “Virtual Reality” in 1987 (Rheingold 16), using the term to “distinguish between wholly immersive worlds and traditional computer simulations” (Dixon 365). One key text and two interviews with Lanier have been important and inspiring to my thinking around *Bury The Wren*: his memoir *Dawn of the New Everything*, *The Prodigy*, and several early interviews. As Steve Dixon, Howard Rheingold, Niall Firth and others have written, Lanier is widely (and legitimately) considered by

one of the primary founders of VR, thanks to the groundbreaking work during the 1980s and 90s with his company VPL Research.

Lanier, a fellow auto-didact who “has insisted on living 30 years in the future,” spent most of the 1980s dreaming about “creating something that went beyond computer programming” by building a language that would enable people to create software by using a “strange kind of glove ... connected to the least expensive personal computer ... at the time” (Rheingold 137). As those dreams morphed into the creation of VR, Lanier became a vocal proponent of these new digitally constructed worlds. In a 1995 interview, Lanier spoke about how he imagined VR could be a “mutually improvised, continuously unfolding, changing, fluid, virtual world” that engaged in an “intimate and gratifying” and “fundamentally different kind of conversation than can take place with words” (Frenkel 49). He often described these virtual conversations as “post symbolic experience” (Rheingold 356); or “post symbolic communication” (Frenkel 50), meaning that this kind of conversation would not “replace conversation” but that would provide future humans with an “alternative way to express themselves” – that “instead of using symbols to refer to things” they would be able to “directly create the things” impossible to express or create in the material world in a virtual world (Frenkel 49). In his own words, VR offers “a new possibility—cutting out the middleman of the symbol and directly creating the stuff of experience as a way of communicating” (Frenkel 50).

Lanier is both a computer scientist and an artist – a writer and musician who has charted a “humanistic approach to technology appreciation and criticism” (Lanier, “A Brief Biography”). Through this humanist perspective, he has spent much of his career exploring how humans interact with technology and how the design *of* the technology dictates the parameters by which we can interact with them. Lanier was among the first computer scientists to recognize the

importance of interactivity as a significant aspect of the virtual content being delivered in VR. In the 90s, at his company (VPL), Lanier designed gloves and headsets to allow interactivity in VR – calling it “clothing” (Rheingold 1991). Lanier observed that

Interactivity is a style of concrete conversation with the media. It is a way that you dance with the computer. The creation of that feeling is not easy. Certain people can do it, rather like artists. There are no textbooks that explain how to do it. It is a new art form. (Brockman 48)

In this “dance with the computer” I see a connection to Parker-Starbuck's concept of “subject technology” and a deep, humanistic recognition of the “inter”-ness of intermediality – the computer as a partner.

My approach to the creation of a VR work is inspired by Lanier's belief in the power of VR as “the clearest-minded approach to digital technology” (Lanier, “New Everything”, 263) and its capacity to liberate our dreams and share our “infinite imaginations.” This leads to contemplation about how theatre-makers, who attempt to capture and share imagination on stage, can carve out space and impact the development of VR interactions and programming. Lanier reflects this thinking beautifully in an article from 1997 where he says:

What I love about virtual reality is the notion that computers could provide a way for people to share their imaginations with each other in new ways. I am not interested in replacing the physical world or creating a substitute for it. I am excited about the notion that you could get beyond this dilemma we all live with; namely, that we have infinite imaginations and are completely free so long as we retreat into our dreams and make everyone else disappear, but as soon as we want to share this with other people, we become very much not free. I would like virtual reality to provide a way out of that

dilemma, where you have a world that's fully objective like the physical world but also completely fluid like the imagination. (quoted in Brockman 48).

In *Dawn of the New Everything: A Journey Through Virtual Reality*, Lanier focuses on how critical the *human* and *art* is to the effectiveness of a computer program, writing that:

[i]f you pretend that what you can code reflects a complete understanding of what you can do, then you lose sight of the mystery at the edges of everything. This can lead to ‘nerdy’ or bland art.” His argument then is that “for computer art, or music, to work, you have to be extra careful to put people and human contact at the centre of attention” (Lanier “New Everything” 278).

Remaining faithful to his history, Lanier’s book also deeply focuses on his belief that virtual reality offers a powerful means of building new shared realities and offers the possibility of a space where we can experience each other’s dreams. This thinking continues to be inspiring and affirming in my explorations.

1.11.2 Trailblazer: Mel Slater

Cognitive scientist Mel Slater’s exciting research into VR and the impact on human cognition in the publication “Place Illusion and Plausibility Can Lead to Realistic Behaviour in Immersive Virtual Environments” provides two important principles that provide insight into the human experience of VR. First, Slater defines the feeling of being transported to a new, real location as “place illusion,” which he also connects with the concept of “presence.” The second contributing principle is “plausibility illusion” – the belief that the events that are happening in VR are real. These terms are deeply helpful when examining the *real* experiences of the *Bury The Wren* participants in VR. Importantly, like Lanier, Slater identifies VR as “providing a

fundamentally different type of experience, with its own unique conventions and possibilities, a medium in which people respond with their whole bodies, treating what they perceive as real”

(Slater 1).⁹

1.11.3 Trailblazer: Char Davies

Finally, the work of Char Davies, which is explored more deeply in Chapter 4, has provided an interesting connection to immersive theatre, and to my questioning of the word “participant” – a term Christensen and I chose for those audience members in *Bury The Wren*. Davies's use of “immersant” to denote the audience members in her works has an evocative quality that is helpful when attempting to illuminate the quality of experience when in VR. She writes at length about the qualities of immersion in “OSMOSE – Notes on Being in Immersive Virtual Space,” in which she examines her “concerns with the body in immersive virtual space are not with its objective representation, ... but rather how the immersant's mind and body are subjectively felt, how the immersant senses his or her own interior body as a centre-of-being within immersive space” (Davies 71). These concerns have provided thought-provoking consideration of the nature of the audience experience when in a disembodied virtual environment.

There is much more that could be written on the multitude of written works I engaged within the research of this thesis, and that continues to be produced on an almost daily basis. The

⁹ In 2005 Slater and Maria V. Sanchez-Vives wrote “From Presence to Consciousness Through Virtual Reality”, the first article to explore the concept of *presence* from a neuroscience perspective, which identified the importance of an accurate correlation of the participant’s movement and the virtual movement. This article and Slater’s continued research are a revelation of how to consider the cognitive science perspective and psychological perspective within my experiment, especially when it comes to trying to scientifically understand the audience / participant / immersant experience inside *Bury The Wren*.

topic of mixed reality performance and emerging technologies is a rich territory to engage with. From the many readings, I feel the terminologies, concepts, and ideas engaged within this chapter have aided my ability to articulate my own observations as a scholar and practitioner while challenging and provoking. Moving between the terms of intermedial, cyborg, and mixed (or stirred!) realities are reflective of the state of continuous emergence of new (and old) technologies. I believe we will continue to ‘struggle’ with terms as the digital realms continue to grow, morph and emerge, but this is fertile ground to plant all these virtual seeds in.

Chapter 2 Practitioners and Personal Influences

*The business of workers in the theatre is,
as I see it, to express a timeless theme by means of the tools of one's own time.*

Robert Edmund Jones

*...the first thing that has to go by the wayside is the idea that technology is unnatural and cold. It's just another
form of human expression.*

Kevin Cunningham (3LD)

The 'hypermedia' quality of theatre creates a permeability of form that has allowed generations of theatre-makers to experiment with the integration of new technologies. From the invention of the magic lantern in the 1600s to the use of the "illusion" stage trick of Pepper's Ghost (fig. 2.1) to stage director Vsevolod Meyerhold's engagement with early filmmaker Sergei Eisenstein and the integration of moving pictures in the 1920s, there is a long tradition of integrating image manipulation technology into theatre. Theatre is the original virtual reality and, as Steve Dixon says, is "always-already a simulation; it stands for something outside of itself. Theater is the inauthentic masquerading as the authentic; the unreal posited as the real" (Dixon 153).

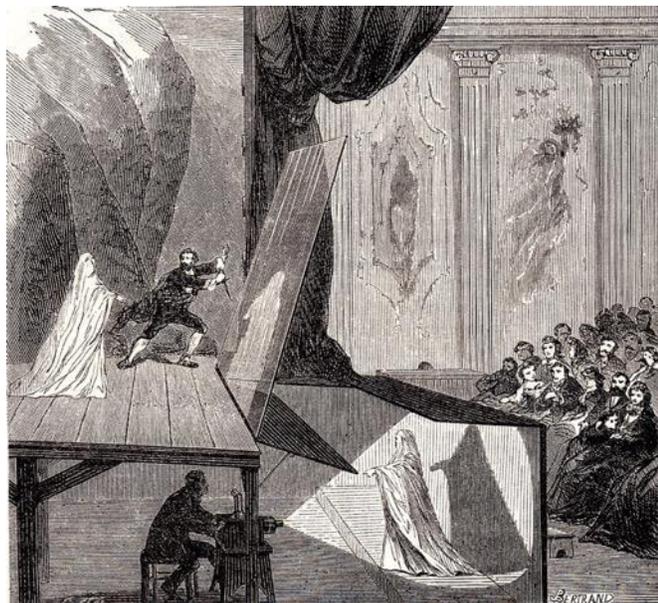


Figure 2.1 Pepper's Ghost is an old theatre trick that involved placing a large sheet of glass between the audience and the stage. The reflection of an unseen performer or projection would appear on the glass but seem as if there was an apparition on stage. This is part of the origin of the common term 'smoke and mirrors' and is a trick still used today—as witnessed in the famous [Tupac and Snopp Dogg duet](#) from 2012. (Wikipedia "Peppers Ghost")

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The 21st century, and now the 4th industrial (digital) revolution, provides us with ever more flexible tools that can puncture and

metamorphosize theatre. Theatre makers are uniquely skilled to be able to adopt and apply these tools, being incredibly adept creating the authentic simulation (Dixon 153). Digital performance researcher Joris Weijdom explains that “theatremakers understand mixed reality experiences as no other,” highlighting that having gone through “post-modern thinking,” theatre-makers are incredibly “capable of dealing with the simultaneousness of the play, as a virtual dimension of the actual experience, and the physical reality of the actual physical presence in a theatre building” (Weijdom).

This ability to navigate the “virtual dimensions,” the authentic inauthenticity of theatre and the desire of many curious theatremakers to experiment with digital tools translates to an endless number of practitioners and revolutionaries who could be included in this chapter.

2.1 Acknowledging Other Practitioners

I have a very long list of (predominantly Western) artists whose work has influenced both myself and the practice of mixed reality performance. I cannot hope to cover all of them in any truly satisfactory way in this chapter, but they each deserve mention in this prologue. This extensive list includes performing artists who were or are innovators and adopters of technology, futurists, and promoters and philosophers of emerging technologies.

As visionaries who broke from the confines of exclusively traditional techniques to explore and expand the form of performance, the following artists and theories represent ground-breaking achievements in their engagements with technology: [Josef Svoboda](#) and *Laterna Magika*’s past and present innovation; [Blast Theory](#) and their avant-garde, public-centric, interactive, mixed reality pieces; Japan’s dumb type; Australia’s *Chunky Move*; Robert Wilson; [The Wooster Group](#); sound and video artists [Janet Cardiff and George Bures Miller](#); [Manual](#)

[Cinema](#); and the early collaborations of John Cage, Robert Rauschenberg, Yvonne Rainer, Deborah Hay, Alex Hay, David Tudor, Lucinda Childs, Robert Whitman, Steve Paxton, Öyvind Fahlström and James Tenney in the form of [9 Evenings](#) and [E.A.T.](#) Sharon Clark and her Bristol-based company [Raucous](#) are pushing immersive theatre and the integration of mixed reality into new realms, while New York-based [3LD Art & Technology Centre](#) creates and nurtures experimental digitally based performance work. Dance has often led the way in innovation with technology. Of particular note is the movement-focused works of [Troika Ranch](#) and Merce Cunningham and their imaginative efforts to improvise and collaborate with computers. The collaborations between technological firms [Magic Leap](#) and Intel and established theatre companies like the National Theatre and their [Immersive Storytelling Studio](#) and the Royal Shakespeare Company's [The Tempest](#) has resulted in new theatrical practices.

Of particular relevance to this thesis are the artists who were among the first to experiment with combining live performance and virtual reality (VR): Mark Reany, Brenda Laurel and Rachel Strickland, and many others at the Banff Centre's Art and Virtual Environments project in the early 1990s. More recently, esteemed contemporary artists have created imaginative VR works, often featuring themselves in the virtual performance. Most notably among them are Marina Abramović's climate change-focused [Rising](#), Björk's VR album [Vulnicura](#) which also had a companion traveling immersive exhibit, and Laurie Anderson and Hsin-Chien Huang's VR work [Chalkroom](#). The VR theatre companies [Tender Claws](#) (with 2019's *The Under* and 2020's *The Tempest*), and [Double Eye Studio](#) (fig. 2.2) have both recently produced ground-breaking live performances in VR, while also creating inside VR. Char Davies and her seminal VR performance work *OSMOSE* deserves significant mention here as well, and I

will frequently be engaging with her term “immersant” (71) to describe the human experience within VR.

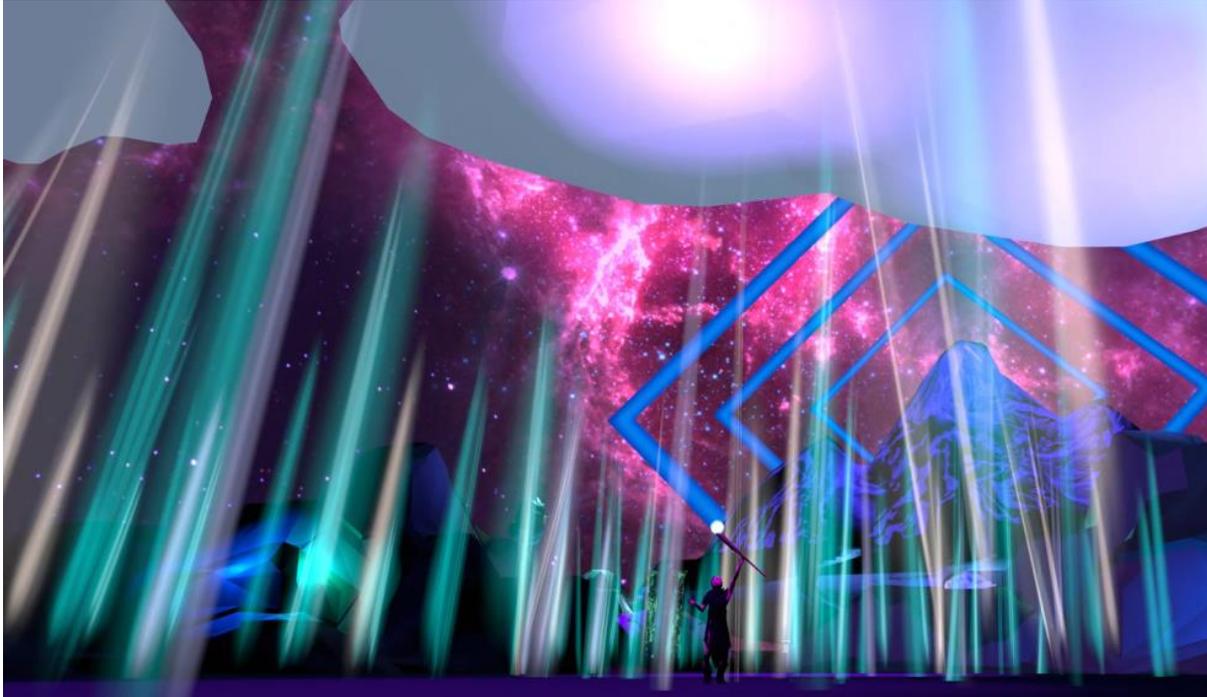


Figure 2.2 *Finding Pandora X* created by Double Eye Studios. Lighting Design by Beth Kates. © Kiira Benzig used with permission

This list could continue and be amended daily with contemporary interdisciplinary influences who are changing the landscape through their research, thinking and art¹⁰, and I choose to close with several Canadian artists and companies: Peter Hinton-Davis, Kim Collier ([The Electric Company Theatre](#)), [Crystal Pite/Kidd Pivot](#) and Jillian Keiley are visionary directors/makers whose highly visual, epic and imaginative creations have had a significant impact on the national theatre ecology and my own practice. Natalie Tin Yin Gan, Milton Lim, Remy Siu are the three principal artists who make up Vancouver-based company [Hong Kong Exile](#). Their political and technologically-engaged work examines cultural clashes, diasporic

¹⁰ It is important to acknowledge the current proponents of VR / digital immersion like VR Philosopher Kent Bye at Voices of VR, and Kathryn Yu and Noah Nelson at NoProscenium. Their tireless work on podcasts and websites have served to expose me and many others to important Virtual and Immersive art works that we otherwise would not have known about.

experiences, gaming mechanics, and traverse the realms of installation, dance and theatre.

[bluemouth inc.](#) (a Canadian / American hybrid company) explores immersion, technology,

intimacy and interactivity, most especially with their most recent work [Cafe Sarajevo](#) (fig. 2.3)



Figure 2.3 *Cafe Sarajevo* by bluemouth inc © bluemouth inc. used with kind permission of bluemouth inc.
Photographer Crispian Chan

which used a combination of VR and live performance in an exploration of borders that “divide and unite” human beings (bluemouth inc. “Cafe Sarajevo”).

Finally, I give a significant nod to Rumble Theatre / Christina Quintana’s [Good Things To Do](#), a work that has made a transition to an online platform in order to perform amid the Coronavirus pandemic. I saw *Good Things To Do* in its physical life at the Festival of Live Digital Art ([FoldA](#)) in 2018 and multiple times in its digital life in April 2020. *Good Things To Do*, particularly the in-person version at FoldA, provided a potent and deeply affective hybrid use of both the analog and the digital to create an intimate experience. The original production placed each audience member in a small single-person tent with a laptop that provided a gentle, transportive, tactile exploration of technology and intimate human connection. The scenography

recalls Theatre Replacement's *BIOBOXES* in the contained solitary experience, but instead of the actors physically co-present with the participants, they telematically join in unexpected ways through the laptop. Throughout the show, they also connect the participants, invisibly and anonymously. It is a human-centric use of technology that feels at once deeply intimate and universal.

Quintana's intention with *Good Things To Do* was to create "something that is restorative, that can leave others feeling more resilient and ready to face the world" (Quintana, "About Good Things To Do"). This theme of resilience is heightened even further in our current time of uprising and the physical isolation of humans from each other. With a violin-based composition by Molly MacKinnon, sonic environment designed by Mishelle Cuttler, and technology designed by Sam MacKinnon, *Good Things To Do* creates that "restorative" (Quintana, "About Good Things To Do") environment using the analog and the digital (both the co-present physical version and in the online version).

In this chapter, I will look more closely at a small selection of artists whose work with digital technology has significantly influenced contemporary theatre and who have had a critical influence on how my practice has developed. These practitioners are key to examining the central theme(s) explored in this thesis – how digital technology serves storytelling through integration and collaboration, how to refine the definition of digital dramaturgy, and as a study in the focus of *affect over effects*.

2.2 Robert Lepage: Prologue

It is with discomfort and awareness that I include Robert Lepage as a major influence in my work. In the last eighteen months, there have been several instances on two specific shows

where Lepage has demonstrated a white supremacist approach to theatre, resulting in a public outcry¹¹. He appears to be hearing the voices of the people objecting to his productions of *SLĀV* and *Kanata*, writing that he now sees that he has the “visibility, power and means to take the first action steps to work toward healing.” He has seemingly been affected by the cancellations of productions of both works, based on his public statements released on Facebook (Lepage, “A Year of Noise”). I feel I must preface the section about him by acknowledging the difficulty of engaging with a figure like Lepage at this time.

In these ongoing dialogues about race and equity, I believe it is irresponsible to overlook historical wrongs of artists because those who have caused harm are recognized ‘geniuses’ in their artforms. I had considered removing Lepage from this thesis, but to ignore him as a major influence on my creative practice is personal erasure. He has been, since I was a teenager, a profound inspiration and influence for me. Not to acknowledge the issues of appropriation and racism that surround Lepage in a document that will become part of the public record is to ignore the responsibility I have made a commitment as an artist, and a hopeful ally, to build a better, safer, more equitable and inclusive space in our industry. I seek ways to adapt my practice, to hold space for other voices and to step aside to welcome new modes of thinking into the creative world.

In *SLĀV* Lepage “appropriated” (Varma) the voice of African American slaves in a play with a predominantly white cast who sang Black slave songs while picking cotton. Presented by the 2018 Montreal Jazz Festival, there were protests outside the theatre and, eventually, the

¹¹ A wide range of articles and news reports were consulted in the research for this Prologue, including many uncredited posts on the CBC and Radio Canada websites, Capelle’s *New York Times* review of *Kanata*, several articles in the *Montreal Gazette* and *Le Devoir*, Kevin Loring’s open letter, Rahul Varma’s op-ed in the *Gazette*, and all of Lepage’s public declarations posted on Facebook.

public pressure and vocal criticism caused the production to be canceled. Lepage then publicly claimed that this was a “direct blow to artistic freedom” and that if it was up to him the show would still be running, proclaiming that he will “always demand the right for theatre to talk about anything and anyone. Without exception. None” (Lepage, “Position on SLĀV”). The Artistic Director of Montreal’s Teesri Duniya Theatre, Rahul Varma, wrote an op-ed piece after the cancellation where he writes that “Lepage and Bonifassi did consult with Aly Ndiaye ... a black hip-hop artist and historian” noting that Ndiaye “strongly stressed the importance of hiring black actresses to play black characters” (Varma).

As Varma wrote, “cultural appropriation is not an acceptable way to explore the history of slavery, oppression, migration and mass incarceration.” In his article, Varma invites Lepage and white collaborator Betty Bonifassi to a “cultural exchange” that will “honour, respect and appreciate people of colour as well as contribute to dismantling systemic racism” by not using “their iconic position to reproduce and maintain oppressive structures”. Worth noting is Varma’s eloquent continuation of his invitation to Lepage:

An alternative to cultural appropriation is cultural exchange, in which people from diverse cultures and colours would come together as different but equal to learn from each other and create art. Such a cultural exchange would transcend colonial history and beliefs as well as transform misconceptions and misrepresentations into truth.

The reworked play (presented in January 2019 in the predominately white community of Saint-Jérôme) added one Black cast member and maintained the lead white character who no longer picked cotton, but still sang the slave songs as did Bonifassi (Dunleavy). It is important to note that this is not the first instance of Lepage being criticized for cultural appropriation; As

Varma notes, *The Dragon Trilogy*, and *Seven Streams of the River Ota* are among the works that have been criticized, but not vocally protested.

Kanata, a work about white relations with Indigenous, First Nations, and Inuit people from Turtle Island (Canada) was presented in France without any involvement from Indigenous peoples. Again, Lepage demonstrated a lack of understanding of the necessity to approach the engagement with these stories through involvement *with* the peoples from these cultures. Two open letters published in *Le Devoir* and on the Indigenous Performing Arts Alliance called on Lepage to “address the issues arising” (Loring, “Nothing about us”) surrounding the production of *Kanata*. In his open letter to Lepage, theatre artist Kevin Loring (now the Artistic Director of Indigenous Theatre at the National Arts Centre) amplified and repeated the refrain that has become an important reminder from the marginalized and oppressed to all others: *Nothing about us without us*. A refrain that Lepage ignored entirely in *Kanata* which had no Indigenous involvement, and in *SLĀV*, which had two Black performers in 2018 and three in 2019.

In his letter, Loring clearly and powerfully highlights the vital importance of listening to this call and the destructive impact that the ignoring of it has had on the Indigenous community:

The Indigenous Theatre Community has fought incredibly hard over the last five decades for a legitimate place on our stages. As a consequence of colonization we have been dismissed and ignored, tokenized and exploited, mocked and stereotyped in publications, stage and cinema. The disenfranchisement from our own voices and stories has been systemic and well resourced, while our languages and cultures our very voices have been ignored, strangled out and starved by official government policies, mainstream media and social ostracization. (Loring, “Nothing about us”)

The two open letters had over 500 signatories and resulted in a single six-hour meeting between Lepage and some of those signatories. Loring was invited to this meeting, and in an interview during this time declared that Indigenous people were fed up with “hearing other people tell our stories” (*CBC*, “Indigenous artists criticize”; *Le Devoir*, “Encore une fois”). Indigenous director Margo Kane, also in this consultation, told Lepage to “shelve” his show after sitting in on interviews with Indigenous people in Vancouver. “We are really tired of people telling our story for us ... there was no real listening, no real understanding.” While various factions were hopeful for resolution, the ultimate result was an impasse. Abenaki director Kim O'Bomsawin said, “We had no interest in [*Kanata*] being cancelled ... [W]e've been censored for 400 years. We want your play to shine” but not without Indigenous involvement (qtd. in Salutin, “Cultural Appropriation”). Initially, *Kanata* was also going to be canceled, but it was eventually produced in Paris as planned in 2018. In her *New York Times* review Laura Cappelle wrote that “[t]he final product does explore the plight of the country’s First Nations, but it does so through the defensive gaze of a white artist who can’t resist telling us that he, too, has been victimized”.

We are living in an era where all humans are being reminded to be aware of our privilege, of entrenched white supremacy and of the systemic racism that persists. Our work now is to be part of the change. I believe we must do better than Lepage’s example – especially theatre artists, whose job is more often than not to examine the human condition. In Canada, the Truth and Reconciliation Commission has provided ninety-four “[Calls to Action](#)” where settlers have been given a list of ways towards reconciliation. We are being repeatedly reminded that we must look at ways to dismantle systems and de-colonize ourselves and our practices. For Lepage to continuously approach works of art that tell stories of others *without* their involvement demonstrates supremacy in the guise of artistic freedom that is no longer acceptable.

Lepage has gestured towards actions of reparation and inclusivity in the dramaturgical and casting shifts in *SLĀV* and consultations in *Kanata* (Cappelle). As the important and visionary artist that he is, I hope that Lepage will find ways to use his considerable power and privilege to help change practices and elevate marginalized voices in a positive, equitable and good way.

2.2.1 *Robert Lepage / Ex Machina*

Quebecois auteur Robert Lepage has been described as visionary and a “consummate master of the art of multimedia spectacle and the transformation of theatrical space” (Dixon 361). Lepage's revolutionary work of integrating performance with technology has had a profound impact on my practice. The process with which he creates his work is directly tied to the creation process of *Bury The Wren*. In the context of this thesis, I want to highlight the unique way his creative process deeply integrates technology and scenography and how his ability to re-envision ways of telling story deeply integrates technology.

Lepage became a cultural force in Canada and internationally with his first solo show, *Vinci*, in 1986. In 1994 Lepage formed Ex Machina in Québec City as an incubator for new forms of theatre. As described on their website, Ex Machina is a “multidisciplinary” company, that “believes that the performing arts ... should be mixed with recorded arts—filmmaking, video art and multimedia”. They declare that it is vital for there to be “meetings between scientists and playwrights, between set painters and architects, and between artists from Québec and the rest of the world” ([Ex Machina](#), “Ex Machina”). Lepage’s creative process “rests on intuition and gives actors, designers and technicians the latitude to contribute and to invent the shows together with him [in] a visual framework influenced by cinema”. Citing a “sense of

ritual, and a highly developed formal side,” the work of Lepage and Ex Machina “infuses” the traditionally “decorative elements ... with meaning and emotion” (Ex Machina, “Creation”).

I have been fortunate to have seen many of Lepage’s productions. In 1998 I worked on the premiere of *Geometry of Miracles* as an assistant lighting designer to Éric Faque at the Premiere Dance Theatre in Toronto. In 2007 I was an observer of the creation of *Triptych* at La Caserne in Quebec City while simultaneously working on a new creation with Rick Miller and Ben Chaisson. I have had the opportunity, over several years, to speak at length with Lepage about how creations happen.

As a young theatre artist, I witnessed the world premiere of Lepage’s seminal *Needles and Opium*¹² at the duMaurier Theatre in Toronto in 1994. British theatre critic Michael Coveney declared *Needles and Opium* “the most technically adroit and emotionally coherent mixed media presentation I have ever seen” (qtd. in Dixon 359). To say that I was transformed would be an understatement. It was the first time I saw projected media integrated into the storytelling in a way that wasn't relegated to backdrop or decoration. I have vivid recollections of the two large airplane propellers suspended above the stage being used as projection surfaces. As they spun faster and faster, they revealed the story of the projection in connection with the story that was being told at that moment¹³. I remember the sense of vertigo I felt in my body when, as Cocteau, Lepage was suspended in midair and falling through a spiral dreamscape. These were new experiences in the theatre for me.

¹² *Needles and Opium* full credits: Written, performed and designed by Robert Lepage; music and keyboard, Robert Caux; stage assistant, Claude Lemay; stage manager, Robert Beauregard; drawings, Zilon; multimedia-image, Jacques Collin, assisted by Pierre Desjardins.

¹³ I use the example of the propeller when I teach about video design as a powerful example of the fact that one does not ever only have to use flat screens to project onto.

The technology was so fully integrated within the performance that it was a co-performer. I vividly recall a moment when Lepage's physical body melded with a filmed version of his body in a way that required great precision from the performer in order to connect with the design elements and perform with them. For the audience, this blurring of realities between the corporeal and the remediated body created a sensorial experience that communicated portions of the internal life of the character and transformed time and space on stage.

In *Needles and Opium*, as with much of the rest of Lepage's oeuvre, the compelling use of media and scenography were not employed momentary special effects but instead combined in different configurations to create a holistic *mise-en-scène*. The design elements provided imagistic and sonic portals through which Lepage transported the audience into the minds and inner worlds of Miles Davis and Jean Cocteau via projected images, sound, staging, body, voice and text. These sensorial communications required the audience to engage their imaginations and senses equally. I recall sitting at the edge of Lake Ontario after the performance for several hours, trying to absorb what I had just experienced. This work was, for me, a new language in theatre.

In his conversation with Charest, Lepage speaks about *Needles and Opium*, asking rhetorically, "How do you maintain a sense of intimacy with a thousand people? You have to rely on technology to magnify you, to change the scale on which you work" (Charest 107). To this day I can still feel the overwhelming sensations of that night. Deeply affected by the powerful intimacy in the performance, even within the epic aesthetic, I acutely remember feeling as if he had performed the work for me.

The technology in *Needles and Opium* was so deeply interwoven into the fabric of the show that it was both an extension of the human performer and a performer itself, at many points

holding equal attention and importance to the story telling as the human performer. As Dunderovič observes that “[i]n solo performance, Lepage uses media technology as another creative partner-performer” (Dunderovič 49). In 1996, when technical failures required the cancellation of the run of *Elsinore* at the Edinburgh International Festival, Lepage “ascribed human characteristics to the faulty stage machine, claiming that he was present and ready but not so his partner, the machine” (49). This partnership with the machine, or the ‘computational collaborator’ as I call it in Chapter 3, is a common theme in this thesis, and the belief in the machine as “partner” and collaborator sits at the core of my practice.

In Izabella Pluta’s examination of Lepage’s *Andersen Project*¹⁴, she also notes a “hybridity” in the work, where “the actor appears as *operator* of the stage who ensures the aesthetic transitions between the theatrical and other technological media, both digital and analogue.” Lepage addresses the hybridity in his work, as Pluta explains, “by way of *métissage* (a mixing or crossbreeding), a term that he applies on both a cultural and aesthetic level.” Lepage’s success with hybridity “brings about new forms of expression” that “articulate the intermediality of the actor rather than simply that of the media in play” (Pluta 191). Pluta notes how, in his work, the “mediaphoric body” is “closely related spatially” to the technological devices. This “connection between body and device,” she writes, “may evolve from a scenographic specificity or as a function of the acting,” but that it can “reveal shifts between the object and subject of the stage” (195).

Work with this hybridity and depth of connection is not something that is crafted quickly or simply. My research and firsthand engagement with Lepage’s creation methods have revealed

¹⁴ Scenography designed by Jean Lebourdais and image designers Jacques Collin, Véronique Couturier, and David Leclerc

different ways in which he facilitates this degree and style of integration between human actors and technology. Lepage's process is rooted in his early work in collective creation, especially as a member of Théâtre Repère, where they collectively devised shows focused on the dramatic situation and visual image. As defined by Alison Oddey, a devised theatre practice “is determined and defined by a group of people who set up an initial framework or structure to explore and experiment with ideas, images, concepts, themes or specific stimuli that might include music, text, objects, paintings, or movement” (I).

With Théâtre Repère, Lepage explored methods of transforming objects through inventive usage by the performer with an “emphasis on improvisation and the performer’s intuition” (Dundjerović 17). The creation process engaged with at *Ex Machina* requires long periods of gestation where the collection of artists explores intuitive theatrical ideas using devising techniques. For each production Lepage gathers a company of performers who are “excellent and skilled improvisers” (52), together with trusted designers and creative technologists. Each member of the company begins the creation process by steeping themselves in the source material and “work simultaneously, from the material they bring into rehearsal, their personal references” in a rehearsal space that is “inhabited by various stimuli to provoke playfulness and help the actors [and the rest of the creative team] discover ideas” (52). Through collective engagement in the rehearsal space with scenography, media, technology and traditional theatrical tools, these ideas are revealed, collide, fail and germinate. The “*mise en scène* is discovered in rehearsals through the interaction between a performer and resources” (208). Lepage acknowledges that this way of working comes with a “necessary” chaos, asserting that if “there is only order and rigour in a project the outcome will be nothing but order and

rigour. But it's out of the chaos that the cosmos is born – the order of things, yes, but a living, organic, changing one. This is where true creation lies” (qtd. in Charest 88).

Examining how Lepage facilitates the creation of such hybrid integrations, I reflect on the creation process of *Lipsynch* where I saw first-hand how important it was to have all the technology in the room as the work was created. The copresence of performers and technology was fundamental to the development of story, design and the interpersonal relationship between all team members. This method embedded an understanding and dramaturgical connection between the actor's body and the technological devices (Pluta 191). Time and iteration, as well as documentation and experimentation, are critical components of this practice. The process that I witnessed involved the whole company working for four or five hours, followed by an extended break where the team could write, research, make adjustments, build elements and create new imagery. Everyone then came back together to continue to actively explore what had been worked on.

Extended exploration and creation periods are familiar in devising practices but are not frequently seen in North American creation processes, yet they are vital to the creation of complex hybrid forms. Working with design as a collaborator, especially in the form of advanced technology and media as is seen in most of Lepage's work, requires time to build the connections with the performers, and often to build the design and technology itself. Time creates the conditions for “chaos” to shift into the “cosmos” as all the components begin to synthesize (qtd. in Charest 88). This synthesizing in Lepage's work importantly allows the actor's “living body” to be “both close to and far from the device, with and within the device,” creating an integration of technology and performance while the actor adapts “their process to a new scenic

environment, the hybridity of different orders of performance and a métissage of aesthetics” (Pluta 197). This integration is common across Lepage’s *mise-en-scène*.

While opening night often marks the end of a show being worked on, Lepage’s hybrid creations are in “perpetual flux,” and are constantly being revised and reworked even while being performed for audiences, “influenced equally by the experiences of the performers and those of the audience” (Dundjerović 27) as well as those of the designers and technicians. In an interview with James Bunzli, Lepage states that opening night opening night is “the beginning of rehearsals” and “performing is the rehearsal process” (qtd. in Bunzli 89). Considering them “public rehearsals,” it is in the performances of the shows that “Lepage and his collaborators-performers, designers, technicians-all see the performance experience as an opportunity to ‘verify’ the effectiveness of the work in progress” (95). For Lepage, “[t]heatre takes shape in flight” and, in that flight, “its meaning and direction escape us,” which is when “shows transcend their creators, that’s when you have theatre” (qtd. in Charest 159)

Watching the “chaos” of Lepage’s creation room and the continuation of the growth of the work as it was performed (in the case of *Geometry of Miracles*), I witnessed the depth of design integration and the multitude of happy accidents that come from imbricating all the tools into the creation process. I watched scenes form out of nothing, and a thousand images created from a single word. Exposure to Lepage's methods and those of his collaborators, have influenced my oft-stated goal of *integration* and own methods of *circular creation* (where design continuously impacts text/performance, which impacts design, which impacts story and choreography). These experiences have been hugely influential in my own practice and unquestionably informed the creation process of *Bury The Wren*.

In theatre, the audience has to be immersed in the show's argument, and to be immersed in the argument every sense has to seize it and so the form has to become an incarnation of the subject and themes
Robert Lepage (qtd. in Charest 164)

2.3 The Builders Association

A long time ago I wrote "Six Axioms for Environmental Theatre" [1968]. The Fifth Axiom is: "All production elements speak in their own language." These elements each occupy a channel of communication; they can be turned on individually or all at the same time. The actor is not primary, the text is not primary, the lighting is not primary — nothing is a priori primary. At one moment it's one thing, at another it's another thing — or several, or all, work together symphonically.

Richard Schechner ("Building the Builders Association" 52)

Co-founded in 1994 by director Marianne Weems, The Builders Association is a New York-based "intermedia performance company" that uses the "richness of new and old tools to extend the boundaries of theater" (The Builders Association, "About: Mission") they create original productions in "extended collaborations with a range of artists and designers, working through performance, video, architecture, sound and text to integrate live performance with other media" (Jackson and Weems 2). Like Lepage, The Builders Association holds an important position in Western theatre as a company that has reshaped the way theatre makers, and audiences, understand how technology can be staged and dramaturgically integrated into the story. Since their inception, The Builders Association's practice of engaging with the conversation between performance, design, media, technology and scenography has not wavered. Frequently in their productions, technology is the central topic and is therefore featured prominently in the staging and storytelling. Telling the story of, and with, technology has required The Builders Association to develop a method of working where technology is integrated into the creation process. Based on devised theatre practice, The Builders Association's flexible creation method allows for new technology to be included and developed in the formation of new work.

Weems explains The Builders Association's non-traditional approach to creation in a 1994 letter to lighting designer Jennifer Tipton, declaring that "[w]e're planning a rehearse/build/rehearse/build schedule so there will be a dialogue between the performers and the construction of the set" for their inaugural show, *Master Builder*. Here, Weems places dramaturgical importance on the set building, acknowledging the necessity of the actors and collaborators to respond to the set while also allowing set to respond in kind to facilitate this responsiveness, tech week "could not be conveniently scheduled just before opening;" Instead, the set and technology were "copresent" with the actors allowing both "sentient and non-sentient components" of the "ensemble" to be conceived simultaneously. By including the technology as "scene partner" and placing "building at the centre of production," the creation of *Master Builder* formed the basis of The Builders Association's "working methods" (Jackson and Weems 46).

Modifying the traditional actors' process in *Master Builder*, Weems integrated the performers with the "precariously wired" set, creating a structured game "as a staging device" (Jackson and Weems 46) that required each actor to be in their own quadrant of the set, which was a full-scale house. Their mediated presence was then broadcast throughout the set via televisions or amplified sound as they invented the scenes of the play. The set, technological networks and the structure of the actor's "game" provoked questions about "how proximity and intimacy could be created by joining the projective acting technique of a performer with the differently projective screen techniques of a video system." This is a tangible example of a symbiotic development of design, acting techniques and "techniques of mediating technology" (47).

Shannon Jackson has described the various practices that comprise The Builders Association's process as their "operating system" in reference to the complexity of a

computational operating system (Jackson and Weems 16). These “operating systems” facilitate the interdisciplinarity required to stage what is “living inside” the core ideas, and represent the “technological networks and support systems” as well as “social and economic” systems that are “required to sustain the living work of The Builders Association” (16). Working with a wide array of interdisciplinary collaborators, from architects and computer programmers to philosophers and essayists, requires a nimbleness to ensure that all collaborators feel supported and the project maintain a forward momentum. As Jackson observes, Weems has crafted an approach of “stealth staging” (Jackson and Weems 47) that surreptitiously supports the actor’s process while simultaneously providing the significant time and space required by the other collaborators. Eleanor Bishop encapsulates much of what I find inspiring and influential about The Builders Association when she speaks to how their work “shifts the question for theatre makers” from “How can we tell this story?” to “How can we stage what is living inside this idea?” (qtd. in Jackson and Weems 395).

In order to “stage what is living inside” Weems asserts that it is vital to The Builders Association’s process that, along with the performers, the technology and the technicians must be “present in the rehearsal space from the very first day of our rehearsals.” She continues to say that she firmly believes “this is how the pieces end up the way they do. It’s not as if the technology is brought in during ‘tech week’. It’s not even simply a design idea. *It’s an integral part of the storytelling*” (qtd. in Marranta, “Mediaturgy” 180, emphasis mine). The choice to treat technology as an integral collaborator and insist on its inclusion in the creation process embeds the technology into the dramaturgy and the foundational structure of a show – this is “mediaturgy” in action (Marranta 180).

Weems, expanding on Bonnie Marranca's concept of "mediaturgy," notes that the term helps to acknowledge the "interweaving between the design of our shows and the dramaturgy.". As Weems explains, "the design springs directly from the idea and expresses it in a way that is different from a lot of other theater because what's onstage is the idea embodied in many different forms—video, sound, architecture, staging etc." (Jackson and Weems 34). Long-time collaborator and dramaturg James Gibbs highlights the integrative results of the process of The Builders Association, writing that "no one element stands in isolation. The physical set is also a container or receiver of video and computer design, the tech and the actors' performances are integrated, and the words that the performers say are *written in concert with the stage picture they inhabit*" (qtd. in Jackson and Weems 279, emphasis mine). Gibbs notes that "sometimes things click and all the elements pull together" which is when the collaborators know they've "found a moment in the show", and that the "shows are made by finding these moments and then scoring them into the whole" (qtd. in Jackson and Weems 279).

The "operating system" that facilitates this process of mediaturgy with The Builders Association's process also manifests in the adeptness of the human performers as they work collaboratively with the technological components of the productions. This requires physical precision by the performers so that they end up in the correct relationship to the (often unseen by them) technology. Moe Angelos, a performer and frequent collaborator, relates that she is "always very aware of the technology" and the importance of having to hit a specific mark for the camera and execute some little bit of "business." Often these actions seem "insignificant" as a performer, but they are actually "gigantically, spectacularly foregrounded in the scene because of [the] technology" (qtd. in Schechner 51), and so if the performer does not hit those marks the story does not get told as intended. Angelos notes that it is important for the humans to "learn to

cohabitate with our co-star, technology” (qtd. in Weems, “I Dream of Global Genies” 27) in a Builders Association show. This understanding is unfamiliar to most human actors and is therefore something that needs to be built into a technologically-rich creation process.

The Builders Association consistently and continuously demonstrate their commitment to the integration of technology, scenography, performance, sound, and text. James Gibbs explains that “if you take the technology away [from a Builders Association performance], the show doesn’t make any sense. *The tech must be integrated into the whole creative process.* Then you can rely on it to carry a part of the show” (qtd. in Schechner 52).

The strategies employed by The Builders Association in their development of methods to work collaboratively with performers and technology has provided guidance, inspiration and affirmation as I continue to develop my own practice. As will be detailed in Chapter 4, the creation process of *Bury The Wren* intended to engage with the technology and actor during the entire creation process. Due to logistics this was not possible, but we engaged with the technology frequently in the computer lab to overcome the absence in the rehearsal hall. This ensured that the practical and embodied understanding of the technology was present in rehearsal, which overcame some of the drawbacks of not having full access. Discoveries that were made when we could interact with the technology point to potentially missed opportunities should we have had the technology all the time.¹⁵

¹⁵ Theatre visionary Josef Svoboda believed that the melding of film and theater offered a “unique cross-disciplinary art form that would expand dramaturgic possibilities, and create new meanings and artistic dimensions.” Noting this symbiosis, Svoboda stated that “[t]he play of the actors cannot exist without the film, and vice-versa—they become one thing. One is not the background for the other; instead you have a simultaneity, a synthesis and fusion of actors and projection... The film has a dramatic function” (qtd. in Dixon 47)

2.3.1 *Jet Lag*

I have witnessed three The Builders Association's productions firsthand: *Jet Lag*, *Super Vision*, and *Continuous City*. Each show was filled with incredibly striking images and inventive use of technology. Among the powerful images in *Jet Lag* that remain indelibly printed on me is that of the male adventurer who we witness create his own false story. The "aesthetic of postproduction" (Jackson and Weems 128) is managed onstage by the performer, Jeff Webster, as he negotiates the technology, setting up cables, camera and screens to eventually trigger a projection of a rolling seascape on a small screen behind him. Looking into the camera in front of him the performer initiates the live feed and begins his travelogue. The audience watches him in profile onstage as he rocks on his stool, which also rocks the screen behind him causing the seascape to tilt. The camera is focused so that it only captures the seascape and his image, which is then projected onto a massive screen on stage, presenting the remediated image of a man at sea in a boat who is, in the story, also faking his adventure.

Weems exposes the mechanics of the creation of the image, which parallels the creation of the characters fictional adventure. The audience experiences both the live, onstage version of the construction and the *final product* of the fake adventure, which for me was an exciting and surprising integration of technology both into – and as – storytelling. The live camera also catches private moments of the character not intended for his fake broadcast, becoming the audience's window into the very real anguish of the character. Witnessing this use of live camera has profoundly impacted my practice, and *Jet Lag* directly influenced the development of *Bigger Than Jesus*, investigated in Chapter 3.

Jet Lag contained numerous striking instances of dramaturgically-grounded performer-technology interaction. The second story line in *Jet Lag* focuses on a grandmother and grandson

who continuously take intercontinental flights to evade capture and freeze time. Several times in this story of perpetual movement, the actors would stand still at a specific place on stage while the projected environment of a sophisticated 3D animation moved around them, creating an incredibly effective “perception of movement” propelling the characters up or down escalators, or through time and space in the fuselage of an airplane. The feeling and view of movement while the actors are standing completely still, like Webster constructing his camera-laden environment, amplifies the themes and the “philosophical conundrums surrounding speed and stasis.” As Jackson writes, the “theatrical use of new media forms” in *Jet Lag* create an experience of a “mediated mixture of screens and bodies” that stage the “compression of time” while providing the “performers and viewers an uncanny space” (Jackson and Weems 132).

2.3.2 *Elements of Oz*

I closely followed the development of The Builders Association’s most recent creation, *Elements of Oz*, which integrated Augmented Reality (AR) into live performance using a custom-built mobile app. Premiering in 2016 at Three-Legged Dog Centre for Art and Technology in New York City, *Elements of Oz* is an adaptation of the 1939 film *The Wizard of Oz*¹⁶, which was itself an adaptation of L. Frank Baum’s book, *The Wonderful Wizard of Oz*. One of the first films to be almost entirely shot in colour, *The Wizard of Oz* was an innovative technical marvel that engaged with the emerging technologies of the era. Using revolutionary

¹⁶ On a related personal note, the film of *The Wizard of Oz* has been a lifelong inspiration for me, having watched it hundreds of times since I was four years old. *The Wizard of Oz*, I believe, is as responsible for my career in theatre, in wanting to make beautiful, imaginative *augmented* stories as any theatre company or mentor. When I heard that one of my touchstone theatre companies was working on some kind of adaptation of it, my imagination ran wild, and it is a significant contributor to my drive to explore emerging technology and the potential it holds for imbrication with theatre forms.

moving camera techniques via a camera so complicated it required two technicians to ensure its correct operation (Lintleman, “Technicolor world”), the 1939 film exhibited the ability of the expensive Technicolor process to capture vivid colour. This allowed costume, special effect and set designers to experiment with advancements in colourful adaptable plastics in order to bring *Oz* to life.

The film’s innovative use of emerging technology nearly 80 years ago was reflected in the design and “technodramaturgy” of *Elements of Oz* (King 326). The integration of custom-designed AR components highlighted the original story’s own blurring of the borders between reality and fantasy and the film’s innovative continuation of that blurring. Employing their trademark blend of live video projection and pre-recorded imagery, *Elements of Oz* exposed the technology of the filmmaking by having cameras and crews onstage as the film was (re)created. The AR component used smart phones and tablets belonging to audience members and provided them with a custom-designed app. The audience received instructions during the performance which directed their engagement with AR and “served as a central component of the piece’s dramaturgy” (Bartley 12).

Elements including the flying monkeys, snow falling on Dorothy in the poppy fields and the famous tornado were brought to life through the AR app. The app also allowed for all the smart-devices to play a chorus of YouTube videos singing the signature song of the movie – *Somewhere Over The Rainbow* – on cue, just as actor Sean Donovan sang the same song live. The blending of all of these technologies and experimentation with AR further “complicated the traditional dichotomy of liveness versus simulation by allowing the AR content to inversely inform the ‘real’ staging elements” (King 334). As one of the first productions to experiment with integrating contemporary AR into live performance, *Elements of Oz* is an important

exploration of the potential embodied in the AR to create new modes of audience interactivity and engagement, and new forms of artistic expression – curiosities at the core of my current research.

The Builders Association continues to innovate and disrupt our understanding of the form of theatre, using technology as a collaborator and storyteller. The capacity of The Builders Association to dramaturgically integrate technology and media into their productions, while imbuing them with vitality and agency has had a profound influence on how I think about using technology in my own practice. In Chapters 3 and 4 I will investigate the different ways the creation and performance process has been adapted to more fluidly integrate performance and technology. As a practitioner, I am inspired and encouraged by their continued innovations with emerging and existing technology that push at the boundaries of what theatre is and what it can be.

2.4 VR and Live Performance: Interactivity and Intimacy

A lot of the VR is still in the realm of proto-spectacle, almost like the Lumière brothers and Muybridge's horse. We're still waiting for the master storytellers and authors to bring their visions to the medium.
Jordan Tannahill (Lewis, "NFB & UK's National Theatre")

In the development process of *Bury The Wren* several interesting contemporary VR works intersected with my research, including *Draw Me Close*, *Violette*, *Blue Hour* and *WorldSpace*. In the last eighteen months I have engaged with nearly twenty-five VR projects. Most of these projects were part of the 2019 Prague Quadrennial (PQ), which occurred after the completion of *Bury The Wren*. While many of the VR experiences at PQ were engaging and beautiful, *Blue Hour* and *World Space* demonstrated the possibilities for a live, embodied experience with VR. The two other projects explored below, *Draw Me Close* and *Violette*, both

provide an experience of the physical presence of a performer while the participant is fully immersed in VR.

2.5 *Violette* by joe jack et john

I experienced *Violette*, created by Quebec-based company joe jack et john, at the 2018 edition of the Festival of Live Digital Art (FoldA) in Kingston, Ontario. A combination of VR, a single live performer, and material scenography, *Violette* was performed in French and used a wired VR head mounted device (HMD) and two connected dressing rooms converted into performance spaces. A series of rituals marked the pre-show, creating a transitional state that marked a significant shift from the outside world. After reading instructions in an anteroom, I removed my shoes and sat quietly until I was silently brought into the carbon performance space by the costumed performer. I was then guided to sit down on the edge of the bed and had the HMD placed on me. It was a gentle beginning to the work, and there was a meaningful moment of transformation in the crossing of the threshold from the anteroom into the performance space. This “transitional state” is crucial in helping the audience move from carbon reality to virtual reality (Benford and Giannachi 267) and is a component that connects *Violette* and *Bury The Wren*.

Once in VR I was immediately transported into *Violette*’s virtual room through immersion in the 360-degree film of a white bedroom that was very similar to the room I was physically in. There was no representation of my body in VR, and, while there was a performer in the room (altering the physical state of the carbon room as I learned later), there was no interaction with her. I was not even really aware of her presence after I went into VR. I was,

however, aware of *my* presence and felt like I was important to the storyteller speaking to me in the HMD.

The physical room was very similar in size and design as the one in VR. The bed placed in the carbon world matched the size, placement, and feeling of the bed in VR. I remained seated on the physical bed for the duration of the performance, able to move my head in all directions. The blurring of the realities of the virtual and carbon room created a strong sense of being in two identical places at the same time. This feeling of displacement and time shifting was heightened after exiting VR into a room that had been slightly altered. Rather than disconcerting, this feeling was almost dreamlike, which was intensified by the design of the all-white room (punctuated only by a deep red rose). On exiting VR, the room was empty, the performer gone, and I was left to find my own way out.

Creating a potent sense of both embodiment and disembodiment, the immersion in the technology served the storytelling in *Violette* and conjured a dreamlike version of the carbon real world. In the blending of the carbon and virtual realities, *Violette* made affective use of the technology while also providing compelling reminders of the power of analog immersion and carbon real scenography. *Violette* made me curious about the aesthetic and storytelling potential of shifting between realities and what could be explored if there was more interaction with performers inside those layered worlds. Particularly inspiring was their use of scenographic transformation of the physical room to, first, transport me to another place *before* entering VR.

As the VR component of this piece was essentially a 360-degree film, this meant that the performance adhered to a strict timeline. The richness of being transported through time and place coupled with the dynamic of full immersion in a virtual world provided glimpses of a space that could be very alive in ways that traditional theatre and ‘stage magic’ cannot achieve. The

experience sparked an interest in creating a performance that was more live and responsive, and perhaps even improvised. *Violette* led directly to the research questions embodied in *Bury The Wren*.

2.6 *Draw Me Close* by Jordan Tannahill

I discovered Jordan Tannahill's piece [Draw Me Close](#)¹⁷ during the creation of *Bury The Wren*, though I have not yet experienced it firsthand¹⁸. Described as an “immersive illustrated memoir” (Dickson, “Love, Virtually” 13), and “a groundbreaking marriage of reality and VR” (Strange, “Intimate Stories”). Tannahill had already placed himself within the vanguard of those exploring the intersections of emerging technology and theatre with his 2013 creation of [rihannaboi95](#). An exploration of live-streamed performance, Tannahill created a free, live, telematic performance hosted on YouTube, using the technology available to break definitions of where theatre can be performed, or even what theatre is. *rihannaboi95* is a significant example of creating a new form of theatre *for* a form of technology that in turn allows that form of theatre to exist. As described on the production website:

Draw Me Close blurs the worlds of live performance, virtual reality and animation to create a vivid memoir about the relationship between a mother and her son, in the wake of her terminal cancer diagnosis. Weaving theatrical storytelling with cutting-edge

¹⁷ *Draw Me Close* trailer can be seen here: <https://www.youtube.com/watch?v=4zokAygRNYs>
There is a small sample of the animation embedded in this article by Adario Strange:
<https://mashable.com/2017/04/26/tribeca-film-fest-virtual-reality-experiences/>

¹⁸ In July 2020 I was scheduled to attend the Souleppper presentation of *Draw Me Close*, which was cancelled due to the Coronavirus pandemic.

technology, the performance allows the audience member to take the part of protagonist and experience life as Jordan inside a live, animated world. (*Draw Me Close*)

Tannahill's describes his relationship with VR as a "slow burn romance" as he explored the form with his collaborators¹⁹, asking "what can VR do that theatre or film can't?" (qtd. in Butet-Roch). Working with the National Theatre and the National Film Board of Canada, Tannahill began exploring this intersection between theatre and VR. Integrating a live performer in the room with the participant was critical to his project, not unlike *Bury The Wren*.

The ability to embody real time physicality with a carbon real human is essential for this piece about abuse, death and dying. Tobey Coffey, the head of Digital Development at the National Theatre notes Tannahill's "humanistic approach to the use of technology" in combination with his "incredible storytelling skills" pushed *Draw Me Close* beyond many "expectations about what storytelling in VR could be" (Lewis, "NFB and UK's National Theatre"). As Tannahill explains, "Using animation allowed me to express how memory works. VR meant I could make the experience total, while performance makes it tangible" (qtd. in Butet-Roch 2017). Like *Bury The Wren's* supernatural Annie, Tannahill's character Mother is in the room with the participant, resulting in physical contact and an immersion in the presence of a character. Exploring the collision of carbon real and virtual scenography, the participant enters the world first through a physical set designed to look like Tannahill's childhood home. Inside the headset, *Draw Me Close* starts as a white space that slowly comes alive through animated

¹⁹ *Draw Me Close* production credits: Writer and Director Jordan Tannahill; Principal Illustrator Teva Harrison; Additional Illustrations Olie Kay; Creative Technology All Seeing Eye; Set Designer Tom Paris; Sound Designer Gareth Fry; Producers Johanna Nicholls (NT) and David Oppenheim (NFB); Executive Producers Toby Coffey (NT) and Anita Lee (NFB); The role of the mother was devised with Tamzin Griffin

black pen lines that sketch a 3D living room. There are door handles and carpets that transcend from the carbon real to the virtual worlds, creating haptic feedback of the virtual objects.

In the carbon real space an actor plays the role of Tannahill's mother. Her movements are captured and translated in real-time into the virtual space so that the participant can interact with a pen and ink drawing of Jordan's 'Mother.' She is a "virtual character in the physical world" whose voice you can hear, "merging the real with the virtual" (Rosenbaum, "Tribeca Virtual Reality") The participant is given a persona – 5-year-old 'Jordan' – and, by using Vive trackers attached to the participants' hands, they are also given hands in VR to draw. Guided through physical interactions with the actor, *Draw Me Close* places the participant "in a position of vulnerability as they adopt a child's persona" (Kennedy and Atkinson 4), and are "touched by a cartoon" (Rosenbaum, "Tribeca Virtual Reality")

Like Christensen and I with *Bury The Wren*, the team behind *Draw Me Close* saw the potential inherent in this hybrid, nascent form of intermedial performance. Toby Coffey notes that working with VR in this way feels like the development of a "new form." Acknowledging the limitations of a one-to-one performance and the "need to think about how to do this for larger audiences" he returns to the impact of the entanglement with live performance in *Draw Me Close*, remarking that the potential in the hybrid form "feels worth exploring" (qtd. in Dickson, "Love, Virtually").

In the construction of *Bury The Wren* we were interested in keeping it an improvisational performance so that we could explore the potentials of participant agency. The real-time capacity of the reactive environment in VR provides the opportunity for participant interaction and impact on the storytelling. David Oppenheim, a co-producer of *Draw Me Close* defines two facets of participant agency that hold relevance to Tannahill's work and my research – global agency and

local agency. Global agency denotes “the ability of the user to impact the larger narrative to determine how things are told, whereas local agency is about taking action in a scene or a smaller aspect that doesn’t change the narrative.” As Oppenheim notes, “*Draw Me Close* is scripted, though there is room for user agency or interaction” in the form of the actor delivering lines, which “shapes the user’s experience of the narrative” (qtd. in Clarke, “*Draw Me Close*”).

These different types of participant agency within any VR creation are important to consider, as the type of agency forms both the participant experience and the potential depth and breadth of the story being told. In *Bury The Wren*, as in *Draw Me Close*, we explored local participant agency, but I recognize the potential for participants to engage in a much more interactive and malleable narrative if they can be provided global agency. Given the relatively unlimited capacity of VR to seamlessly shift the virtual world, the idea that a participant could be given global agency over a story feels exciting and rich with storytelling possibilities.

In a 2019 Globe and Mail article, it was highlighted that Tannahill was “determined” that *Draw Me Close* would be a communal experience and exist in real time with live performance “the way theatre does” (Taylor, “VR Takes to the Stage”). I believe that Tannahill and I share similar impulses that led to our respective explorations, particularly in our recognition of the potency of combining the immersion and transportive quality of VR with the intimacy of corporeal live performance. In that same interview Tannahill highlights the different perspective that a theatre artist has when approaching VR, stating that “[f]or a lot of people in the industry, the holy grail is the [Star Trek-style] holodeck. ... They’re after the seamless experience. Theatre artists think in a different way. *We understand the importance of using bodies in space*” (qtd. in Dickson, “Love Virtually” 13, emphasis mine). This knowledge held by theatremakers of using bodies in space, transposed into the virtual environment, directs attention to how the

performance is choreographed around the participant while also understanding and valuing the participant experience. This understanding of the crafting of space and crafting space around bodies extends to all theatrical designers, who work in the art of crafting space (be it light, sound, set, video, or costume) to engage with the bodies who inhabit those spaces. I firmly believe that this specific knowledge and understanding positions theatre makers as incredibly important artists to engage within the crafting of virtual worlds and experiences.

In their paper Helen Kennedy and Sarah Atkinson write that *Draw Me Close* clearly works to “demonstrate the possibilities of the technology to provide immersive intimate collaborative performances which engender complex emotional connection” (Kennedy and Atkinson 13). I believe that the potential for this kind of emotional connection exists powerfully in the VR / intermedial performance hybrid where “redefining our senses and resensibilising our perception through bodily encounters with (digital) technologies” opens up the potential for new modes of intimate connection (Bay-Cheng et al. 28). Reflecting on intimacy and “Intermedia,” Bruce Barton notes that “intimate interaction” in the “intermedial space, with its insistence on momentary intensity and complete attention ... is unavoidable.” The “intermedial intimacy” (as witnessed in *Draw Me Close*) is, as Barton asserts, “not generated through the *portrayal* of shared cultural attitudes and beliefs ... but rather through the performance of shared perceptual frames and dynamics (interaction that posits ambiguity and de/reorientation as the constants of contemporary existence)” (Barton, “Node: Modes of Experience” 46, emphasis original).

I am inspired by *Draw Me Close* as we move deeper into the 4th industrial revolution and also attempt to grapple with the new era of social distancing. In the reflection required of this thesis, it is encouraging to know of another work that is exploring the *affective* use of technology

to tell an intimate, moving and compelling story. It is even more encouraging this work has strong ties to Canada.

2.7 Prague Quadrennial 2019 and intimacy in VR

Continuing the observation of the potential for intimacy in VR, I encountered several VR experiences at the 2019 Prague Quadrennial of Space and Design (PQ2019) that created intermedial intimacy through engagement with technology. In the following sections I will focus on two productions that had a significant impact on me – *Blue Hour* and *World Space*. Intimacy in interaction was a guiding principle within each piece and significant to how the different stories were being told. Each piece was a solitary event that positioned the participant as central in the experience, even though there was no manifestation of one's corporeality or virtuality.

The intermedial intimacy that can be created by technology and embodied in the user, holds compelling potential for the exploration of intimacy in performance in digital worlds. If we can engage with that level of intimacy and connection, it means we can create intimate VR performance on a large scale. Experiences could be created for hundreds of people in the same physical space, each wearing an HMD while engaging with an intimate performance in VR – a deeply personal and collective experience.²⁰ I get very excited when I think about 400 (or even

²⁰ As I write this footnote it is April 2020, we are in the midst of the Coronavirus pandemic that is requiring all humans, globally, to remain isolated. This is having a significant impact on the performing arts, and while it has eliminated this idea of putting 400 or 50 or 5 people in the same room at the same time, it offers us a way of experiencing intimate performance. In the weeks since quarantines and isolations started, I have been experimenting with different modes of creation, collaboration and performance in VR. These are early experiments based heavily on what I have learned from the creation of *Bury The Wren* and the works experienced most recently, it was the PQ2019 that brought together a group of VR explorers to create an informal collective where we are experimenting with form and technology together. Joris Wejdom, Tanja Bastamow, Néill O'dwyer, Paul Cegys and I have been meeting in and out of VR since the beginning of the pandemic. We have experimented privately among us and publicly at Laval VR where I presented about our experiences and devised a micro collective creation among 40 members of the conference. (see [Appendix E](#) for images from Laval VR) We are entering a new phase of creation and performance. While this entire thesis could be rewritten with this knowledge and include a significant amount of

just 50!) people in a room wearing HMDs, experiencing a work of intimacy and beauty together safely in their cocoons, perhaps even interacting with each other. To then emerge at the end of the work in a room full of others who have gone on the same, yet unique, solo and shared journey could be a remarkable, unifying social experience. The potential for collective / personal VR experiences creates incredible possibilities for entirely new kinds of theatrical forms and creations.

2.8 *World Space*

In Kalle Rasinkangas' [World Space](#) the participant is given a wireless VR headset and is instructed by the in-room attendant to explore and change the virtual worlds by engaging with the carbon real chair that is present in the room (both in CR and VR). There is no game or objective beyond exploration. The carbon chair has a Vive Tracker device attached to it, providing locative data to the program so that the virtual chair is in the same place in both the physical and the virtual worlds. By lifting and moving the chair the virtual world is changed based on that interaction. There are several worlds to explore, each triggered by an unknown point of interaction in the world.

A feeling of safety and solitude was evoked by the compelling and aesthetically beautiful worlds I encountered. As the immersant, it was very clear to me that I had tremendous agency in altering, modifying and playing with the worlds I encountered. That clarity was important to my comfort level in the space and contributed to my ability to allow myself to relax into the gentle tempo, mood and action of the world. Through the endless, non-linear experience, I only ever

speculation and hopes for the future, I will not be doing that, though I have placed important footnotes where I believe my discoveries during the process of writing this paper and creating the central case study point to the possibilities going forward.

felt like it was me and the chair playfully exploring these various worlds. With this sense of intimacy maintained by the experience, I never felt lost, overwhelmed or consumed by the worlds I encountered. Not having to solve problems or seek objects allowed me to explore the worlds without distraction while maintaining a sense of grounded embodiment through my physical actions with the Carbon Reality (CR) chair.

The solitude of wearing a VR headset allows for VR creators to craft intermedial intimacy with the participant, which provides significant potential for deep immersion into story or world. Nearly a year later the images and feelings I experienced in *World Space* are visceral memories. Engaging with *World Space* post-*Bury The Wren* supported my belief that VR is a rich place to explore embodied experience, agency and intimacy.

2.9 *The Blue Hour VR Experience*

[*The Blue Hour VR*](#)²¹, created by [Paul Cegys](#) and [Joris Weijdom](#), was the VR component of an epic installation called [36Q Blue Hour at PQ2019](#) that explored all forms of design. Housed in a cavernous hockey arena – itself transformed by lighting, sound, video projection and physical scenographic elements – the already immersive alternate reality of the installation was the leaping off point for *Blue Hour VR* both in the physical world and the virtual world..

The massive venue, transformed by design, created a remarkable transitional space as immersants waited to be allowed into the VR component. As Cegys writes, the design of the experience was

²¹ Conceived and Created by Paul J. Cegys & Joris Weijdom; Composer: Jonathan Cegys; Lead Programmer: Richard Van De Lagemaat; Production Assistant & Research: Jess Bertran; Orb Design: Krisjanis Rijnieks

focused particularly on the interweave between the tactile sensations of the experiencer's physical body and the non-real virtual environments ... *'The Blue Hour VR Experience'* integrates the haptic experiences of bodily perception (feet, hands, heads), sensory perception (smell, acoustics) and the visual mixed reality within and outside of the VR headset. ("Blue Hour VR").

The "haptic experience" was grounded in the 'orb' that the immersant was handed pre-show and instructed to hold on to. The plexiglass orb contained a Vive Tracker and provided the physical location data of the immersant to the VR program, but also acted as a physically grounding element that helped ensure the immersant did not lose their balance or become otherwise 'VR-motion-sick.' The carbon real object was also a virtual presence (often manifesting as a glowing orb) in the VR experience, serving as a transitional object that activated stages in the interactive experience.

The other key haptic element was the pool of sand that each immersant entered, barefoot, once the headset was secured. The pool, about 10' in diameter with arches over it, was a scenographic element embedded into the overall design of the whole immersive experience. Once inside the pool, (fig. 2.5) the constant awareness of the sand beneath one's feet served as



Figure 2.4 *The Blue Hour VR* © 2020 Prague Quadriennial. Photo by Tomáš Brabec. Used with permission

both a grounding element, and a transitional object. The feeling of the sand was omnipresent through the experience, but not intrusive. The initial immersive virtual state was a re-creation of the empty hockey arena. As the experience began, the virtual hockey arena broke apart and flew away, and the immersant was then transported to a series of multiple worlds. The haptic feedback from the sand helped to maintain a stable sense of place and safety, allowing one to deeply engage with the virtual worlds. I often forgot the sand was there until something significant happened, like the world shifted or I banged into the edge of the pool.

The use of the orb and the sand are profound reminders of the importance of considering the immersant in the crafting of the experience. The haptic or tactile feedback ground us in our own reality, even as we are experiencing some form of perceptual slippage. It is these anchors in carbon reality that help allow immersants in VR to suspend their disbelief and avoid physiological difficulties of motion sickness and loss of equilibrium that can occur in VR environments. I have experienced these effects first-hand and they are also well documented in many studies on motion sickness in VR environments (Dziuda et al., “Simulated Fog”; Kolanski, “Simulator Sickness”: Moss and Muth, “Characteristics”).

Grounding objects need to be considered dramaturgically, and they were with *Blue Hour VR*. The design of both the orb and the sand pool were evocative of the lines of the architecture we were immersed in. The dome over the sand pool and orb recalled each other, making the physical reality a scenographically unified one. The scenographic foundations of the grounding objects of the orb and sand in *Blue Hour* and the chair in *World Space* serve as a connection point between the physical and the virtual world, but also between traditional scenographic approaches and this emergent form of VR design and performance.

2.10 *BIOBOXES: Artifacting Human Experience* by Theatre Replacement

A traditional approach to immersive work is reflected in the final, deeply influential production *BIOBOXES: Artifacting Human Experience*, created by the Vancouver-based theatre company Theatre Replacement. The intimacy embodied in this production was covered in Chapter 1, however this (primarily analog) production is deeply influential to my own practice and the creation of *Bury The Wren*. First performed in 2007 at Calgary’s High Performance

Rodeo (“BIOBOXES | Theatre Replacement”), I was fortunate enough to see it in person in 2009 at The Theatre Centre in Toronto.

[FIGURE] Theatre Replacement has historically engaged with technology ways that could be described as *micro*. In [Wee Tube](#) the performers generate dialog from the audio of YouTube videos playing in their ears as they perform live. Technology is deeply embedded into the performance of 2019’s [Footnote Number 12](#) as a “monolog for two people” (“FOOTNOTE NUMBER 12 | Theatre Replacement”). In *Footnote* an actor, James Long, performs the text while a sound designer, Nancy Tam, digitally manipulates the soundscape and the performer’s voice live. The manipulation of the voice creates ‘the creature’ performed by Long. Theatre Replacement’s most visually *epic* engagement with technology, *MINE*²², uses the computer construction game *Minecraft* as a “kind of theatre” (“MINE | Theatre Replacement”), performed by an intergenerational cast of actors and gamers. In it they tell the story, in part, by broadcasting live gaming to three large screens overstage.

[BIOBOXES](#) is concretely on the micro side of this equation, both in the physical scale of production and integration of digital technology, which is done exclusively via audio playback devices (iPods) used in the performance and by projecting their source material interviews on a lobby wall. However, the expansiveness of the stories being told and the storyworlds created in each box was expansive – the *epic as micro*. With its analog form, *BIOBOXES* may seem like a strange choice as an influential work for me and my practice, however the balance of the epic as micro was indelibly printed on me as much as the intimacy shared with the performers was.

²² *MINE* was one of the first performances to be live-streamed in the early days of the COVID 19 lockdown. The show was installed at The Cultch in Vancouver and was about to open when the lockdown started. They quickly shifted their performance plan and adapted as much as they could for broadcast. It was a moving experience to watch during of the upheaval caused by the pandemic.

This feeling of closeness and the gratitude I felt towards the performers for sharing the stories in this unique way were deeply present of mind as we developed *Bury The Wren*. It is because of my experience with *BIOBOXES* that I have an embodied knowledge of the delicate balance of that personal intimacy and the “performative intimacy” (Barton, “Paradox as Process” 580). The very first time I put on a VR headset, I was immediately reminded of going into my first biobox, and every time I put on a VR headset I think about *BIOBOXES* and how entering into those plywood boxes was stepping into a fully immersive, new world – just like it is in VR.

Entering into a biobox was a magical and transformative moment and a transitional state from one world to the next. The combination of a compelling story, surprising imagery, and intimate humanity explored in *BIOBOXES* deeply contributed to the vision of *Bury The Wren*. In *BIOBOXES* we witness a show where the immersant’s presence and experience is very much acknowledged and integral to the performance of each story. In a one-to-one setting, the performance cannot happen, and the story cannot be told without the audience. During the development of *Bury The Wren*, *BIOBOXES* served as the guide and reminder to consider the immersant in our design of the story, scenography and movement. *BIOBOXES* provided me with firsthand knowledge of what kind of emotional connection could be created in this very intimate setting, and I knew that our “box” of VR was capable of providing the same kind of powerful access to human connection in *Bury The Wren*.

Chapter 3 Methodology and Practices

“For much of the history of theatre, scenography has functioned as a means of creating a material reality for the presentation of the immaterial: the mythical, allegorical, and fictional, or perhaps the illusion of an actual locale... But in a world in which so much human interaction is mediated through electronic and digital technologies it is increasingly difficult for the stage to exist meaningfully as a site of physical and tangible interaction. ...new technologies are emphasizing the dematerialization of the stage: the stage as a permeable and ephemeral space that more accurately represents our perception of the experiential world.”

Arnold Aronson “The Stage as Simulacrum of Reality”(15)

It has been my career-long practice to push at the boundaries of what we understand theatre, design, and scenography *to be*. The act of collaboration is at the heart of this practice. I am an advocate for having traditional design elements and digital design technologies in the creation room. I believe in an *alchemical* nature of creative collaboration where rich possibilities emerge following the collision of one collaborator's artistry with another. Such collisions make each collaborator a better artist and produce *magical* outcomes. In this chapter, I will look at the frameworks and methods that guide my alchemical goals, particularly those exemplified by devised theatre and collective collaboration methods.

Devising / collective creation / collaboration / co-creation encourages interdisciplinarity, which welcomes non-text elements equally and recognises those contributions as “performance text” (Oddey 19). In “Navigating Turbulence,” Bruce Barton examines the dramaturging and devising of physical theatre, noting that “devised theatre” is a “sufficiently broad” category that incorporates “a wide range of very different objectives, techniques, and styles” (105). This expansive nature of the devising process has supported my explorations of the capabilities of technology and design in the creative process as a collaborator. Devised theatre processes employ techniques that welcome the “turbulence” (Barba 56) and “collisions” (Barton, “Navigating” 108) that come from the form’s reliance “upon an engagement with coincidence

and the unpredictable through a heightened sensitivity to possibility and a rigorous ability to exploit its gifts” (105).

Eugenio Barba’s idea of “turbulence” is introduced in *The Three Faces of Dramaturgy*, specifically from the “dramaturgy of changing states, when the entirety of what [is shown] manages to evoke something totally different” (Barba 60). Employing evocative organic imagery, Barba attempts to explain this most “elusive” (60) of dramaturgies:

The dramaturgy of changing states concerns the performance as a physical and sensorial event, as an organism-in-life. It has nothing to do with the written text, with the dramaturgy of the words, in the same way that the vibratory quality of the singing voice has nothing to do with the score. All this is not possible without the availability of *many elements and different seeds*, without the will to encourage contiguity and to spread out in several directions simultaneously. This abundance of elements and materials creates confusion, yet its aim is simplicity and coherence. (62, emphasis mine)

This dramaturgy of changing states, being both “sensorial and mental” is a “spring from one state of consciousness to another with unforeseeable and extremely personal consequences” (61). In the “leap” that spreads the “seeds” there resides a “perturbation, a change in the quality of energy, which produces a double effect: enlightenment or a sudden vortex that shatters the security of comprehension and is experienced as *turbulence*” (61, emphasis mine). It is precisely this “turbulence” created by an “abundance of elements and materials” within “vortexes” that “upset the current of narrative action” (62). Barton notes the importance of the “productive disruptions and facilitating interruptions” of turbulence in a devising process, observing that they “regulate narrative progression”. He goes on to expand on Barba’s idea by contributing his own metaphor and model of *collisions* “in which distinct material units are forced into a collision that

produces psychological and emotional concepts.” The occurrence of the non-text, “physical and sensorial” collisions in the “compositional strategies” (108) of a devising process is precisely what makes devised theatre a practice that can easily welcome all forms of design into the turbulent collisions.

Devising processes support, if not require, a disruption of traditional hierarchies, which necessarily knocks down the silos that have historically relegated designers to second tier or “shadow artists” (Cameron 55) and frustrated my personal artistic growth. Bruce Barton, in his examination of devised physical theatre asserts that within this style of process “the stability of designated roles is necessarily and productively challenged” (Barton, “Navigating” 115). It is the “inherently collaborative nature” of the devising process that “allows for, perhaps even demands, a flexibility of self-definition and an evolving exchange of responsibilities and rights” (115).

While challenging the traditional roles and demanding flexibility, the devising process provides access to new forms of experiential knowledge. Devised theatre practices empower new modes of design-framed thinking, like “visual dramaturgy,” which helps to understand the “active circulation between visual vocabularies” (Pearce et al. 42). Coined in 1991 by Norwegian theorist Knut Ove Arntzen, “visual dramaturgy” is an attempt to capture the development of a “rich diversity of ways to work with text that are closely connected to the dimension of the visual” (DeLahunta 22).

Engaging with the devising process has been vital to my development as a theatre artist in several ways. Devised creation methods provide agency to me and to the mixed reality technologies fundamental to my creative practice as a theatre-maker. That agency has allowed me to expand my practice and, in (often) uninhibited ways, push the limits of the technology simultaneously. The deep artistic connections forged with collaborators have supported

experimental work and meaningfully challenged my creative practice. The working methods of The Builders Association, Robert Lepage, and others who have given agency to design and mixed reality technology, are primary inspirations to my practice. Theatre artists I have worked with, like Daniel Brooks, Gil Garratt, Peter Hinton-Davis, Jillian Keiley, Jenna Rodgers, and Paul Thompson, have welcomed mixed reality technology as the visual storyteller in their diverse practices. My collaborations with them empower me as an artist to assert my unique knowledge and singular perspective on what we create, and how we create works of performance. The skills and knowledge acquired over the last thirty-plus years led to the creation of *Bury The Wren*.

3.1 Practice as Research (PAR)

I designed the creation process of *Bury The Wren* to be iterative. It was emergent and fully embodied by all the collaborators. As will be shown throughout Chapters 3 and 4, the development followed an active process of *doing* that remained responsive and flexible to the needs and discoveries made across the disciplines of theatrical performance and computer science. *Bury The Wren* utilizes Practice-as-Research (PAR) as its methodological orientation. As seen in Fleishman “The Difference of Performance as Research”; Kershaw and NicholSEN *Research Methods in Theatre and Performance*; Shatzki et al. *The Practice Turn in Contemporary Theory*; Nelson, “Practice-as-Research and the Problem of Knowledge”; and Barton, “Introduction I”—PAR utilizes creative practice as an integrated mode of inquiry and reflects upon the process and products of that practice in service of knowledge creation. The following are the basic understandings and key characteristics of PAR that will help the reader understand the process of creating *Bury The Wren*.

There is a broad spectrum of many conceptual frameworks that can be considered artistic research. Baz Kershaw offers a “straightforward” definition of practice as research, asserting that PaR “indicates the uses of practical creative processes as research methods (and methodologies) in their own right” (Kershaw 65). PAR is an embodied, active practice that produces artistic knowledge about the central subject or stimuli and the process that creates it. The knowledge produced is only accessible through an act of *doing*, which is generally overlooked by other forms of research. The knowledge generated is produced *and only fully accessible* through the act of the research process, marking it as distinct from most other research approaches.

The *doing* can manifest in many ways. In the last few decades, PAR has become “a well-established approach using creative performance as a method of inquiry” (Kershaw, qtd. in Fleishman 28). Bruce Barton notes the “commonly held priority that ... both the processes and the knowledge generated within/through ARP [artistic research in performance] are *fully embodied*” (Barton, “Wherefore PAR” 9). How the *doing* happens in the pursuit of “artistic knowledge” is crafted into a framework that guides the embodied practice intent on exploring a subject (or subjects) of focus (Klein “Artistic Research”). For example, in an embodied practice, participants could engage with scenic elements, interacting physically with the scenic elements and with each other. From those interactions, discoveries are made that translate into *embodied* knowledge of the subject, of the objects, and each other as participants. Barton draws upon Julien Klein, who observes that artistic knowledge “has to be acquired through sensory and emotional perception, precisely through artistic experience... artistic knowledge is sensual and physical ‘embodied knowledge.’ The knowledge that artistic research strives for, [sic] is a *felt* knowledge” (qtd. in Barton, “Wherefore” 10).

This knowledge, embodied individually and shared collectively, can then inform the next *iterative* steps in the process (which can include aesthetic development of the scenic elements). The PAR methodology challenges and disrupts the binary of process and product (Barton and Hansen 122-3). The product is the process: the process is the product. As Hansen explains, the artistic knowledge or “phenomena” generated emerges “relationally, through active and embodied engagement, which is also how they are accessed” (qtd. in Barton, “Wherefore” 10). As an embodied practice, PAR requires the researcher to be present in the activity that is generating artistic knowledge. As Lynette Hunter notes, the researcher “is both the practitioner who makes things happen and the audience or respondent” (qtd. in Barton, “Wherefore” 12).

Alison Oddey, in *Devising Theatre: A Practical and Theoretical Handbook*, points to how this discourse between process and product in a devised theatre creation scenario could continue perpetually (Oddey 150-155). In many cases, it does, with the learning and understanding of product and process continuing through the performance of the creation. This creation method is reflected later in this chapter, highlighted in the process/product of artists like The Builders Association and Robert Lepage as examples of artists who engage with ‘product’ in a method that allows and encourages continuous discovery and iterative implementation of those discoveries. PAR is a practice of continuous learning and understanding that perpetually informs new projects and new processes. The continuous discovery, uncovering and creation embodied in PAR is layered, iterative, circular and web-like. While a singular project may conclude, PAR's work does not end for the practitioners but moves on with those artists as each participant brings the embodied knowledge of their life, research and inherited knowledge into the next artistic research project. This reflects the fundamentally *emergent* nature of PAR.

Barton asserts that “[p]erhaps the single most common methodological preoccupation among ARP [artistic research in performance]-related researchers is the *emergent* nature of both its processes and its products” (Barton, “Wherefore” 11). There is an evolutionary quality to both the process and the product (of produced artistic knowledge); therefore, the process must remain continuously adaptive to respond to discoveries made within it. This necessary adaptive quality of the process must be included into the design and framework of the methods used to create artistic knowledge. As Pil Hansen observes, the phenomena “emerge relationally, through active and embodied engagement, which also is how they are accessed” (qtd. in Barton, “Wherefore” 10). The process design utilizing a PAR methodology can take many different forms. This multifaceted approach has resulted in several different, but closely related, terminologies, as can be witnessed in Barton and Hansen’s “Research Based Practice” and the “3rd Space;” Practice-Based Research; Practice as Research, Practice-Led Research and Nelson’s “Dynamic Forms.”

Each instance of engagement with PAR reaffirms the “emergent nature ... within its production of *situated* knowledge” (Barton, “Wherefore” 12). The “situated sites of interaction” engaged with during instances utilizing PAR reside in the specific time and place, and within the participants, resources, and goals of each PAR process (12). As Lynette Hunter writes: “In the arts, situated knowledge becomes a situated textuality, knowledge always in the making, focusing on the process but situated wherever it engages an audience” (qtd. in Barton, “Wherefore” 12). The situated quality of PAR creates unique opportunities for the generation of knowledge. We can never recreate the exact experience, for even if each participant is the same, each element (place, time, participant, intention, etc.) is situationally different than it was the last time they were all brought together in a PAR process.

As Oddey importantly notes, the qualities, skills and collective knowledge of *who* is involved in the creation process guides the devising process for theatre creation (Oddey 148). Design-driven creation and the methods of Paul Thompson (which I examine in this chapter) further highlight the importance of the ephemeral space and physical place on the creation process and the knowledge gained from *situated* interactions.

The “embodied, affective, and interactive nature” of the PAR methodology allows for collaborative opportunities across multiple disciplines, making it “inherently *interdisciplinary* and *transdisciplinary*” (Barton, “Wherefore” 11, emphasis original). The flexibility and responsiveness of a PAR-oriented process allow the creators space and time to explore the research questions using unconventional methods or modes of exploration, often through the combination of diverse practitioners (i.e., involving astrophysicists or neuroscientists in a theatrical exploration). By embracing “methodological diversity,” PAR creates the conditions where different participants understanding of knowledge creation can exist in parallel, as they each seek to understand the central research questions. Referencing Barrett and Bolt, Barton asserts “PaR’s ‘relationality’ and its ‘capacity to reinvent social relations’ dismantle disciplinary distinctions and create “conditions for the emergence of new analogies, metaphors and models for understanding objects of inquiry” (Barton, “Wherefore” 11).

It is fundamental to my work as an artist-scholar to engage with *practice* as a means of knowledge creation and to access knowledge. The tacit knowledge and essential elements of *intuition, failure, design/scenographic interactions, and shared experiences* are only accessible through engagement in the enactive creative practice, as opposed to formal content evaluation. The embodied practice of design-led dramaturgy not only produces research materials but also offers a way of knowing and understanding that is different from the content analysis. The act of

doing and the haptic and embodied experiences of that *doing* are crucial to both data generation (artistic knowledge) and analysis.

As a practitioner, I bring a design-led approach to the PAR process, which challenges existing hierarchies of creation. A design-led approach provides new ways of engaging with research questions and creating artistic work. This uncommon approach shapes the researcher's and co-participants' experience, providing new modes of communication, conduct and embodiment. The established methods of collective creation and devised creation positively support the potential of engaging with these methods through a design-led approach.

3.2 The Magic and Alchemy of Devised Creation

Collective creation in both English and French Canada began to take root in the late 1950s and early 1960s. As Keith Johnstone notes in *Up The Mainstream*²³, “Canada had a strong tradition of alternative theatre in the 1930s consisting of leftist and agitprop theatre” (17). Though the “left wing arts clubs” who created plays shouting for “the downtrodden” had widespread impact, World War II brought an end to these groups and the “tradition of alternative theatre in Canada was severed” only to eventually be “reinvented in a different way by George Luscombe in the 1960s.” Leading the company that would come to be known as Toronto Workshop Players, Luscombe began using “improvisational classes” to create original plays that left an “indelible” mark on Toronto theatre (19). In this time, Martin Kinch and John Palmer,

²³ When I left Toronto to come to Calgary to do my MFA, the first book Thompson challenged me to find in the U of C library was *Up The Mainstream*, which – beyond being a fascinating read – provided important information for this document.

who would go on to found Toronto Free Theatre, were also exploring collective and devised methods.

Famed British director and dramaturg Joan Littlewood's²⁴ work in the 1960s in "group theatre" with her company Theatre Workshop, and her signature use of "improvisational methods to develop scripts" (18) influenced later devised and collective practitioners internationally, as did the collaborative techniques of directors Peter Brook and Peter Cheeseman in Britain, and Roger Planchon in France. This rich history is noted in both Oddey's *Devising Theatre: A Practical and Theoretical Handbook* and Johnstone's *Up the Mainstream*, where they go on to note that it was in the 1960s and 1970s that the American companies La Mama Experimental Theatre Club, Living Theatre and the Open Theatre were all exploring collective and devised methods.

In 1968 Jim Garrard founded Theatre Passe Muraille, which is credited as the "first and most important company in the explosion of new theatres in Toronto in the late 1960s and has been a hub for new theatre activity ever since" (Johnston 28)²⁵. As Martin Julien writes, "the now fifty-year history of this experimental theatre is as rich and strange as the multitude of artists, dreamers, blowhards, ragers and saints that have swept through its histories" (Julien et al., ix). Garrard, inspired by the ensemble theatre techniques he'd witnessed in the work of La Mama Experimental Theatre Club, began experimenting with their methods as he formed Theatre Passe Muraille in the basement of Rochdale College in Toronto. Paul Thompson (a student of Planchon) joined Theatre Passe Muraille in 1969, eventually taking the reins of the company in

²⁴ Interestingly, Luscombe trained with Littlewood in England in the early 1950s, though Littlewood herself did not really begin to engage with her improvisational methods deeply until after Luscombe returned to Canada.

²⁵ Though Johnstone wrote this in 1991, Theatre Passe Muraille continues to be a "hub," now led by Artistic Director Marjorie Chan.

the early 1970s and continuing to explore collective and devised creation. As Johnston notes, “it is easy to cite Peter Cheesman’s documentary methods and George Luscombe’s vigorous stage imagery as influences [on Thompson], or to credit earlier collectives created by Kinch and Palmer,” but Thompson’s collectives began differently than those examples, first choosing “ordinary (even banal) Canadians as their central figures” and performing them first for the “real-life models” (107). Through these “early style of devised creation, most notably exemplified by 1972’s *The Farm Show*,” Theatre Passe Muraille (and those who formed the early style) can claim the position as “arguably the single most influential and relevant theatrical development to grow out of English Canada since World War II” (Julien ix).

Moving into the late 1970s and early 1980s, external influences continued to have an impact on devised and collective creation in Canada, as witnessed in the influences of Jacques LeCoq, Alain Knapp, Jacques Lessard and Anna Halprin on the work and practice of Robert Lepage. When studying at Alain Knapp’s *Institut de la personnalité créatrice* Lepage was exposed to methods “where the actor became an author-creator of the text” and “would write, perform, and direct his or her own materials-texts, as well as working on all aspects of the performance” (Dundjerovič 16); while Lepage’s time at Théâtre Repère exposed him to the Repère Cycles, which was Lessard’s version of Halprin’s RSVP cycles (17) which led to his early work devising (with Richard Fréchette) that was “engaged in devising ... personal material, with the emphasis on improvisation and the performer’s intuition” (17).

The pollination of practitioners and influences spread across the country and has given birth to, and embedded itself in, the practices of Canadian companies from coast to coast to coast. The examination of this history alone could, and does, fill volumes of writing. I am grateful to be a small part of the continuum of this story of collective and devised creation

through my work at Theatre Passe Muraille, my creations with Daniel Brooks, Paul Thompson and Gil Garratt, and within the development of my own life-long practice.

Alison Oddey, in *Devising Theatre: A Practical and Theoretical Handbook*, describes the devised creation method as being “concerned with the collective creation of art (not the single vision of the playwright)” (4), which disrupts the traditional hierarchies of Western theatre, as will be demonstrated within the discussion of my own practice. Devised theatre “is a form of theatre that analyses culture and society in a different way to the dominant traditional form” (19) and one which requires all the minds and bodies in the creation room to come together around the central “stimuli” to work toward the culminating artwork (Oddey “Devising”, Bicat “Design for Devised”). A devised creation can find its beginnings in an “infinite number of possibilities, such as an idea, image, concept, object, poem, piece of music, or painting, and the precise nature of the end product is unknown” (Oddey 7).

It is from these “infinite possibilities” that the collective then engages with the source material, responding to it through discussion or other personal forms of response (written, visual, etc.). Through discourse, the group “generates a method of working appropriate to the initial aims of the company and project.” The design of the method of creation incorporates the skills and worldviews of the individuals involved. It acknowledges that “the strengths of the people in the company are vital resources for the devising process and product” (Oddey 24). The assembled collaborators engage with external tools and resources, and their own embodied skills and knowledge, to slowly build the performance. With *Bury The Wren*, we carefully created the performance through the combination of the intellect and artistry in the creation room (or the telematic points of engagement). The devised method facilitates the transformation of data from all forms of research into theatrical expression.

Reflection in the process is also a crucial part of the creation of the artwork. As Oddey observes, the devising process:

needs to be searching, the work constantly sifted, re-examined, and criticised. Group analysis is required, which ultimately leads back to self-examination and self-criticism. The pertinent point must be that the strength of devised work is in its method of working, and of giving significance to the process itself. The group defines and controls its own conditions of progress, thus offering opportunities of working that no other theatre can provide. (Oddey 26)

The emergent quality of a devised process does come with stagnation and pitfalls. A group could, hypothetically, continue in exploration mode forever. Therefore, at some point, the collective requires a ‘shepherd’ who will lead the group towards the central purpose, while keeping the process flexible enough to allow the continued growth of the work. In many of the successful devised creations I have been part of, a leader does emerge, generally in the form of the ‘director’ who benevolently guides the collective toward the central purpose. The structure of the working method is essential and can take many forms. Oddey emphasizes in the first of ten “guidelines” for groups embarking on a devising process “to structure the process of democratic decision making” and that it is vital to “clearly establish roles and responsibilities within a particular project” (149).

The inherently collaborative qualities of devising allow the potential for all members of the collective to contribute equally, rather than from traditional silos of performer, writer, director, designer, technician, etc. This method of devising creates the conditions for the design to influence, and potentially lead, devising processes and outcomes. This is a crucial affordance of the devised creation method, which will be scrutinized throughout this chapter and thesis. It is

reflected in the creation processes of Paul Thompson, The Builders Association, Robert Lepage and my practice.

Aesthetic or scenographic concepts can create the starting point for a project and “frequently determine initial devising decisions” (Oddey 35). I argue that including design and designers as core collaborators is the most effective way to achieve design *integration* while allowing designers to contribute their unique knowledge to the process. Often, in a devised process, a design idea is brought into the process of creation, but without the expertise and active participation of a designer the design idea never gets to benefit from the sophistication a designer might bring to it and the potential impact and resonance of the design idea is lost.

The integration of design into devising methods encourages a *circular working environment*. This circularity creates and fosters a symbiotic relationship between all the elements, and one may emerge out of the other. Where the relationship starts and which element it emerges from may change with each circling. When including digital image design, this circular method symbiotically embeds the image into the storytelling not just aesthetically but dramaturgically. This process integrates the design into the dramaturgy of the creation, making the devising of performance holistic, emergent and embodied.

James Gibbs, a key collaborator with The Builders Association, speaks to their version of this circular creation process, explaining that they work “through this process of doing, pulling back, and trying again. Layering. So it is not accidental, but it is also not coming from a storyboard that is a complete picture and then: go build it” (qtd. in Schechner 22). This circular/layered devised creation method of “doing, pulling back, and trying again” allows for design, technology, performance, and text to become entangled and iteratively impact each other.

In these entanglements, new forms of knowledge and understanding are produced, as are new methods of creation and ways of performing.

Introducing the visual or sonic into a creation space welcomes the designer in as an active contributor in the room, positioning the designer in a performative role. The impact of this imbrication can result in *collisions* leading to critical contributions in theatrical expressions and solutions to dramaturgical ‘problems.’ Examples of this performative contribution of design appear later in this chapter in my examination of the creation and performance process of *Bigger Than Jesus* and *The Last Donnelly Standing*.

Tina Bicât, in *Costume Design for Devised Theatre and Performance*, provides simple suggestions for operating as a designer in a devised process. Bicât begins by offering the traditional approach of discussing one's early “reactions to the initial stimulus with the director before rehearsals start” (12). Though there is immense value in deep connection with the director, I challenge that this suggestion adheres to the traditional hierarchies. Instead, I propose, that these initial “reactions” be shared with the entire collective. Bicât does note that it is useful to “have pinned up a few images” or provide “some hats or small items that are appropriate to this germ of a concept” in order to have “something concrete to work from.” Observing the possibilities of the performative contribution of the designer, Bicât offers that “on-the-spot sketches will describe thoughts to the company more clearly than words” (12). While still limited in scope, this is a nod to the contribution I believe design can make to the devising process.

Bicât (with a focus on set and costume) notes the further potential the devised process holds for integrating the designer’s contribution as it “lets a designer work with the director and performer to build the characters and the place of the story, and to *work right at the hub of the process*” (Bicât 19, emphasis mine). In echoing Oddey’s assertion about the importance of the

“strengths of the people” (Oddey 24) involved in the devising process, Bicât evokes the unseen labours of technicians, carpenters, seamstresses, etc. into the equation. She notes that “[e]veryone in the devising workroom is there to help invent the final performance, and all share the responsibility for the development of the work” (Bicât 13).

Capturing “the richness of devising theatre”, Oddey highlights the heightened creativity that comes in the sharing of experiences with others, from the risk factor implicit in its production, from the efforts, enthusiasm, and energy of those particular people, and from the sheer excitement of trying to express something through a collaborative process that continually opens up a multitude of possibilities, discoveries, or questions in an attempt to articulate yet another new creative way of making theatre. (Oddey 148)

As a practitioner, the humanity and creativity that comes from bringing a group of people together to explore collaboratively are unparalleled in my experience of creating theatre. It demands trust, commitment and a willingness to explore abilities and limitations. The collaborative devising process, though often fraught with difficulty and conflict, is deeply artistically rewarding.

Observing the permeability of the devising process, Oddey asserts that “[t]here is no single theory that can embrace this amorphous subject; no formula or prescribed methodology can be applied that guarantees a particular product every time” (149). The multitude of possibilities encompassed within the devised creation method enables practitioners to include disciplines outside of theatre and performance creation, making it a (potentially) transdisciplinary process. A devising process allows for the group to engage with seemingly “non-theatrical” activities like land-based work (horseback riding, lab experiments, skydiving,

etc.). As we have seen in the work of The Builders Association, it can include “non-theatrical” people into the collective and easily integrate digital technology as a collaborator into the model. I will provide further examples of this, including from my own practice, in the following sections of this chapter.

The devising process relies, as Oddey notes, on the “vital resources” of “the strengths of the people in the company” (24). I argue for the importance of including designers and technologists (as The Builders Association has) as “members” and “vital resources.” In *Devising Theatre*, Oddey captures companies in the UK, circa 1994, like Forkbeard Fantasy who were working with film in their devised creations. Their “interactive approach” placed film and technology on an “equal footing” within the devised process, and, at that time made the company “certainly unique” (138). From the pre-digital revolution perspective of the early 1990s, Oddey does acknowledge that “technical expertise” can indeed aid in the development of a devised work “in its evolution” and that devised theatre “allows the opportunity for the integration of technology and enables the acknowledgment of technical innovation” (18).

A designer who is involved with the devising process from the very beginning participates in the shared knowledge and explorations of the central idea. This provides the designer with a deep understanding of the motivations and goals at the foundation of the creation. Operating in multiple capacities in the devising practice, a designer becomes an integral part of the work of art via the performative qualities of the scenographic materials offered. This places the designer in a unique position as a disruptor and catalyst for alchemical and magical solutions – especially in times of stagnation (Bicât). As designers, because we are not (usually) performing, the integrated designer can also often hold the critical position from outside the core of the creative process. However, I would argue that while the designer can undoubtedly occupy

the role of the ‘outside eye,’ the designer can be as ‘inside’ the process as a performer and can be unable to maintain critical distance. If all collaborators are inside the process and the product, it becomes very complicated to step far enough back and be objective enough to see if we are moving in the right direction for the piece.

The designer’s approach often, but not always, considers a performer’s viewpoint. Knowledge of internal worlds of a character and understanding the ability of the performer to engage with the scenography is important to design. The development of a design is significantly driven by images, sounds and the dramaturgical or performative qualities of the scenographic elements (Hann “Beyond Scenography”, Hannah “Event Space”). Design-led artistic research discovers knowledge differently and discovers a different kind of knowledge. Offering solutions or catalytic suggestions via design suggestions of an image, sound or object provide non-literal, non-linear, ephemeral access to points of storytelling that cannot be manifested through text or physicality. In a devising process, a designer can provide “inventive solutions, which give new inspiration and confidence to the process” (Bicât 19) through scenographic elements and a design-inspired worldview. For me, a design-inspired worldview approaches communication and action by engaging with ideas of form, function and visual / sonic aesthetic while maintaining flexibility, porousness and awareness of bias. This way of communicating opens up pathways for a new kind of artistic research among diverse practitioners, which can manifest in visual or sonic conversation among collaborators – without words. This is a deviation from the traditional textual, physical or verbal discourse and provides a new form of embodied knowledge creation and exchange among participants.

The ability of the designer to be able to offer new viewpoints and different forms of knowledge, which can be produced in a multitude of aesthetic and intellectual materials, is

precisely the argument for having the designer integrated into the process, devised or otherwise, thoroughly and equally. Within this expanded approach and integrative space we find, not just “inventive solutions” or “inspiration” which can relegate the designer to the position of a utilitarian ‘troubleshooter’ or ‘muse’ – but instead we invite more opportunities for alchemical reactions in the crossings of disciplines and creative approaches. Here we find the mysterious, beautiful, and collective magic that theatre can provide its makers.

My approach to the development of *digital dramaturgy*, and the development of *Bury The Wren*, is heavily influenced by devised methods / methodologies. I believe there is much to learn from the devised process that can inform our ideas of design and potential in a collaboration that ultimately aids the deep dramaturgical integration of digital design. By including and foregrounding design in a devised process, the dramaturgy is expanded to include the scenographic and sonic collaborators. By collaborating with design, we expand creative vocabularies beyond traditional dramaturgical models and into more visceral interactions. We are also able to further transcend time, space, place, language, and hierarchies. Acknowledging deCerteau’s the post-structuralist theory of space as a “practiced place” (Vermeulen), I am not engaging with theory here, but instead with my use of the word ‘space’ to indicate the digital that isn’t *anywhere* and ‘place’ to indicate the physical place (i.e. a theatre, set, stage, rehearsal hall).

The digital realm provides levels of access to the intangible, and modes of expressing imaginary worlds that lie outside the human experience and within inner worlds. Through digital design, we can capture the ephemeral, the hyper-real, the surreal and the imaginary in the form of colour, light, shape, other times and other places. New technologies have reimagined “the stage as a permeable and ephemeral space that more accurately represents our perception of the experiential world” (Aronson 15). By including design and design-led practice in the devised

method, we gain access to time- and space-shifting vocabularies, which allow us as humans to transcend our modes of communication beyond the (limited) forms of text and body. It is the *collisions* and the attendant *turbulence* of these collisions that can lead to discoveries and create knowledge about our subjects that transcend each modality engaged with.

Trust is a significant factor partner in the creation of devised work: trust that there are the skills, artistry, generosity, love and dedication in the room to get ‘us’ to the unknown point on the horizon. The metaphor of alchemy forever rings true as we collaborators fail, botch experiments, sustain injuries and ‘chemical burns’ along the path towards something that is hopefully golden. All theatre is alchemy, and all theatre-makers are striving to make gold from the elements of our ideas. As a “hypermedium,” (Chapple and Kattenbelt 23) theatre is a permeable process that can hold space in the exploration of unexpected occurrences, collisions²⁶ and turbulence. The *alchemical* possibilities made available in the devising process through engagement with a multitude of minds, skills, and imaginations are what make it a vibrant, challenging, and *magical* way to create.

3.3 Improvisation, Devising and the Paul Thompson collective collaboration

*Christ, I said to Paul, is it this way every time?
I don't know, he sighed. I can't remember. I guess so.
How do you stand it?
I must forget. If I remembered, I would never do it again.*

Rick Salutin, from his diary about the devised creation of 1837: A Farmers Revolt
(Salutin “1837” 196)

²⁶ In Bruce Mau’s *Incomplete Manifesto*, which I’d argue has a place as a thoughtful, whimsical and philosophical guide for theatre-makers, Mau encourages the reader to never clean their desk because you never know what magic might occur when one unrelated item sitting on your desk collides with another, creating a unexpected revelation or thought (Mau). I think of the devised process in much the same way.

Paul Thompson (fig. 3.1) is a Canadian director, docu-dramatist, editor, scenarist, playwright and “gluepot” (his words) who is recognized as one of the original innovators (along with George Luscombe in the late 1950s, John Palmer, and Jim Garrard in the late 1960s) who introduced techniques of collective creation to Canada. Thompson collaborated on the creation of several seminal productions, including *Doukhobors*, *The Farm Show, 1837:*



Figure 3.1 Paul Thompson and Gil Garratt in rehearsal for *The Last Donnelly Standing* in July 2016 © Beth Kates 2020

The Farmers' Revolt and *Maggie and Pierre* with Linda Griffiths (Johnston “Mainstream”). Thompson is also one of my most valued mentors. There are many facets to his method of approaching a collective devised creation. Michael Ondaatje, an early collaborator of Thompson’s, writes that “as a director Paul Thompson is half impresario and half collagist or montage maker. He wrestles and persuades strangers together... in the end when we talk about ‘Paul’ we are talking of a changing collective of artists.” Ondaatje continues, “Paul’s ideal theatre has always welcomed poetry along with roller skating and the step-dancing; he’s never been scared of any of the arts, just as he has never been hesitant about any possible theatrical location” (Julien et al. 109). This fearlessness and “enthusiasm,” a quality noted by Ondaatje and many others who have worked with or observed Thompson, is the driving energy behind his methods. I am going to focus on

the aspects of his methods of devised collective creation which enabled and expanded my distinctive use of technology in the creation process and helped in the formation of my ideas around *digital dramaturgy*.

The principles guiding the devised collective process under Thompson include the shedding of hierarchies. This provides design full and equal standing with performance, text and direction. In this way of working, design and the digital image become an equal part of the composition of the play²⁷ and are given full credit as co-creators.²⁸ With no one discipline prioritized over the other, each collaborator is provided a kind of radical agency in their particular artistry. This approach to collaboration with the visual creates rich conditions for cross-pollination, allowing the artistry of one collaborator to enhance the others'.²⁹

²⁷ Oddey makes a similar statement, writing that “by integrating video, soundtrack, visual and physical imagery together as *performance text*, one is presented with a multifarious vision from which the audience can choose how to experience the work” (Oddey 19, emphasis mine). I have re-phrased “writing with image” here, but continue to struggle with exactly what kind of terminology can be used that doesn’t continue to privilege ‘text’.

²⁸ Two case studies of devised theatre appear later in this chapter – *Bigger Than Jesus* and *The Last Donnelly Standing* – both of which I was a design-focused collaborator on. However, the traditional hierarchies persisted with *Bigger Than Jesus* as only the performer and director were credited as “writers,” though in the published version of the play, the scenography is written in and often the scene could not exist properly without it. *The Last Donnelly Standing* was utterly different. Though I was originally brought in as a design collaborator, within a month of beginning work, the original collaborators Gil Garratt and Paul Thompson decided that I should be credited and paid 1/3 “co-writer” and co-creator. This is the same approach being taken with a play delayed by COVID – *Airborne: The Life and Legacy of Lorna Bray* – where there are four co-creators who have each been commissioned by The Blyth Festival to create the play – myself, Gil Garratt, Kelly McIntosh and Emma Marcy.

²⁹ I’ve chosen to include this quote from Layne Coleman, as published in Farrell’s thesis: “The collective creations of Paul Thompson gave me experiences and opportunities that I never knew existed before. I was writing, directing, creating. And it was fantastic. I was no longer just an actor. I was a creator. I was an artist. I could get right into theatre. The collective creations gave me the encouragement to pursue other areas of theatre, as well as the expertise to hone those skills. If I wrote a scene in a collective creation, it would be ripped apart, analyzed, cross-analyzed, turned upside-down, the whole thing. From that, I learned to think really carefully about writers, writing, and what goes down on paper. I learned how to write and I learned how to look at writing with a more distinct set of eyes” (qtd. in Farrell 80).

In April 1975, Thomson staged *The Canadian Heroes Series #1: Gabriel Dumont* about the Métis uprising of 1885. This collective creation at Theatre Passe Muraille was created through improvisations with a series of paintings commissioned from artist John Boyle. Demonstrating the inclusiveness of his approach to creation, and the importance Boyle's visuals played in creating the work, Thompson called the show a "painted script" (Wilson 12).

Within Thompson's creation systems, the shorthand developed between collaborators provide multiple benefits, serving as shortcuts to an understanding of agreed-upon principles, instructions and ideologies. This creates communication that allows for nimbleness during the process and provides a great deal of flexibility among the collaborators. In Oddey's examination of British devised theatre company Major Road, she highlights the importance of the "unspoken shared understanding" that is gained by having a "known language in the group." This mode of communication offers a "shorthand for describing a situation" (135). The shorthand, from my experience, also creates a galvanizing effect on the collective by providing a kind of coded clubhouse communication. Using these shorthands triggers specific improvisational methods as participants 'play' around and with the central idea. These exercises can be as simple as reciting a memorized poem or using a specific image to generate text, movement, music and image. The exercises generally play with time, space, body, tempo, tone and theme. I will explore specific exercises further in the "[Computational Collaborators](#)" section.

Like all improvisational performance processes, the goal is to be responsive to scene partners. While exercises are intended to generate content and create characters, they also create a connection among the collaborators and to the source material. It is a way of divining the story out of a wide variety of materials, including and especially those embodied by the participants. In the creation of 1972's *The Farm Show*, Thompson challenged the collective to work with five

principal exercises, the first of which was the actors being asked to “create visual images”, followed by “mythologizing”; “show and tell”; and “transformations” – which was turning objects into something else. These exercises provided the actors the basic tools to “transform their perceptions and experiences into theatrical gesture” (Farrell 42).

These kinds of exercises generate scenes or bits of “score” (Halprin 40), which are named, collected and revisited in different ways. The wide-ranging nature of these “jams,” as Thompson calls them, allows scenography to perform as equal, while including digital technology into this method of working requires all performers to stay hyper-aware of their ‘magical’ digital scene partner. When creating *The Last Donnelly Standing* with Thompson the exercises we used were not as specifically outlined as those for *The Farm Show* were, but they led to the construction of the play using shorthands that created the “handholds” or “set list” that created the structure of the performance. The performer, Gil Garratt, and I were often tasked with separate exercises that were then collided together in the creation process.

Thomson is emphatic about letting the seams of the work show, be it performance or scenography. This is a liberating approach in contrast to the standard mode of striving for so-called perfection and allows the designer to relax and trust their instincts and gifts (even in the glitches) of the technology. The rigor of the process remains, however, and ‘letting the seams show’ does not mean weak or ill-considered choices. In writing about his own experiences with the devising process, theatre-maker Evan Webber observes that allowing the seams to show in performance offers a “glimpse of those spaces between ideas where the seeing/thinking/loving/hurting takes place,” and that the “ragged, empty spaces...could be read as a document of the way the performance was made: its essence” (Webber 30). ‘Letting the seams show’ means that there is space in the overall approach that permits frayed edges or

glitches to be ‘ok.’ The seams permit space for ‘happy accidents’ to occur, allowing the production to grow and learn from itself.

The ability to collect, modify and project digital imagery with rapid speed is a gift of the technological advancements of today. As is examined in the “Computational Collaborators” section, this speed of improvisation allowed the digital image to fold into the Thompson method of creation with ease. The agency given to the technology and the designer in this method creates an environment of reciprocal creativity and exploration. The nimbleness required of all participants inside a digitally transforming environment allows for a reshaping of the traditional experience of text-driven theatre. However, I would argue that this embracing of design-driven technology is an evolution of the devised creation process. The outcome of this process of improvisation with Thompson was that we were, together, making intuitive and considered choices (around the digital image) that prioritized the complexity of the story over what would be superficially appealing.

Included in my approach to integrating design and the necessity of having design tools, especially technology, in the creation room is the element of *play*. One of the most valuable reasons to make an effort to include technology into the creation room is its capacity to play. Some of my most exciting discoveries and collisions have happened when playing with images, throwing them around the room and improvising with other artists. Having the resources of a creation space and time to work are the most valuable commodities in the process of integration. It is hard to know what it *means* to stand in front of a forty-foot tall version of your head and deliver text until you try it. (fig. 3.2 below) Being able to experiment and bring this work into embodied practice is a vital step in dramaturgical integration and is embraced when working with Thompson. Another important aspect of this work in my practice of developing a show is to



Figure 3.2 *Alice in Wonderland* by Peter Hinton (Shaw Festival 2016). This image is the product of two years of workshoping on stage with all the technology, which helped designers, director and performers understand the relationship between projected image and the performer. Through the workshops we were also importantly able to understand what kind of video content we needed to create, which informed many other aspects of the creation. (Pictured: Tara Rosling; Set Design by Eo Sharp; Lighting Design by Kevin Lamotte; Costume Design by William Schmuck © Beth Kates 2020)

sit alone in a creative space, be it theatre, lab, or rehearsal hall, and ‘play’ with image. In this mode, I can *see and feel* the image in the space, which creates additional knowledge about the *affect/effect* of the image that cannot necessarily be achieved when in active creation mode with performers, or under the pressure of an imminent audience.

3.4 From Rock and Roll to Early Digital Adoption: Affect Over Effects and The Alchemy of Digital Dramaturgy

The final piece of my methodology puzzle is the adoption of Ian Garrett's concept of *Affect over Effects* which I apply to all design, but in the context of this thesis, specifically, to digital design. *Affect over Effects*, synthesizes much of what I have written about above into a

“simple” phrase. It prioritizes the creation of feeling (affect) over the use of flashy technology to create something amazing to look at (effects).

In a wide-ranging conversation with Garrett in the closing days of the second decade of the 21st century we spoke at length about this topic, our shared interest in prioritizing story, narrative, feeling and emotion, and our belief in the potential of the existing and emerging tools to create *affect* for those consuming the artworks. This approach to working with emerging tools is also, for Garrett, not about creating technological tools that will be outmoded or usurped by mega-corporations (like Apple and Google), and it is not about necessarily having the best and newest technology. It is about asking “What can I do with what I have?” and implementing and choosing the right tools to tell the desired story or to create the desired effect for the audience / spectator / participant (Garrett).

Now, more than thirty years into a career, I am able to look into my historical practice and reflect on where my interests and desire to integrate design and digital scenography formed. My practice owes a great deal to very early experiences of collaborating improvisationally with rock bands. This provided me with the skills to respond *affectively* and creatively in a fast-paced, emotionally charged environment. Theatrically, the vital formative experiences were in collective and devised creations, where the design was an integral part of the development of the works and in those collaborations. The integration of design into those creation periods paved the way for me to become a (self-taught) early adopter of digital technology and advocate for the use of technology as a collaborator.

As digital technology advances and new digital technologies emerges, I continue to refine my practice and approaches around creative digital expressions. Within this refinement is the continuous development of my beliefs surrounding the integration of the digital, which I have

come to call *digital dramaturgy*. What follows is my current understanding of what I mean by “digital dramaturgy.” I position the terms “digital dramaturgy” among Bonnie Marranca’s, “mediaturgy;” A.F. King’s “technodramaturgy;” Eckersall, Grehan, and Scheer’s “new media dramaturgy;” as well as Arntzen’s “visual dramaturgy” and the concept of “digital scenography,” which is the application of new and emerging technologies to the centuries-old practice of scenography.

While there are many companies and creators in Canada who have built their work around digital technologies, there are still many who have expressed wariness in engaging with digital imagery on stage. I believe this stems, in part, from the fact that many Canadian-based and Canadian-educated makers, audiences and funders do not have the tools, skills, methods or vocabularies to engage with digital technology. Time, exposure, new generations and experimentation with different methods of working may eventually quell the reticence felt among some makers who are reluctant to use the technology. Through my participation in productions, teaching, and lectures I try to articulate this concept while educating and inspiring makers to push past the apprehension and engage with the digital tools. My hope is that through acquisition of the necessary vocabulary and embodied experience with the digital, more practitioners will find ways to engage with digital design in consistent, profound and dramaturgically rich integrations.

I will briefly revisit my concept of digital dramaturgy, as [discussed in the Introduction](#). First is the dramaturgy of the *digital into the text*, whether existing, in process or devised. Second is the dramaturgy of the *digital content*, where one examines the aesthetic and story that is being evoked or revealed by the digital imagery for clarity and connection in and of itself. The other important branch is the dramaturgy of the *technological systems*, or “technodramaturgy” (King

326). This step observes the control systems being engaged with that get the digital image to the stage. There are three components foster the holistic integration of the digital image into a production.

As a designer of multiple creative disciplines, it is a fundamental part of my practice to strive for *integration* with every production. I define integration as the careful dramaturging of the design so that it becomes interwoven into the storytelling/narrative. This considers ‘affect over effects’ and ensures that the design is serving the story and contributing to the production's *affect* in whatever form the production may require. Foregrounding integration into a creative process helps ensure design neither overpowers the story, nor acts as set dressing, nor is present simply for its own sake (Garrett). This act of integration is facilitated by an approach employing *digital dramaturgy*. As I wrote about in Chapter 1, inspired The Builders Association’s practice, Bonnie Marranca proposed a name for this process of digital integration in the form of “mediaturgy” (Marranca, “Performance as Design” 16). Noting that the “compositional approach” of “mediaturgy” places it “beyond the old dramaturgy”, a media-rich environment employing a *mediaturgical* approach is therefore ensuring that “media is not merely used to enhance narrative, narrative is embedded in media; it is the design of narrative.” Marranca importantly brings the spectator's experience into the mediaturgy equation, asserting that the “experience for the spectator is not to turn back and forth between media, but to *comprehend the live performer and the mediated image as an integrated experience*” (Marranca, “ART WORK,” my emphasis).

Among the different forms of involvement in scenography, integration of digital imagery into scenography holds extraordinary power and a unique and developing language. This power of the digital rests in its ability to materialize without any visible catalyst. It animates, transforms

and alters scenery “magically.” The digital image speaks and performs in a way that doubles the living corporeal performers, thereby creating another performer. Digital imagery can be epic in scale; it has the effect of “worlding” that can cause it to fully dominate all other scenographic or performative elements if not carefully integrated (Hann 2).

3.5 Video and The Mediated Eye: *Bigger Than Jesus*

“The world would be a much safer place if Christians read their bible as beautiful and inspiring literature”
– from the published text of *Bigger Than Jesus* (Miller & Brooks 2005)



Figure 3.3. *Bigger Than Jesus*. An image from the original production at the Manitoba Theatre Centre – April 2003. The image on screen is the live, mediated image being fed from the camera placed in front of Miller, and the resulting visual feedback on the rear projection screen. (Pictured: Rick Miller) © Beth Kates 2020

In late 2000, Daniel Brooks, Ben Chaisson, Rick Miller³⁰, and I began crafting a solo show around the central figure of Jesus Christ with the “main idea,” as Brooks said, being to “conduct a secular mass as a celebration of human divinity” (qtd. in Keevil, “Jesus is Big”). The show became known as *Bigger Than Jesus* and ended up touring the world for ten years. Drawing on Miller’s knowledge of Lepage’s methods, Brooks’ extensive experience with devised and collective creation, and my own semi-devised collaborations, we chose to create *Bigger Than Jesus* using a devised method. Added into this collaboration was a significant video element with the majority of the video content created by multiple live cameras. The set was simple; a white floor, a grey/white framed wall upstage used as the projection surface, and two white walls with hidden compartments on either side of the stage creating a forced perspective with portals that revealed a variety of images and object.³¹ (fig. 3.3 above) The design included several live video cameras, the most critical of which was a camera in a steel triangle that flew in and out from the lighting grid to the floor and anywhere in between. More detail was added, like a sand drop from the ceiling, action figures as puppets, several hidden cameras, and a laptop internet connection to God. (fig 3.4 to 3.7 below)

³⁰ Our traditional roles were designated as such: Director and credited co-writer – Daniel Brooks; Performer and credited co-writer – Rick Miller; Sound, co-Set, co-Video Designer – Ben Chaisson; Lighting, co-Set, co-Video Designer, Stage Manager, Production Manager – Beth Kates. Original Assistant Stage Manager: Sandy Plunkett.

³¹ The set prototype was designed by myself with Miller while on tour, in an airplane, using paper torn from my sketchbook

In 2000 most of the equipment that was available for dealing with live video was prohibitively expensive; media editors and controllers were also costly and not easily accessible or designed for use in the live performance environment. The internet was still in its early form, not offering the kind of information sharing and access to media content that it does now in 2020. Chaisson and I began the process of educating ourselves about the technology we were able to access. With our acquired knowledge we created a laboratory-type setting for several iterations of workshopping the play. Using the technology in the rehearsal room as a collaborator, we created a dynamic and circular process in which Brooks, Chaisson, Miller and I would work together, then separately, and then together again in a profoundly transdisciplinary modality. The devised creation methodology was bolstered by deep creative collaboration, collectivity and artistic trust which allowed each practitioner to influence and affect each other. The technological and design work of Chaisson and I impacted the writing, direction and

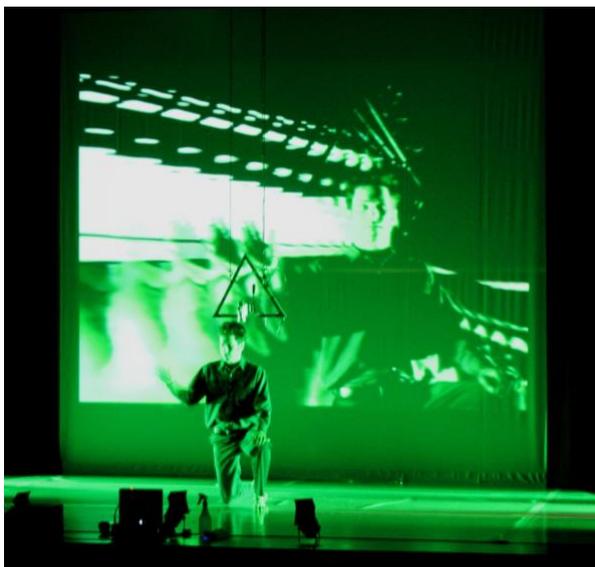


Figure 3.4 *Bigger Than Jesus* – “Cause and Effect”
Visual “feedback” that we called the eye of god, created by a camera looking into the image that it is projecting. This was part of the laptop connection to “god” and was found as Brooks and I played around with the placement of a camera in rehearsal. © Beth Kates 2020



Figure 3.5 *Bigger Than Jesus* – “The Resurrection”. The live image of Jesus being drawn, or resurrected, in the sand amid the debris from the rest of the show, was captured by a live camera suspended overhead.
© Beth Kates 2020

performance, which in turn impacted the design work, and so on—for years. Several labs, two workshop productions, and many hours of experiments later, we arrived at the final version of *Bigger Than Jesus* in November 2004, when it opened at Factory Theatre Mainstage in Toronto.

Bigger Than Jesus and the methods developed out of our explorations of devising with technology continue to inform my practice. The malleability created by having responsive technology as a collaborator during every stage of development versus adding it on after the show had been written integrated the technology into the storytelling so fully that they could not be extricated from one another. This integration created a very important dramaturgical and physical relationship between lighting, video, set, sound (and those who operated those pieces in performance) and the performer. These elements functioned in a delicate balance with each other, often having to be minutely adjusted while in performance in order to maintain the integration and ensure the fulsome communication of the ideas of the play.

Over the ten years of touring this work around the world, this continued stewardship of the production and performance was overseen by myself and Chaisson. Our devised method of creation had entangled us as designers into the performance, and, though hidden, we were able to foster the continued growth of all elements (including Miller’s performance) while upholding the

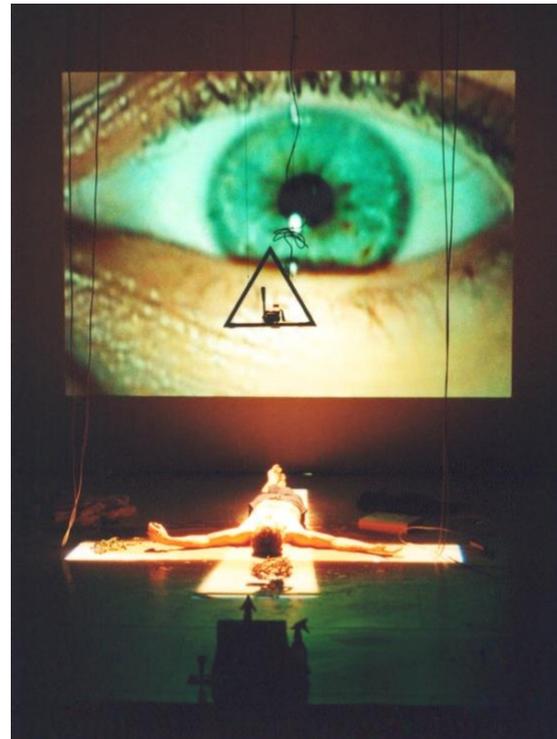


Figure 3.6 *Bigger than Jesus* – “The Crucifixion”
The creation of this important image near the end of the play required Miller to be in a very precise position as well as manipulate the zoom into from his whole head to this image above. © Beth Kates

artistic integrity of *Bigger Than Jesus* throughout its life. This meant that we were modifying lighting, sound and video cues until the final performance in April 2012.

Bigger Than Jesus was one of the first productions in Canada to deeply weave technology into the dramaturgy via the extensive use of live cameras³². The production explores the mediated eye in the form of the use of live cameras to create images and manifest as a live, mediated storyteller. *Bigger Than Jesus* makes significant use of live imagery being created in real-time by the performer and designer. Partial control of the live camera rests in the performer,

which required Miller to create the images and live video framing required to complete the storytelling. His manipulation of the mediated image is folded into the storytelling, making the performer at once a designer, manipulator and ‘all-seeing eye.’ This results in a choreography that entangles the technology with design, performance and text. The symbiotic relationships, the organic and intentional ways we engaged with technology and the use of the mediated eye have

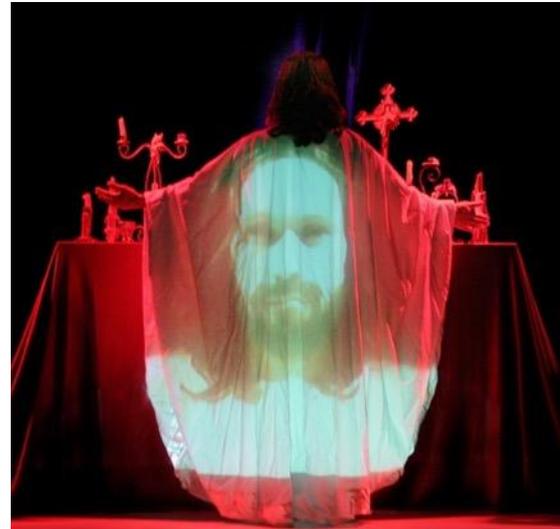


Figure 3.7 *Bigger Than Jesus* – “The Altar”

This image was created by a camera hidden on the altar which was rolled into position behind the large white screen. We relied on the altar being put in the exact position by a backstage technician, while Miller also had to hit a precise mark, perform to a hidden camera, and never knew if the image was landing correctly on his robe. © Beth Kates

³² At the time of the creation of *Bigger Than Jesus* (2000), small form cameras, which we required to embed in scenic elements, were limited to low-resolution security cameras. This is a fascinating parallel to where I found myself with the cameras embedded in the VR headset we used for *Bury The Wren*. The resolution of those cameras, in a state-of-the-art VR headset in 2018, was the same. As will be examined in Chapter 4, we used what “Doctor Theatre” gave us and embraced the low fidelity qualities of the passthrough cameras and integrated it into the aesthetic and dramaturgy of *Bury The Wren*.

reverberated strongly through my practice and are deeply embedded in the central case study of *Bury The Wren*.

3.6 Conducting the Waves: *Between Breaths*



Figure 3.8 *Between Breaths* – The Prologue: a whale swims by to start the show. © Beth Kates

Contemplating integration and collaboration I think of Artistic Fraud’s *Between Breaths: Orchestral* (BBO) where I was fortunate to collaborate with one of Canada’s most esteemed and creative directors, Jillian Keiley. *Between Breaths*³³ already existed as a fully staged three-hander play written by Robert Chafe. This iteration transformed the play with the addition of an orchestral score composed by Duane Andrews and performed by a live 30-piece orchestra. Knowing we needed to physically integrate the orchestra into the scenography Keiley and I made choices partially inspired by the fact that Andrews had already ‘cast’ the orchestra as ‘the ocean’ (a significant character in the play). Physically arranged to undulate around and above the

³³ *Between Breaths Orchestral* Production Credits: Composer: Duane Andrews; Assoc. Set/Costume Designer: Emily Austin; Production Manager: Mara Bredovskis; Playwright: Robert Chafe; Asst. Lighting and Video Designer: Jenny Erb; Producer and General Manager: Pat Foran; Video and Lighting Design: Beth Kates; Director: Jillian Keiley; Set Design: Sound Design: Brian Kenny; Shawn Kerwin; Asst. Director: Sharon King-Campbell; Stage Manager: Crystal Laffoley; Conductor: Kellie Walsh; Performers: Brianna Goss, Darryl Hopkins, Steve Maloney, Steve O’Connell, Bernadine Stapleton, Kevin Woolridge, featuring the Newfoundland Symphony orchestra. Produced by Artistic Fraud of Newfoundland, February 2019.

playing space, (fig. 3.8) Keiley and I chose to costume the orchestra in white and beige. This transformed the musicians into a scenographic element, both aurally and aesthetically, as they became our projection surface. (fig. 3.9)



Figure 3.9 *Between Breaths* Orchestral. © Beth Kates 2020

Rehearsing with all the sound and video technology (and six performers) jammed into a tiny rehearsal space in the Arts and Culture Centre in St. John's Newfoundland in February 2019, something incredible emerged. During one particularly moving part of the story and the music, I projected a wildly turbulent sea over the cast and musicians. On seeing the image, the conductor Kellie Walsh chose to match the dynamic and rhythm of the projected massive cresting waves, altering the dynamic and the rhythm of the vocalists and musicians. This was not planned and it resulted in several incredibly visceral and emotionally heightened moments of full integration.

The impact of this intuitive attention to integration intensified the emotional affect of this moment in the storytelling. The turbulent sea was both a literal story point, but more significantly represented the main character's descent into a manic part of his illness. Andrews has composed the score to embody these stories and themes; text, blocking and video then coalesced and merged with each other to create the powerful alchemical reaction that was

witnessed on stage and felt by the audience. This integration required Walsh to conduct the orchestra and vocalist slightly differently during each performance as the video element was triggered off text that was not connected to the score. It is unlikely that we would have discovered this depth of integration during our extremely limited time in the theatre.³⁴

AND THEN WHEELS IT BACKWARDS TO GO COUNTERCLOCKWISE (CONNECTS WITH STEVE M) & MUSIC CUE: C2 CONFINEMENT & JOY - STEVE M ONLY FOR 8 MEASURES) LX 8: WITH MUSIC. - the connection with Kellie. ROLLS THE CHAIR IN COUNTERCLOCKWISE LOOP TO CENTRE, SETS AND LOCKS THE CHAIR AND CIRCLES IT COUNTERCLOCKWISE. HE SITS, PUTS DOWN THE FOOTRESTS.

JON SLUMPS IN CHAIR. ORCHESTRA AT A (BRIANNA VOX)

think of orchestra here

SQ 1: FADE IN VENTILATOR

LX 9: SCENE.

VX 12 a slow morphing into the hospital colours (white and blues over the orchestra- more harsh white onto the floor?) and movement into the world here -



JUDY ENTERS (ONCE BRIANNA HAS STARTED TO SING), DROPS OFF PAPER ON USL CHAIR, ENTERS DS OF HIM & KISSES HIM (CLOCKWISE)

JON Lien. He sits in his wheelchair, motionless, poor posture. His expression calm, distant, eerily pleasant, like he's not quite there. His wheelchair, his expression: JON is trapped.

His wife JUDY. She stands at a distance, holding a small newspaper in her hands. Soft-spoken, meek. She watches JON, unseen, for a moment. And then she takes a breath to steady herself for what's ahead. She somehow manages to deliver a smile. She eventually walks into the room, lays the newspaper down and goes to him, touches his hair. He doesn't react. She finds a chair and pulls it over, sits close to him, smiling at him. He doesn't seem to know she's even there. She leans back in her chair and stares at the floor, thinking. THE SMELL, DOORFRAME, LIGHT SWITCH, THE RULES - COVERED IN PLASTIC, GRIDDED GLASS WINDOW TO THE HALLWAY, COMPOSITE BOARD DOOR TO THE BATHROOM, DRESSER - LEFT BEHIND & USED BY THOSE THAT FOLLOWED; CLUTTER ON THE DRESSER: CARDS, BOOKS, FLOWERS

Collaboration during the creation of *BBO* was facilitated and encouraged by Keiley's method of use a company-wide "living script" (Keiley). (fig. 3.10) The shared Google document included images, notes, lighting and sound cue placements, directorial and composition notes

³⁴ A video of this full sequence is posted at [this link](#)

and script edits. The living script enabled the entire team to see and understand all the ideas and inspirations from the full team. This sharing and building of a *visual vocabulary* had a notable impact on the composer Andrews who spoke about how helpful it was to his process to have an implicit understanding of the objectives in the imagistic storytelling, thanks to the contribution of image by Keiley and myself to the living script. This understanding influenced alterations and additions to the score. For Keiley, the experience of creating *BBO* with this document facilitated “true collaboration” in a method that helped us to talk about the art – together (Keiley in conversation 2020).

3.7 Computational Collaborators: Live Projection and Improvisation in the Creation of *The Last Donnelly Standing*

Art creates lies and half-truths and full truths and presents real choices to be made.
Paul Thompson, 1983 (qtd. in Wilson 13)

In 2015, Gil Garratt, Paul Thompson and I began creating *The Last Donnelly Standing*³⁵ for [The Blyth Festival](#). A theatrical exploration into the Donnelly massacre of 1880 (the history of which is noted in the introduction to this thesis) *The Last Donnelly Standing* is a solo performance³⁶ that focuses on Robert Donnelly (fig. 3.11 below), one of the brothers who survived the massacre. As a character, Robert had previously been explored by Thomson and Garratt in the *Outdoor Donnellys*, a collective creation originally staged in 2001 also at The

³⁵ *The Last Donnelly Standing*: Co-Created by Gil Garratt, Beth Kates and Paul Thompson, Directed by Paul Thompson, Performed by Gil Garratt, Lighting, Set, Costume and Video Design by Beth Kates, Sound Design by Lyon Smith.

³⁶ While there was one human actor on stage, we consider this to be a shared performance, a dance, or “jazz” as Thompson called it, between myself and Garratt.

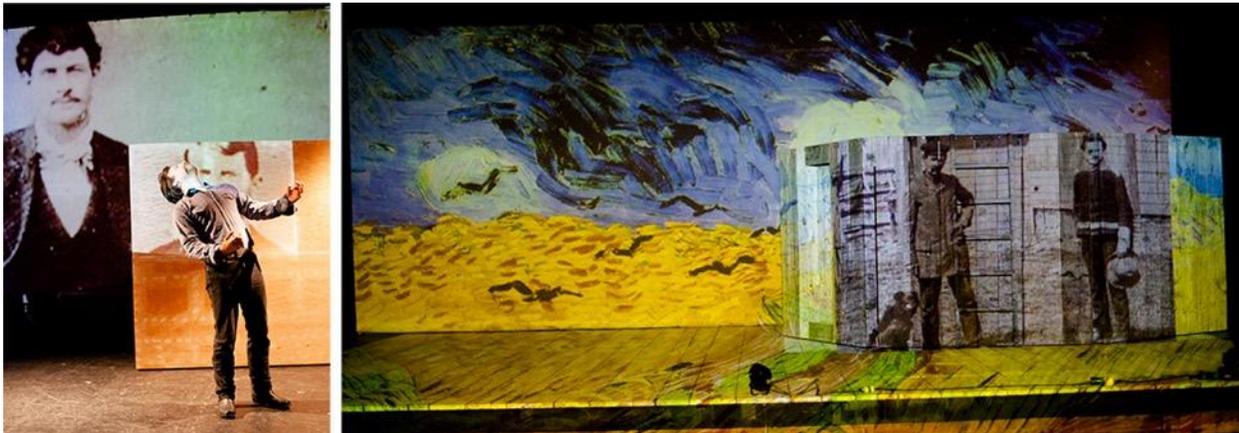


Figure 3.11 *The Last Donnelly Standing* (Blyth Festival 2016) Here the archival image of Robert Donnelly is used during rehearsal / creation (left) and the image of Robert and his son James Michael is pictured as it was used onstage during the performance. © Beth Kates 2020

Blyth Festival. That production began a 15-year long conversation between Garratt and Thompson about continuing to explore Robert, which led to our devised creation of *The Last Donnelly Standing*. Through the production we attempt to understand the post-massacre psyche of this complex human while creating our own version of the Donnelly mythology. Our creation process, guided by Thompson, was a rich combination of improvisation, discourse, long journeys together, land-based work and experimentations over the course of about a year. During this time, we created a visual vocabulary that enabled our engagement with design and digital technology as collaborators to build the imagistic (digital scenography) world of the play.

3.7.1 *Creating a Visual Vocabulary: Journeys and Shorthands*

In the creation process of *The Last Donnelly Standing*, Paul Thompson charged me with the task of collecting and printing out “every photograph I wished I had taken.” I brought all these images, along with a large selection of books and photos that I had created at other points in our process, into the workspace and spread them over a giant table, in no particular order and without explanation. (fig. 3.12) This jumbled buffet of imagery created connections with the

(unwritten) story we were crafting and the research already accomplished. Garratt, Thompson and I began to craft the play in this way, through building a relationship to image in analog form. This early visual vocabulary served us significantly when we introduced the digital image into our later collaborations.

In this session we spent a significant amount of time simply looking at the images, discovering connections and resonances between them. I did this first on my own with Thompson, then with Garratt as Thompson observed. Engaging mostly in silence, Garratt and I created collages of images which I then photographed for future use. Garratt physically engaged



Figure 3.12 The "jumbled buffet" of imagery that was part of the creation process of *The Last Donnelly Standing*. (Pictured bottom) the first printed image exercise referred to on this page with Garratt and Thompson. (Pictured top) the images as we interacted with them in the rehearsal/creation hall at The Blyth Festival.

with the photographs, creating an intimacy and embodied connection with the analog imagery, a tangible extension of how deeply we were integrating imagery into the creation of the performance. The results from this day of playing *with* the image created strong foundations for us –in terms of beginning to develop the scenographic aesthetic of the show, embed the images into the dramaturgy of the ‘scenes,’ and in the naming of some of these collages. Through this ‘naming’ we created the beginnings of our collective visual vocabulary which then became part of the shorthand inside our later devising process.

By the time we began building these collages, Garratt, Thompson and I had already been on several ‘journeys’ to locations relevant to our story. The journeys included improvising while working in a forge that dated back to the early 1800s and walking down a dark empty road in February while following the path the vigilantes took to murder the Donnellys (fig. 3.13). Being

invited on these journeys with collaborators was highly unusual in terms of the traditional development process. In a traditional process, if location or land-based work occurs, it is often without the designers. As explored in this and earlier chapters, the



Figure 3.13 Image taken during a nighttime research trip to Whalen's Corner, where the site of the second part of the massacre took place. © Beth Kates 2020

intentional inclusion of the designer in early and in-depth explorations of the central topic produces a holistic approach to creation. This approach provides the designer a place to contribute to foundational understandings of the artwork and build shared experiences with the

rest of the team, while also positioning design as important and a potential leader in the storytelling and worldbuilding.

During these journeys we spent time interacting with the locations and improvising performance. Thompson and I observed Garratt's improvisations, interjecting and participating at various junctures. I also made secret audio recordings³⁷, collected small objects from the sites and created a substantial number of photographs that documented the process and captured the physical environments. Significant discoveries about the story and performance were made in these improvisations. The photographs, also created *in the moment*, led to discoveries about the visual storytelling component of the show.

In this shared *moment* of both performance and image creation we find a clear manifestation of the practice of *digital dramaturgy*. Through these acts of collective exploration, we created imagery that guided the aesthetic of *The Last Donnelly Standing*. This imagery became integral to the development process, representing design as collaborator and leader. The photographs also served as catalysts for our memories of the improvisations and created the aforementioned shorthands embodied in our collages. Finally, the images further integrated with text and performance as they were employed onstage in the digital design – evoking time, place, the ephemeral, and unspoken stories.

In my solitary work as the set designer, the collected images provided me with collaborative nourishment in the act of creating those designs. I developed the first versions of the set design surrounded by the same 'buffet' of books and pictures from the collage exercise, (fig. 3.14 below) which allowed the images to permeate that creative work. This is now a method

³⁷ Don't tell Paul! This is NOT the Paul Thompson way. I have never listened to these recordings and they were never referenced during the rest of the creation process. We just remembered what we needed to and had the photographs as catalysts.



Figure 3.14 Set design for *The last Donnelly Standing* in progress among the "jumbled buffet" of images.
© Beth Kates 2020

that I look for ways to include in every project in order to take the visual process beyond inert online image collection apps like Pinterest or Trello, and I am excited to try and migrate these ideas into VR so that collaborators might walk through and interact with images in 3D space. Occasionally this stage of the process manifests in a more static image collection presentation or ‘inspiration board.’ Regardless, this work becomes part of building a visual vocabulary amongst the entire production team. Communicating through an image, be it inspiration board, storyboard, or more active embodied image creation, collection and immersion (like with *The Last Donnelly Standing*) is a crucial part of my process of *digital dramaturgy*.

3.7.2 *Creation / Performance: Creative Collaboration with Computational Co-Creators*

The final stage of devising the performance began in a laboratory-like setting in the Phillips Theatre at the Blyth Festival (fig. 3.15). All required video technology as well as the major set elements of a canvas backdrop and ‘The



Figure 3.16 The Phillips theatre at The Blyth Festival circa 2018 © Beth Kates 2020

Box’ were installed (fig. 3.16 below). The video system design was initially built with [Qlab](#) as the image control software. However, it was not flexible enough for the improvisatory nature of our collaboration. I rapidly researched which software and hardware combinations would best serve our need for an adaptable and responsive system to improvise with. I built a network of several computers that provided access to databases, editing software, and digital media output control and altered the system as we progressed. All imagery was programmed in [Isadora](#) control software on a MacPro tower outputting content to two different projectors. The addition of a physical button and fader interface (MIDI controller: [APC 20](#)) let me access created imagery and mix it live easily.



Figure 3.15 (Left) The rehearsal installation of the set for *The Last Donnelly Standing*. (right) The set installed in the the theatre.

Our process of theatrical improvisation pushed at the boundaries of system limitations, often causing inevitable technological delays.³⁸ The collaborative work we had engaged with prior to entering the rehearsal hall created, as designer Richard Windeyer calls it, a necessary design “toolkit” (Windeyer 46) based on mutual understanding of each collaborators artistry and the goals of the design. So, when we did experience delay of technology, we did not burden ourselves with waiting, but instead imagined what might be happening. Supporting this this was the agreement between Garratt, Thompson and I that there were no ‘mistakes’ in the process of creating and performing the work. This creation process of course was not un-met by challenge. There were many moments of concern, self-doubt and frustration.

The computational systems, and their “concealed dramaturgies,” often required modification based on the requirements of the process and my own creative and practical needs. I spent an extraordinary number of hours outside of rehearsal working on the content and the technological systems. These continuous “technodramaturgical” (King 326) modifications allowed us to work together more fluidly. Conversely, we also adapted what we were exploring visually in order to dovetail with the limitations of the systems. This revealed some *seams*, a topic mentioned earlier in this chapter – a practice that is embraced if not encouraged by Thompson. The evident seams in the computational performer also provided us with some ‘happy accidents’ in the imagery that we explored and used. By embracing the flaws in the technology (the imperfect seams, the computer crashes, etc.) into our world, we welcomed the partnership of the technology so that even the imperfect seams of our digital collaborators were positive. The combination of computational system and devised process design also allowed for

³⁸ Blyth is in rural Ontario, and other delays in development were found in the issues with rural internet access. This limited or prohibited my access to online databases and other tools I needed to create designs. Internet access is especially important when improvising as the need for quick access to imagery is crucial.

the technology to provide agency for me as the digital scenographer. The flexibility and improvisational affordances of the system design created a multitude of ways to discover, manipulate, engage, experiment and play with the digital media.

Devising *The Last Donnelly Standing* was done through active exploration of text, music, movement and image and all the various intersections therein. At significant points in the process Garratt and I embarked on image explorations without Thompson. Contemplating ways to express the inner worlds and emotional life of the character of Robert Donnelly, the image-centric conversations between Garratt and I revolved around the integration and *affect* of the story we were trying to tell. These play sessions were invaluable and circular, with one offer leading to another.

Our explorations took several forms and significant time. Focused on a specific element of our story, we would begin with an image or layers of images projected into space. Garratt or I might move through the space, shift our set piece around and talk about the image(s). This dialog would deepen with adding, changing or modifying the image. Each using the resources at hand – internet image searches, collective memory, photos and books that were in the room – we would volley back and forth, Garratt searching on his phone, I on one of my many computers. With an imagistic offer from Garratt eliciting an idea, response or memory from me, we would actively play with the images on a large scale, discovering the dialogs between image and central ideas or questions. Rarely did Garratt perform his role when we were working in this manner. Generally, we would sit and look and mull and contemplate, thoughtfully challenging each other, the work, the image, all while we, ourselves, were immersed in the imagery.

This kind of extended visual dialog *with* the actor-performer-writer without performance as the focus provided another mode of deep integration of the imagery, while also affording a

valuable outside eye perspective from both of our creative viewpoints. As we entered into work in the following days, this collaborative practice strengthened the creative shorthand between Garratt and I while also creating a secure connection and understanding between Garratt and the imagery. This outcome of our process provides a level of performative and dramaturgical integration with the imagery that elevates the actor's performance, as they gain an implicit understanding of their relationship *with* the imagery. This depth of understanding (and co-creation in the case of Garratt) builds a comprehension of the intention *of* the imagery.

Immersion in this slow creative exploration allowed the technology to become ever more integral to the story while *servicing* the story. A further benefit of this practice was a lessening of the burden on Thompson to have to keep close aesthetic and dramaturgical watch on those elements, as Garratt and I had collaborated and vetted ideas together.

An important evolution in the process of creating *The Last Donnelly Standing* was the collective decision for me to operate the lighting and projection control technology in order to allow the continuation of the jazz-like (give and take / push and pull) mode of co-performance that Garratt and I had established while devising. This was a significant shift for the traditional structures of the Blyth Festival, yet was vital in order to retain the integration of the digital image, continue our exploration of ideas and uphold the important fluidity of all performances. The fluidity, seams and glitches in this style of improvisation melded with the entangled nature of the performance, designer and actor. The rhythms and vocabularies established in creation between computers, designer and actor continued into public performances, with the video and lighting continuing to be improvised. This 'live design' approach provided the production with a raw intimacy and an immediacy that was both thrilling and thematically connected to the central story.

The Last Donnelly Standing is a primary example in my artistic practice of ways to build visual vocabularies and embrace deep, interdisciplinary collaboration between artists and between artists and technology. Engaging with the devised method supports the building of a dialog with technology and the digital image, forming new ways to collaborate with the technology and with each other.

3.8 Reflections Across Methodologies and Practices

It is very possible to engage with mixed realities and digital technology in a devised process as a collaborator, but it is tricky. Limited by their programming, these technologies are not quite as pliable as a human being. However, I suggest that, in many ways, technology is no different than a human collaborator. If we approach working with technology as a collaborator and in ways that acknowledge and embrace its limitations, while pushing its boundaries (as we would a human), I believe our interactions with it can be valuable and creatively dynamic. This method of collaboration allows for the potential of the technology to be woven into the creative process.

While I am no stranger to being frustrated by the limits of my computer collaborators, those limitations are not dissimilar to a performer not being able to sing, play the banjo or juggle. The reality is that (most) technology cannot respond as quickly to a challenge to its processes as a human can. Therefore, in the devised method where shortcomings in the technology can delay the process, allowances and flexibilities need to be built in. Humans have an expectation of the machines doing exactly what we want them to do when we want them to do it, which does not allow for the delay of technology. I argue these allowances should be considered when designing a creation process. Just as Lepage ascribes human characteristics to his mechanical stage

partners, we humans need to acknowledge the different rhythms of working with technology and develop ways to remain alert to these specific rhythms and work together with the computers. Computers become more powerful all the time, making them more responsive collaborators. However, we must embrace them as they are and accept that computers are temperamental, sometimes inflexible, sometimes frustrating, sometimes deeply inspiring collaborators. Just like humans.

As is seen in the results of the collage improvisation in the development process of *The Last Donnelly Standing* or Keiley's 'living script,' designer Richard Windeyer proposes methods for overcoming the delay of technology by "[e]xternalizing the idea as a tangible and fixed form"—a "prototype" or "design probe" in the form of sketchbooks, storyboards, or a kind of design "toolkit". This prototyping process, done in the early phases of development, "enables ... [the idea] to be perceived, contemplated, and probed" though the collective implementation. Having these externalized ideas early on provides a "toolkit" that could help to move the collective forward through technological delays. Windeyer importantly notes how "the absence of polish or stability [of the prototype] intentionally leaves much more room for a collective process of refinement" (Windeyer 45). This highlights the many ways that a collective or devised process can build knowledge and scaffold that learning into the development of the technologies and the performance at the same time, embedding the dramaturgies within all the forms creating the artwork.

As I noted in Chapter 2, theatre-maker Marianne Weems frequently speaks about how vital it is to have the designers and the technology in the rehearsal room from day one. As this chapter has explored, the approach of having all technological tools active and available while the work is being researched and created allows for deep integration and innovation within the

goal of story/worldbuilding. This integrative devised approach is my preferred process and one that I believe creates a far more expansive and democratic environment. It importantly challenges the segment of the Western theatre making mold that often relegates design and designers to second-string supporting artists.

Engagement with expanded notions of scenography and digital technologies in the devised and traditional creative process includes these creative practices as collaborators. Importantly, if devised creation is indeed centered around *what is available in the room* to in order to craft story, then leaving out tools of scenography and digital technologies eliminates the worlding and alchemical potential available in those tools. Their inclusion makes them an integral part of the alchemy of the making and creates an ecology where truly transformative crossings and magic can happen.

In the nearly twenty years since beginning development of *Bigger Than Jesus*, the world –and theatre – has seen the rapid advancement of digital technology. In this 4th Industrial Revolution the improvements in computer storage, graphics and processing power have transformed what digital artists are able to do. The internet has expanded our access to imagery databases and knowledge repositories. There is now unprecedented access to imagistic worlds, existing and created, through the continued adoption of VR and AR. The world has changed quickly in the last two decades, and with those changes my engagement with digital technologies and *mixed reality* continues to expand exponentially. The relative ease with which we can bring new digital worlds to life because of rapid improvements in digital technology has revealed new pathways and unknown territory open to explore. It is my excitement and curiosity around the combination of emerging technologies, devised creation and the hypermedium of theatre that have given birth to the central project of this thesis, *Bury The Wren* (fig. 3.17).

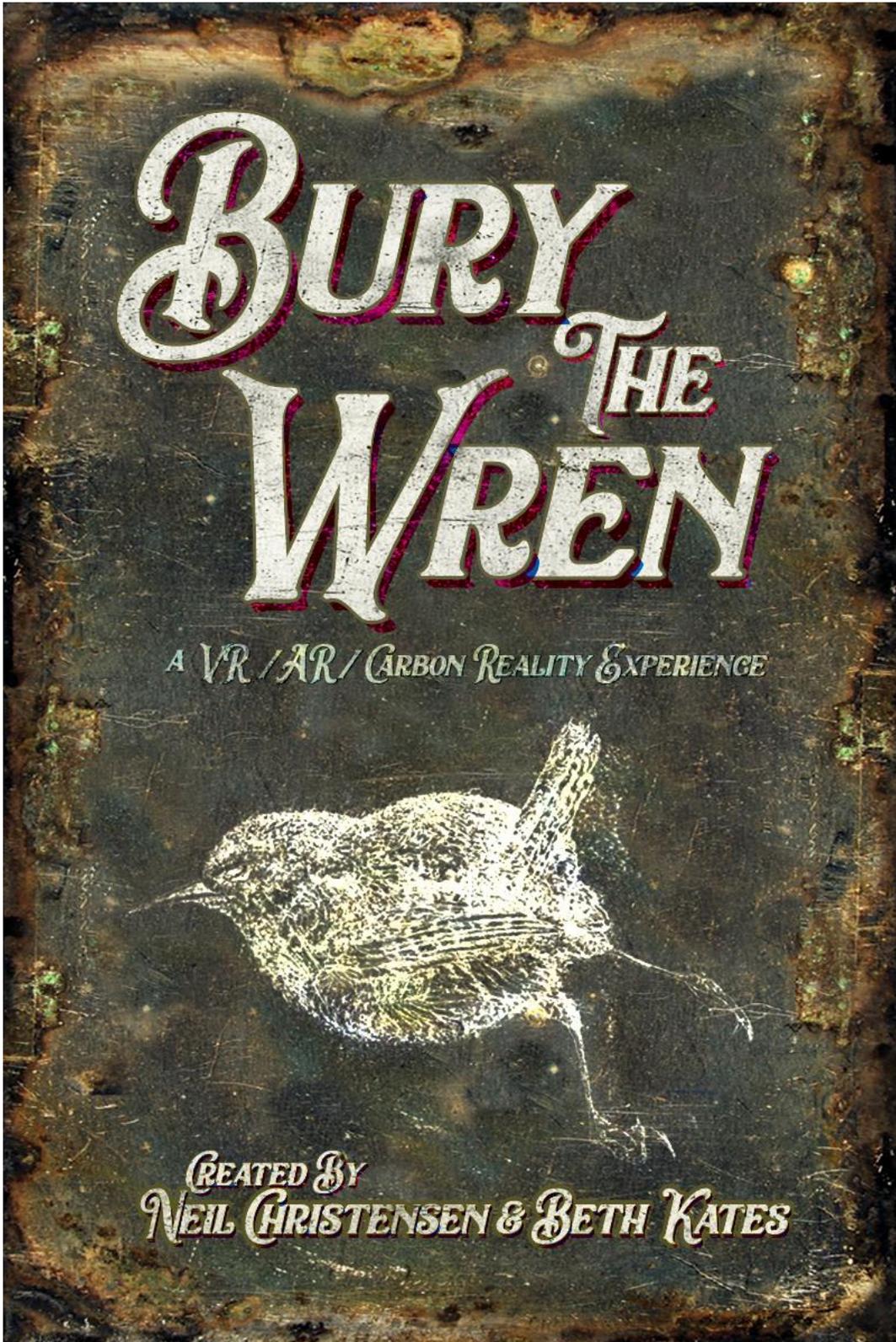


Figure 3.17 Poster design for *Bury The Wren* by Neil Christensen. And Beth Kates.

Chapter 4 *Bury The Wren: Project, Technology, Process,* **Performance and Ghosts**

Perhaps the theater is a form of eulogy and our job is to raid the graveyard regularly. The ways in which we remember dead people, those who did not finish what they had to say, and the way that we give them voice is what matters. I like to think that if the theater were a verb, it would be “to remember.” We re-member the parts. We put the fragments back together again. We excavate history in order to allow the past and those who had not finished communicating speak through us in the present moment.

We are flesh and sensation and we look to be filled with the spirits of ghosts.

Can we vibrate with their energy and consciousness?

Anne Bogart (“Ghosts”)



Figure 4.1 Val Campbell performs the role of Annie Donnelly for a participant in the original production of *Bury The Wren*.
© Beth Kates

This chapter examines the central case study of *Bury The Wren* (fig. 4.1) in three distinct sections. The first section, “[Project](#)” will briefly provide grounding for the reader in the details

and inspirations behind the creation of *Bury The Wren*, including historical context for the work. The “[Project](#),” section provides a theatre studies viewpoint for the reader and is decidedly focused on the theatrical context of the work.

In order to further acknowledge complexity of this study combining Theatre Studies and Computer Science I have chosen to delineate the second section, “[Computer Technology](#),” by the use of an alternative font as witnessed in this paragraph. The “[Computer Technology](#)” section is provided from a computer science focused lens and will explore in detail many of the technological processes encountered during the creation of the production. The aim of this section is to capture and examine those processes in order to provide the reader with clear information about the technological aspects of this project. [The Glossary](#) found at the end of this thesis can support the reader when computer science terminology becomes inaccessible.

In section three, “[Process and Performance](#),” I will weave together the computer science and theatre studies threads in order to provide a clear and thorough analysis of the complexity of *Bury The Wren*, and the study³⁹ that accompanied it.

As stated in the Introduction, the emerging technologies of Augmented Reality and Virtual Reality provide the potential to change the traditional forms of theatre in unprecedented ways, fundamentally changing methods of designing, making and performing theatrical storytelling while also altering modes of audience interactivity and engagement. The technologies provide human connection by placing us in 3D worlds with each other while transcending the limits of time, place and physics, offering embodied solutions to connection during this time of global health and climate crisis. They are tools to release storytellers from

³⁹ The results of the study have been linked in their entirety through [Appendix B](#).

the historical boundaries of storytelling and worldbuilding, facilitation exploration of alternative worldviews and expanding our ideas of creation, performance and spectatorship. My perspective and experiences as an artist scholar contribute to the discussion of these new realms in practical and material ways.

Several key ideas will be introduced or expanded on in this chapter. The process of creating *Bury The Wren* was an exercise in implementations of digital dramaturgy which kept the goal of affect over effects at the fore of our approach. Working in a devised manner, we aimed to ensure design, technology, performance and audience experience were fully integrated. I discovered many connection points between working with emerging digital technology and familiar actions from the creation of ‘analog’ theatre. Many of those are highlighted through this chapter. Through this chapter I observe several instances of the alchemical or magical occurrences in the creation process, leading us down inspired paths that could only have been discovered by the mixing of all the creative and technological elements and embodied knowledge (and perhaps the intervention of the ghosts of the Donnellys asking use to wait to work with the technology until we had properly ‘communed’ with Annie).

As has already been explored, we are in a flux of terminology around digitally imbricated performance. I, therefore, shift between the previously examined terms of “intermedial” or “intermediality” used by earlier examined scholars Chappel, Kattebelt, Bay-Cheng and others, and Benford and Giannachi’s “mixed reality performance.” The latter’s important theoretical terms “transitional state” and “interactional trajectories” assist in the examination of the construction of mixed reality performances. They provide precise terms for crucial junctures where audience experience, technology, design and performance collide. An important

companion here too is the defining of the object as *portal* through the different stages of *Bury The Wren*.

With the nature of perception and examination of the audience experience of reality also at the core of the central project, we attempted to engage with as many senses as possible. However, restraints meant we needed to leave the sense of smell and taste out of the experience. Our work with the other senses – sight, hearing and touch – led to compelling discoveries in the intersection between the visual and the haptic, represented in what I call ‘grounding objects.’ These objects provided anchors in the physical world while helping to transcend the boundaries between CR and VR. This important piece of the puzzle offers clues about ways in which to engage with human interaction in VR theatre experiences. I also created the term ‘reality dissonance’ to try and help explain some of the fissures in the perception of reality that myself, Christensen and some participants in the study experienced.

Finally, in an effort to name the digital spaces and digital places we are creating with this hybrid art form, I introduce the term ‘story-world.’ My hope is that it encapsulates the worlding that is occurring when we create virtual spaces that integrate storytelling into their genesis. These are worlds created by design and are design-centric while they also attempt to be more than containers for the stories we want to tell.

4.1 The Donnelly Story: Love, Death, Erasure and Mixed Reality.

Emphasis on the body's essential role in immersive virtual space may be inherently female. The whole notion of space as enveloping a body at its centre is probably feminine rather than masculine, as may be the desire to use this technology to re-integrate, re-sensitise, and re-affirm life itself.

Char Davies (“OSMOSE: Notes on Being”)

A new medium like virtual reality challenges traditional conventions not because the participant wears a helmet or a glove but because it suggests new relationships between the viewer and the viewed.

Douglas MacLeod (Immersed In Technology ix)

In the dark, early morning hours of February 4th, 1880, outside the small southwestern Ontario town of Lucan, a throng of thirty to forty organized vigilantes descended on the small family homestead of the Donnelly family. The gang brutally murdered Johanna, Bridget, James Sr., and Tom Donnelly. With the bodies inside they set fire to the homestead, burning it to the ground. Wielding firebrands, whiskey and guns, the gang then marched several kilometers down the Roman Line to the home of Will Donnelly, where they attempted to incinerate his home and horses and where they succeeded in shooting his brother John dead at point blank range. The murderers were never brought to justice, even after two full trials. A sister, three brothers and their wives survived the massacre, Robert and Annie Donnelly among them. The Donnelly story



Figure 4.2 The Roman Line, a few hundred feet away from the Donnelly Homestead (which is just beyond the cluster of trees on the left). This image was taken during the research process of *The Last Donnelly Standing* and was used as part of the video design on stage. © Beth Kates 2020

has become part of Canadian myth and legend, inspiring books, songs, movies, and plays that variously honour and obfuscate their memory⁴⁰.

*Bury The Wren*⁴¹ marks my third theatrical exploration of the Donnellys, which includes the aforementioned [The Last Donnelly Standing](#) at the Blyth Festival (2016) and [Vigilante](#) (2015), Jonathan Christensen / Catalyst Theatre's rock musical very loosely based on the Donnelly story. *Bury The Wren* was originally presented at the Doolittle Theatre, March 27 to April 3, 2019 at the University of Calgary in the Alchemy Festival of Student Work, and supported with funding from both the School for Creative and Performing Arts (SCPA/Drama) and the Department of Computer Science (CPSC) (fig. 4.3)

Development of *Bury The Wren* occurred across those two departments at the University of Calgary. The project also encompassed a Research Ethics

INTERDISCIPLINARY PERFORMANCES

FREE!

Bury the Wren

An immersive one-on-one performance
Co-created by Neil Christensen and Beth Kates

March 29–30, April 1–2, 2019 (pick your timeslot online)
DOOLITTLE STUDIO

Sound Wardrobe

Created by Melike Ceylan

April 4–6 and 8–9, 2019
DOOLITTLE STUDIO

ALCHEMY Festival of Student Work

UNIVERSITY OF CALGARY
FACULTY OF ARTS
School of Creative and Performing Arts

scpa.ucalgary.ca

Figure 4.3 Poster from the Alchemy Festival of Student Work at the University of Calgary where *Bury The Wren* premiered.

⁴⁰ Sources: Fazakas “The Donnelly Album”; Reaney “The Donnellys”, “An Ontario Vendetta”; Butt “History Legend Literature”; Stott “Diaries of William Porte”

⁴¹ The full performance script for *Bury The Wren* can be found in [Appendix A](#)

Board approved research study the details and results of which are linked to in [Appendix B](#). I devised the idea with [Neil Christensen](#) while working in Dr. Christian Jacob's computer science lab, [The Lindsay Virtual Human](#).

As has been examined in Chapter 3, a significant and distinctive component of my practice is the use of technology in improvisation within the devising process. The method of creating *Bury The Wren* was inspired partially by my history, by the process of the *The Last Donnelly Standing*, and in the desire to intentionally engage with the interactive 'real time re-rendering' capacities of the Unity game engine (covered in sub section "Unity"). Initially wanting to keep the performance as an improvised text unlocked to a linear technological structure, this approach shifted during development, which will be charted through this chapter.

In the process of creation, we engaged with two actors – Valerie Planche and Valerie Campbell. Both of these actors were critical to the development of Annie Donnelly as a character and *Bury The Wren* as a production. The final production was performed by Campbell and operated by Neil Christensen, Adam Kostiuk, Amber Billingsley, and myself.⁴² *Bury The Wren* has subsequently been featured (but not performed) in presentations at the 2019 CPSC University of Calgary Student Showcase (fig. 4.4 below), and the 2019 CPSC U of C Alumni gathering, where it was well received. Since the premiere, I have presented public lectures about the project at the [2019 Prague Quadrennial](#) (Prague, CZ), 2019 [Festival of Live Digital Art](#) (Kingston, ON), [Mixed Reality Performance Atelier Symposium #1 at York University](#) (Toronto, ON), and the [2019 Banff Arts, Culture and Digital Transformation Summit](#) (Banff, AB).

⁴² Full credits for *Bury The Wren* can be found in [Appendix D](#)



Figure 4.4 Christensen and Kates at the 2019 CPSC Showcase at the University of Calgary. © Beth Kates 2020

4.2 The Donnelly Story and ‘Why Annie?’: Love, Death, Erasure and Ghosts

As detailed in [Chapter 3](#), in 2016 Gil Garratt, Paul Thompson, and I created *The Last Donnelly Standing*, to explore the Donnelly massacre of 1880 from the post-massacre perspective of one of the survivors, Robert Donnelly.⁴³ The collective creation of the [The Outdoor Donnellys](#) at the Blyth Festival is directly linked to *The Last Donnelly Standing*. It was in *The Outdoor Donnellys* that Gil Garratt first portrayed Robert Donnelly, which began the conversations with Thompson that led to the creation of *The Last Donnelly Standing*. My first exposure to the Donnellys was in history class in elementary school. Since that time, I have seen multiple plays, a TV mini-series, and read accounts of their lives – both true and invented. However, the immersion in their history during the creation of *The Last Donnelly Standing* exposed the complexity of the story and made resonant the universal themes of determination, love, hatred, and miscarriages of justice. These complicated facets of the story is a significant

⁴³ While I have noted my personal theatrical Donnelly lineage, it actually extends back to *Them Donnellys* produced in 1973 at Theatre Passe Muraille. One of the first plays written about the events around the massacre, it was Paul Thompson’s first exploration of the massacre. *Them Donnellys* was a “lustily violent country and western inflected version of the local legend” (Thompson qtd. in Julien et al. 16).

part of what makes the Donnellys perpetually compelling, and is central to my continued fascination and desire to explore the story more deeply.

The Donnellys and their historical times are an endlessly rich source of still undiscovered information and intrigue. Both Garratt and Thompson came to “Last Donnelly” as incredible resources of historical knowledge as a result of their previous projects. In conjunction with the theatrical explorations that were examined in [Chapter 3](#), Garratt, Thompson and I collectively engaged in an enormous amount of historical research through a wide range of texts (reflected in the above foot note) and critical visits to the Donnelly Museum in Lucan. In this mode of research, it was uncovered that in her will Annie had declared that on her death Robert’s remains were to be exhumed from the family grave, where he had been laid to rest in 1911 with his murdered family, and brought from Lucan to London, Ontario to be buried with her in a steel casket (fig. 4.5).⁴⁴ Significantly

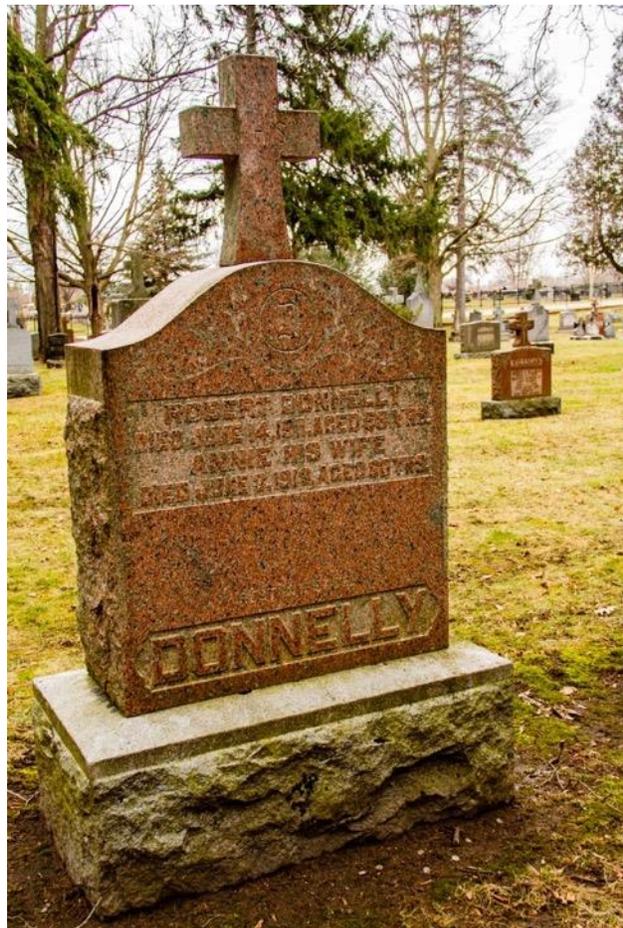


Figure 4.5 Gravestone of Annie and Robert Donnelly. London, Ontario. © Beth Kates 2020

⁴⁴ Also buried in the grave is Annie and Robert’s adopted son, James Michael Donnelly, who was the son of Michael Donnelly – one of Robert’s murdered brothers. On our visit to their grave we discovered that two children of Robert’s older brother Will are also buried with Annie and Robert. This resonated with Garratt, Thompson and I as we were creating our picture of Robert (and Annie). The choice to be buried with people who aren’t your parents (their father Will was buried in the family grave in Lucan) seemed to gesture to a great love for the couple.

Robert and Annie had no connection to London. Her final act to remove Robert from the earth where the family was surrounded by the graves of the people who killed them seemed to me an incredible act of love, one last attempt to bring peace to their lives (If they could not find it in life, perhaps it would come in death). Since discovering her, and this story, Annie has not left my mind.

Annie is also a mystery. Though they were well off and prominent in their community, I have not been able to find any archival trace of her. Other than one document I have been lucky enough to hold in my hands (fig. 4.6), there are no physical traces of her life. No photos, journals, needlework or jewelry. There is nothing in any museum or archive that has been attributed to her. In the noticeable absence of these artifacts, I decided that all her most precious

objects must be in the grave with them, sealed away from prying eyes and hands. Annie Donnelly had witnessed the desecration of the massacre site, with trophy hunters stealing the charred bones of her family, I can only imagine she wanted to protect

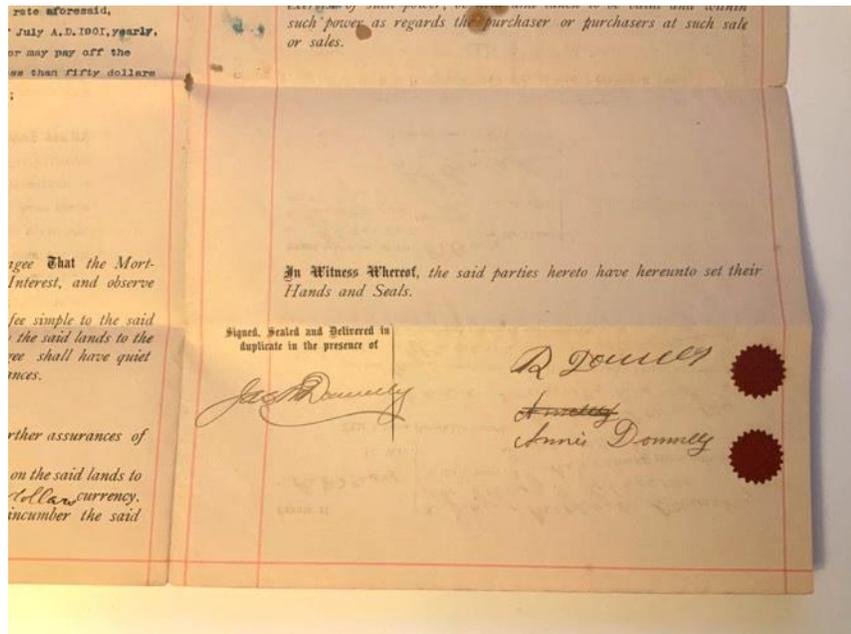


Figure 4.6 Mortgage dated 1901 with Annie's signature. Photo (c) Beth Kates 2020 (Document on loan from Bernie Harrigan)

against that. I also wondered if perhaps she had been trying to attain peace by erasing Robert and herself from history.

Yet, just over a hundred years after Annie's death in 1919, and 140 after the massacre, the Donnelly story is still very much alive. New books are continuously being written, the plays are produced routinely across the country, films are made, and research tomes continue to be updated⁴⁵. (Source needed?) However, the story of the Donnelly massacre is often only told up to the horrific event or the trials. The retellings also primarily feature the men, who are incredibly important but do not represent the whole story. Women are not wholly absent from the art works, James Reaney crafts the women into his epic Donnelly trilogy *Sticks and Stones*, *St. Nicholas Hotel*, and *Handcuffs*.

In a different form of epic theatre, the aforementioned play, *The Outdoor Donnellys* (written by Paul Thompson, Janet Amos and the company and produced at the Blyth Festival in 2001-3), was presented in the form of a grandstand show that told the linear story in conjunction with multiple vignettes performed in locations throughout the village. In conversation with Gil Garratt, he described that the vignettes “were designed to be outtakes of a kind; elements of the narrative that weren't at the core and gave a fuller portrait of the rest of the period, or parts of the story that didn't feature in the full show” (Garratt). This provided the ability for the production to amplify the female voice of the central women in the story. Female musicians / performers Anne Lederman, Capucine Onn, and Kelly McIntosh brought these women to life on both the

⁴⁵ The current creative legacy inspired by the Donnellys includes a small independent feature film called “The Black Donnellys” released in 2017 (IMDB “Donnellys”). Another independent film announced production in late June 2020 (Vlessing “True Crime Drama”), and in April 2020 author Keith Ross Leckie released a new fictionalization of the story. Leckie, in a CBC interview with Shelagh Rogers, speaks to the perpetual fascination with this story, recounting the genesis for him being a childhood visit to a general store in Lucan (the home of the Donnellys). Asking about the Donnellys, his dad was told ‘we don't talk about the Donnellys’. Encountering this “level of hostility” ignited interest in Leckie (like so many of us who have ‘met’ the Donnellys) that persisted for decades and created a desire to dig further into the story and try to “figure out where that tension came from”, resulting in his new book *Cursed! Blood of The Donnellys* (CBC Radio “Infamous 19th Century murder”). Thompson and Garratt have also both spoken about encountering this ‘hostility’ when they began their research in Lucan and the environs in 1999, which speaks to the enduring complexity of this history, which is at the root of the creative impulses to continue to explore it.

mainstage and the vignettes, with Sarrah Sholdice, Heather Thompson, and Josie MacDonal joining McIntosh in one iteration of Maggie Thompson's "Abduction Vignette." A significant number of female community members were involved with the vignettes, often in gender bending roles, further bolstering the female voice in this historically male dominated story.

Bury The Wren draws its lineage directly back to *The Outdoor Donnellys*. It is in a vignette about Robert (portrayed by Gil Garratt), that Annie is introduced into the telling of the Donnelly story for the first time. Inhabiting the vignette with Robert, Annie drags him, "entombed" in a wooden cage on wheels, "across the stage as Robert describes his corpse's exhumation" (Garratt). However, even with the inclusion of women in both Reaney's *The Donnellys* trilogy and *The Outdoor Donnellys* the popular telling of the story centres on the men.

Imagining that the revisionist re-tellings and persistence of the Donnelly story, combined with the continued erasure of the women from the re-tellings, had finally become too much for Annie's spirit, my imagined Annie now needed to tell her story from inside the steel casket. This mirrors my own drive to revise the telling. Part of the impetus behind *Bury The Wren* was to exhume Annie's voice from the grave of history. The access to time and place shifting provided by the mixed reality tools of VR and AR intuitively felt like they offered the right kind of expressive instrument to create a powerful and intimate conduit between Annie's 'afterlife' and the audience. Embracing unnatural naturalism as one of the foundations of the exploration, we accepted the anachronism of a long dead woman having access to these cutting-edge communication tools in her grave. In fact, our approach placed these tools firmly in her hands, believing that they finally provided a way for her to tell her story.

4.3 Technology is Not the Subject: Affect Over Effects and Altered Perceptions

When embarking on this project, the focus was not exclusively on the technology. While we were pushing the boundaries of existing tech, it was decidedly not about developing new tools, but using the tools at our disposal to the fullest of their (and our) capabilities, perhaps pushing them beyond their limits. The aim was to use the technology to tell a compelling story while engaging, expanding and challenging notions of reality and perception. Emerging technology contains within it the ability to swiftly and ‘easily’ alter or augment an immersive experience. Mixed reality practice historically plays with modifying perception and, As Liesbeth Groot Nibbelink and Sigrid Merx observe “even explicitly deconstructs perceptual expectations”, while setting up the conditions for “digitally influenced perceptions and embodied presence” that can often manifest “as a disturbance of the senses and results in a blurring of realities.” They assert that “[t]heatre makers often deploy digital media in the live performance in order to disturb clear-cut perceptual distinctions between fictional and real, physical and virtual” (219), supporting my hypothesis that theatre is a fertile ground on which to conduct these cyborgian experiments into performance with AR and VR as major storytelling tools. However, perhaps paradoxically but importantly, this investigation holds as its central philosophy the approach, as Ian Garrett has called it, of *affect over effects* (Garrett).

The questions, as presented in the Introduction, that shaped our approach to creating *Bury The Wren* remained central to the research project. In our survey questions to the participants we also sought answers to come of these questions to try and understand the audience experience:

- How can we tell a compelling story by combining the emerging tools of AR and VR with live performance?

- Are there methods to ensure that tech will not be at the forefront, but story and narrative will – *affect over effects*?
- How do we blur the lines between the different realities we are accessing and what is the affect and effects of that blurring?
- What dramaturgical and devising tools exist to help develop this kind of hybrid work, and what do we have to develop for or alter within the creative process to collaborate with these tools?
- Specific dramaturgical questions that guided development: Which were the real objects that Annie had brought to her grave? Why did she need to use VR to tell this story and how was it protecting her? Is VR the only place where she was free to share this vision of herself?

Many answers were found during our research, followed by even more questions. I explore the discoveries throughout this chapter and in the conclusion that follows.

We began the ideation process with the Donnelly story and were immediately influenced by our chosen technology of the [Vive Pro HMD](#). Knowing that the passthrough cameras in the HMD were not going to look much better than a security camera with their 640 x 480 pixel resolution (something covered in greater detail in the subsection “[HTC Vive Pro](#)”), my intuition was to embrace the “lo-fi” quality and figure out how to use that to our advantage. Inspired by the security camera quality and that this was ultimately a ghost story, my collaborator Neil Christensen proposed that we look at the experience as a *The Blair Witch Project*-like scary event, referencing the iconic 1999 faux-documentary thriller film by Daniel Myrick and Eduardo Sánchez. A surprising and wildly popular film, *The Blair Witch Project* played on the audience’s uncertainty if the story of a murderous witch hunting documentary filmmakers in the gloomy

Black Hills Forest of Burkittsville, Maryland was true. Using a “found-footage” (Hoad “How We Made”) style of filmmaking, the movie heavily blurred lines between what audiences perceived as real or fiction.⁴⁶

Christensen’s suggestion was great, in no small part because it was the catalyst for us to closely examine what we wanted our audience to experience and what kind of story we wanted to tell. This exploration brought us back around to wanting to tell an ‘engaging and compelling story.’ My argument against creating a scary narrative and experience stems from my own belief that it’s way easier to do creepy than to engage the heart and mind to create an emotional affect. To me, ‘scary’ is relatively easy thing to create, and jump scares are a commonly used technique that originates in horror films (like *The Blair Witch Project*) and has also become a significant part of gaming and VR experiences. I am primarily interested in more nuanced storytelling using these tools and exploring how these new tools combine with our existing tools of performance and design creation.⁴⁷

With the Donnelly story, I knew we were telling a ghost story of a sort, but I was not interested in the ghost part. Annie *is* dead. She *is* speaking to us from her grave. However, the ghoulish aspect is not the story I wanted to tell. She is not haunting us; She is telling us her story because she has to. In the context of the *Blair Witch Project* conversation, I was not at all interested in resorting to the cheap thrills of a horror / jump scare experience. *Bury The Wren* aims to move far past the ‘easy,’ surface-level horror and deeply explore love, death, female erasure and re-claiming a history. To create a frightening piece would be to occlude those things

⁴⁶ Sources: IMDB “The Blair Witch Project”, Wikipedia “The Blair Witch Project”

⁴⁷ I was so scared after seeing this movie in the theatres I needed a friend to come stay the night at my apartment. I knew it wasn’t true, but I don’t think I was 100% sure. In no way did I want that feeling of terror to be created by *Bury The Wren*.

with horror, and limit our storytelling capacity to what was scary or could be constructed with that type of suspense. The idea of telling a Canadian *Blair Witch* story morphed into a tale of love and grief.

4.4 Computer Technology

“Virtual reality is all about illusion. It’s about computer graphics in the theater of the mind. It’s about the use of technology to convince yourself you’re in another reality... Virtual Reality is where the computer disappears and you become the ghost in the machine... The computer retreats behind the scenes and becomes invisible.” Jaron Lanier (qtd in Dixon 365)

In 1965, the visionary computer scientist Ivan Sutherland wrote a now famous essay about a “kinaesthetic display” that would not have to “follow the rules of physical reality” which was “connected to a digital computer gives us a chance to gain familiarity with concepts not realizable in the physical world” (Sutherland “Ultimate”) He described it as a “looking glass into the mathematical wonderland constructed in a computer memory” that should serve “as many senses as possible” including smell and taste. (Sutherland “Ultimate”). Between 1965 and 1968 Sutherland worked on the first “head-mounted three-dimensional display,” (a term we still commonly use to describe VR headsets), that tracked user movement through ultrasonic and mechanical head position sensors during the experiment (Sutherland “Dimensional Display” 757). Images of the head-mounted display can be seen in [Sutherland’s paper](#) about the Harvard University based project are an incredible record of the origins of VR. Interestingly, many things have not changed from this invention. Sutherland writes that a “mechanical adjustment is available to accommodate to the different pupil separations of different users” (Sutherland

“Dimensional Display” 763) which is not very different from the physical manipulation of modern-day VR HMD, where it’s still a dial or sliding the display screens to obtain focus.

The origins of *Bury The Wren* stem from conversations with my collaborator Neil Christensen about the nature of reality and the different ways that these new technologies alter our understanding of reality through augmentation and immersion. My curiosity centres around the collaborative and creative possibilities in the combination of AR, VR and theatre (here meaning the live performance in real time of a story or narrative).

Choosing to ground the technology used in *Bury The Wren* in what we had access to in the lab and our personal technology and software collections was crucial for Christensen and I. While our intention was to expand our knowledge base and discover other technology, we did not want to get mired in or preoccupied with the extensive research and development that comes with creating new technology. We also recognized the significant range of creative possibilities within the existing technology. From my perspective as a theatre artist, access to experimental or high-end gear is generally out of reach for the majority of theatre practitioners, and it was critical to me that our research could have real value and impact on the theatrical community.

Technologically, I was/am very interested in the procedural (or real-time) rendering (Unity [“Real time”](#)) capabilities of modern game engines which allow a live response to user input in real time. This *live responsiveness*, meaning they can react aesthetically to live input from the user to the environment or object, provides game engines with an inherent

theatricality framework. I felt intuitively that this would provide a more connected experience for the user and allow us to explore audience agency.

Looking toward the future, I believe AR will provide incredibly exciting possibilities for integration into theatre, mainly due to the fact that it is a layer ‘on top’ of carbon reality not unlike stage lighting, projection, sound, and the other design forms that are already integrated as augmentation into traditional scenographic practices. AR will, in time, be how we get dragons on stage and successfully produce science fiction plays. However, at this moment in time, the capabilities of AR are not aesthetically or technologically satisfying, something supported by Christensen’s previous explorations of AR in his research projects *Xscape* and *Emerge* (Christensen “Altered”).

Head-mounted AR devices offer limited field of vision (FOV), meaning that they can only offer a small window of augmentation and not full environmental

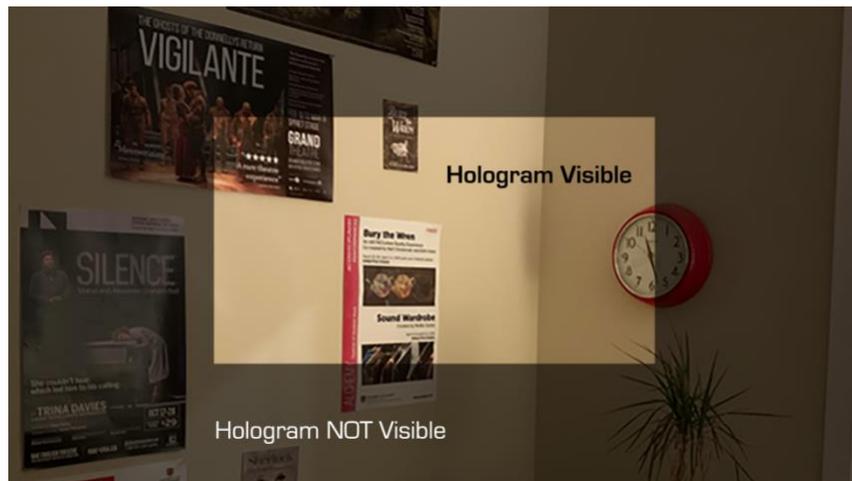


Figure 4.7 HoloLens 1 field of view. © Beth Kates 2020

immersion, which was a quality we were aiming for (fig. 4.7)

The alternative was to use handheld devices like tablets or smartphones using Apple’s iOS ARKit, as the Builders Association did with their use of a custom AR app running on audience smartphones and tablets in *Oz Revisited* which was examined in Chapter 3. While this style of

implementation of AR is compelling, an AR app requires the downloading of an app and the use of a device in one's own field of vision, which presents an immediate wall between spectator and performance.⁴⁸ While many people are accustomed to using these devices, the “wall”, the known technological limitations and the hurdles of integration were too significant and did not align with the immersive goals of the project. As we considered theatrically interactive options for AR, the idea of the audience exploring objects in the performance space to tell our story emerged. This was the seed of an idea that took root in *Bury The Wren* and grew into our use of interactive objects in VR instead of AR.

Ultimately, Christensen and I decided that a project using exclusively AR would not be a satisfying way to theatrically explore the deep integration and dramaturgical possibilities of the emerging technologies. However, we knew we wanted to explore AR in some form with this project in our investigations of the distortion of reality. This exploration was important to me

because I believe in the future of AR and theatre and the deep connection of AR to theatre – theatre being the original “augmented reality.” This led us to the Vive Pro VR head mounted device (fig. 4.8) which has two passthrough cameras embedded in it



Figure 4.8 Kates wearing the Vive Pro VR HMD

⁴⁸ As a theatre practitioner I wonder what terminology we might create for this ‘wall’. IN theatre we understand the “Fourth Wall” as the invisible wall between the performer and the audience. This wall is something “broken” when a performer interacts with the audience or the audience is asked to interact with the performance. What, then, do we call this technology that is physically held up in the form of tablet or smartphone, by the audience to engage with a mixed reality component such as AR? Is this a Fifth Wall? A Technological Fourth Wall?

allowing us to engage and *augment* a live camera feed of the immediate surroundings without removing the HMD.

4.4.1 HTC Vive Pro, Vive Tracker & Control Software

After the consideration of several VR and AR technologies, and consulting with Lindsay Lab member [Tim Davison](#), the combination of the Vive Pro HMD and one Vive Tracker⁴⁹ driven by Steam VR was chosen as the devices of engagement for the participant. Davison's suggestion to use the Vive tracker (fig. 4.9) was in response to our interest in having the ability for participant and performer to interact intimately with a virtual object in real time. One of the first



Figure 4.9 A participant holds a Vive tracker during the performance. © Beth Kates 2020

steps in the technological research was to do a “proof of concept” with the Vive Tracker to ensure that we could map a virtual object to it in real time and manipulate it in VR. The ability to do so ensured that we would be able to give the participant or the performer the hand-sized tracker, to which a virtual object would be mapped. They could then interact with the object in

⁴⁹ I would like to draw attention here to sections 5.1.3 and 5.1.4 in Neil Christensen's thesis which does an exemplary job of detailing the technology used. Further, his appendices provide set up guides and the source code for *Bury The Wren*, and can be downloaded for implementation. I will not be going into as deep technical detail in order to maintain the focus of this thesis. Christensen's thesis and source files can be found by following this [link](#).

real time, and it could be changed by the system operator as desired. The tactile interaction also provided the virtual objects with an organic human movement.

Early on Christensen and I identified several ways to overcome obvious programmatic movement of an object in VR. The “uncanny” movement replicated by programmatic movement is a cue that something is not carbon real. In aesthetics, or the “critical reflection on art, culture and nature” (Kelly in Reidel “Encyclopedia”, ix), the concept of the uncanny valley refers to the hypothesized relationship between a created humanoid object and the actual human that they are (imperfectly) attempting to emulate. Human experiences of this imperfect re-creation often provokes an eerie and unsettling familiarity (MacDorfman and Ishiguro 299, Mori “Uncanny Valley”). In *Bury The Wren* we wanted to avoid any possible break in the organic quality or dip into the “uncanny valley” (Mori “Uncanny Valley”) that would impact the ‘realness’ of the experience. This guiding principle resulted in us not including any kind of avatar and put emphasis on ensuring the organic human quality of the movement of the virtual objects. In an effort to overcome uncanny programmatic movement we chose to map our object to a tracker so that when they were manipulated by a human holding the tracker they reproduced that believable movement in VR. This, ideally, helped to eliminate barriers to the believability of the reality of the object we attempting to alter perception of reality.

4.4.2 *Vive Tracker: The Haptic and the Visual*

There were several discoveries, during the proof of concept, surrounding the Vive Tracker. I felt that it was incredibly light and did not sit ergonomically in the hand, which was going to make it challenging for participants to hold comfortably. The developers had clearly

chosen function over form. I also felt the addition of weight was going to help with bridging the realities of a virtual object not having any weight or mass. This idea went through several iterations and required some R&D to figure out ways that we could modify the tracker without interrupting the communication with the system. Eventually the idea to attach a beanbag like object to the base of it (where there was a handy threaded connection point) was devised and we brought the idea to Carolyn Choo, head of props at the University of Calgary, who built what we affectionately call “The Apple” – a nod to the apocryphal story of the Donnelly’s eating apples on the night they were murdered. “The Apple,” a black wood plinth with a tightly packed beanbag dome was screwed onto the base, creating an object with weight that also felt solid and balanced in the hand (fig. 4.10)

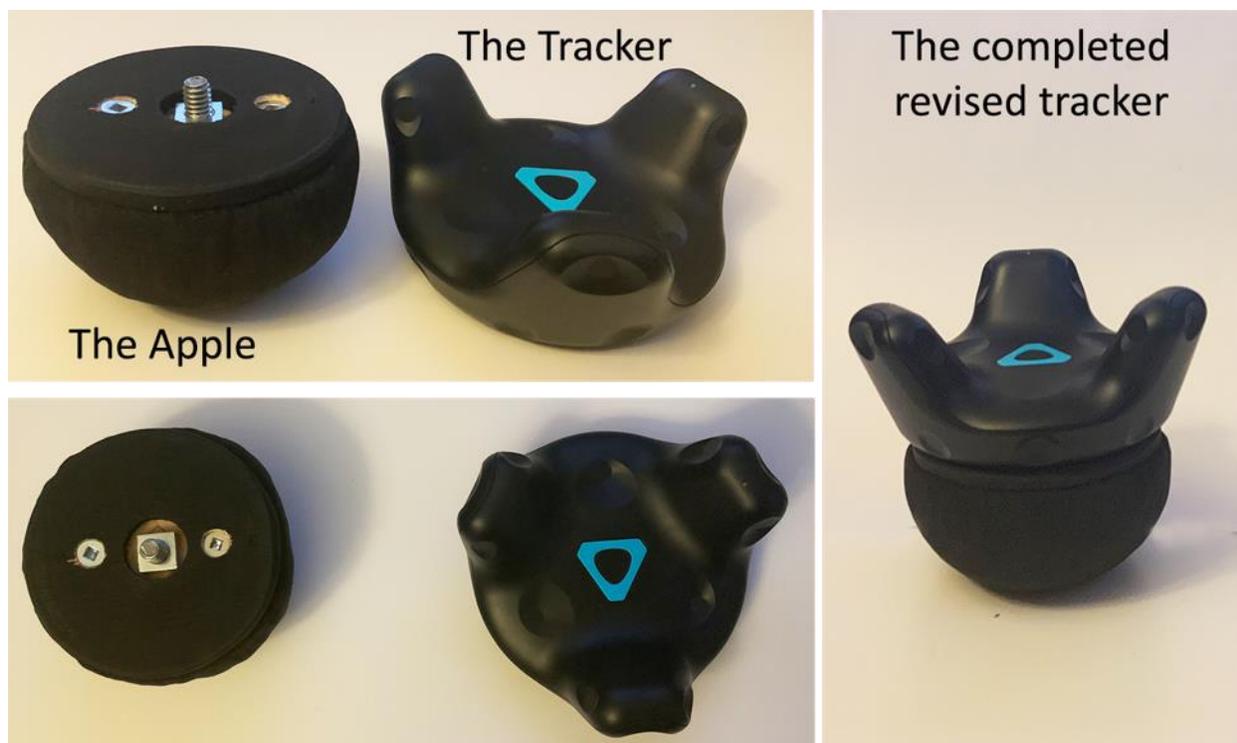


Figure 4.10 Vive tracker, before and with "The Apple" modification. © Beth Kates 2020

4.4.3 Virtual Reality Device: Vive Pro HMD

The [HTC Vive Pro](#) head mounted device (HMD) was also chosen, as noted above, for the passthrough cameras, which we were confident we would be able to access and therefore engage with AR within the same device. This required adding the [Unity](#) game engine to our development and presentation workflow in order to run the Unity only, beta version of Vive AR which would allow us access to the passthrough cameras.

While wireless HMDs existed when we began development, those systems rely completely on physically-integrated GPU and CPUs, which limit their ability to process the visual detail of the real time rendering. This would have required us to sacrifice visual fidelity and would have made the dynamic virtual object interaction we were aiming for difficult, if not impossible, to render the full level of detail (LOD) reliably. Utilizing this kind of integrated wireless HMD while providing physical freedom from being tethered with a cable would, in fact, limit the participant's agency in moving around as any quick or sudden moves would likely put an excessive load on the processing system in the headset. This would result in unstable and unsatisfactory visual fidelity. Additionally, the lack of controllable passthrough cameras in these systems would have eliminated the potential for AR from the same device. Wireless VR HMDs in existence at that time were not an option for our project.

When we embarked on the project, the Vive Pro HMD was tethered to the PC workstation with a 10' long USB cable. In the spirit of 'work with what you've got,' this was a limitation we accepted. I had rudimentary plans as to how I would integrate the tether into the structure and interaction of the performance. However, during the development of the project,

Vive HTC released the [Vive Wireless Adapter](#), a high bandwidth wireless system based on Intel's Wireless Gigabit (802.11ad 60 GHz 7 gbps—Intel WiGig) technology. This meant the addition of a t-shaped antenna (“wireless adapter”) that attached to the HMD, a battery pack that powered the antenna, a PCIe Wi-Gig card (installed in the workstation) and the transmitter (“wireless link

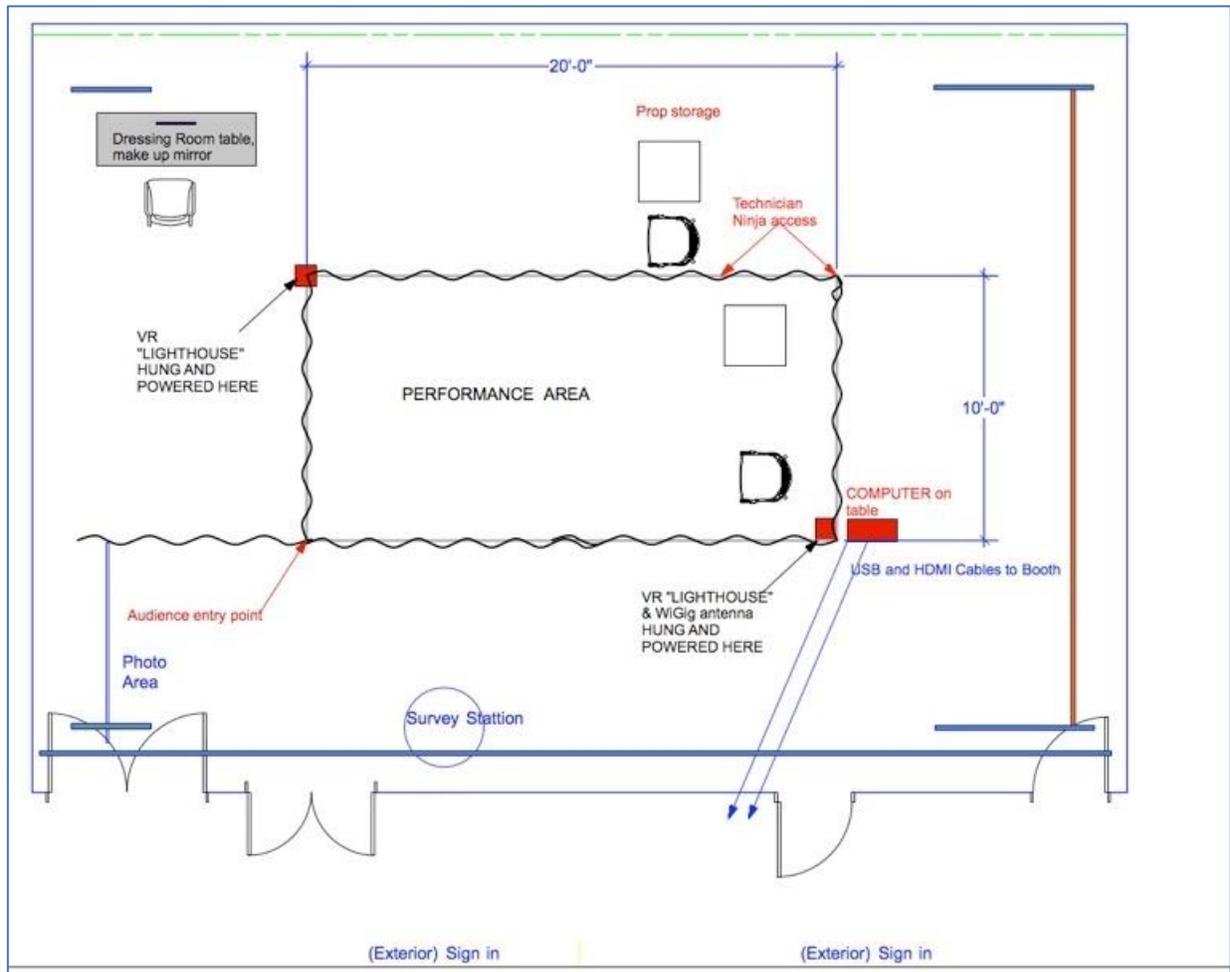


Figure 4.11 Ground plan of technical layout of "Lighthouses" and systems. © Beth Kates 2020

box”). The transmitter was tethered to the workstation that needed to be in sightlines to the headset. Luckily the antenna added minimal weight to the HMD. This shift in technology allowed us to provide our participants full range of movement with detailed and reliable visual rendering of the 3D world and objects (fig. 4.11).

4.4.4 Unity

Unity is a real time 3D development platform, commonly called a “game engine.” This platform allows for the user to rapidly edit and develop 2D and 3D scenes, objects and animations. It provides real time previews of the project which allow for quick modification and implementation. Unity was chosen as our development platform due to our collective familiarity with it and because there was proprietary programming in Unity that would allow us to access the passthrough cameras. We used Unity 2018.2 to build the 3D world using a custom created content as well as existing 3D elements. The *Bury The Wren* workspace was designed to be an organized, robust and production-ready control system for the live performance (fig. 4.12).

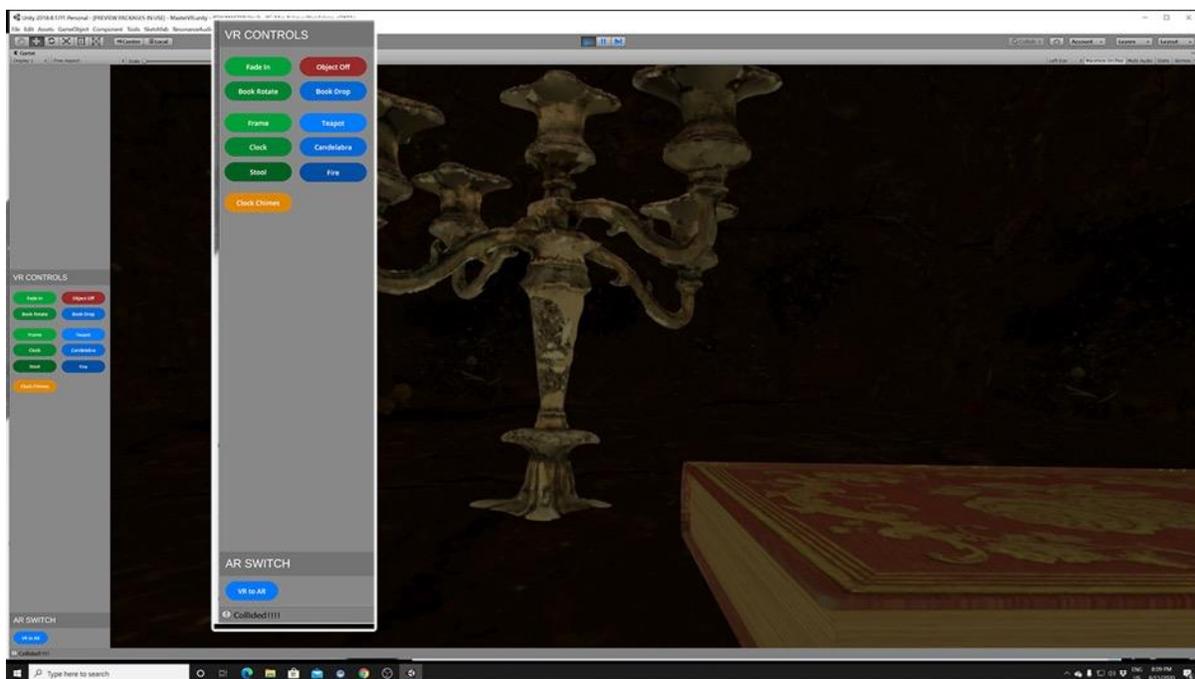


Figure 4.12 Unity interface with *Bury The Wren* programming loaded (detail inset) © Christensen/Kates 2020

This environment for presentation of *Bury The Wren* required extensive testing, modification and multiple proofs of concept that were primarily executed by Christensen in close consultation with me. In these iterations we began to develop a process for fluid collaboration

and creation in and with VR, as the technology and the story developed in tandem. Discoveries were made in the virtual world, via development in Unity informed the theatrical creation



Figure 4.13 Screen Capture of the grave. Captured from inside VR.

process of scenography and story development (and vice versa). These developments were easily and quickly implemented in Unity.

4.4.5 Steam VR, the Workstation & the Performance Space

In order for the PC workstation to send the virtual world and objects to the headset, [Steam VR](#) uses a marker-based optical tracking system that requires at least two base stations. The base stations are small (8cm x 7cm x 6cm) boxes that are placed within the users' space in order to locate the HMD, trackers and controllers in 3D space by using invisible LED lights and rotating lasers that pulsate 60 times a second. The emissions are detected by the photosensors on the HMD, controllers and trackers providing Steam VR with micromillimeter accuracy

constantly locating the items. This ensures a high degree of accuracy in the participant's visual experience of the 3D world and virtual objects in VR.

One key technical requirement of the lighthouses is their line of sight to the devices. If the line of sight is blocked or interrupted it can result in drifting of objects, lag in accurate placement or complete loss of tracking. Ensuring a consistent line of sight became a priority for the design of the performance space. There was flexibility as the lighthouses have a 6m x 6m coverage range, meaning we could have quite a large performance space. However, we needed to ensure that they maintained line of sight to the user regardless of where they moved or where the performer was in the room. As can be seen in above in figure 4.11, we determined securing them in the lighting grid of the performance space (12' above the floor) and sitting at a 20-degree angle would ensure as consistent connection with the devices as possible, taking into consideration that height of the participant would always be a variable. The same principle was applied to the Wi-Gig wireless transmitter and the plan was to secure it to the lighting grid.

From the limitations of these devices required to control the [room-scale VR](#) component, we now knew that our real-life performance space could not exceed 6m x 6m. We decided to build a physical space that measured 10' x 16' x 8' high (fig. 4.14 below). The height was dictated in part by the availability of existing fabric from the scenic department of the University of Calgary, yet also fit within the technical parameters of the VR system. Beyond these critical distances, there seemed to be no other limitations to how we approached the performance space scenographically. Proof tests showed that stage lighting did not interfere with the transmission or reception of the LED and laser emissions from the lighthouses. The 'wireless link



Figure 4.14 The full performance area is here visible in work light, with a participant and the performer. This image allows us to see the physical construction of the performance space. © Beth Kates 2020

box' broadcasting the graphics to the HMD had a short (2m) proprietary coaxial connection, which meant that the PC workstation needed to be quite close to it (something that we actually only realised when we moved the workstation into the theatre). The wireless link box was mounted 8' above the floor on the same suspended pipe that held the grey fabric that created the performance space. The short coaxial cable meant that the workstation was placed unobtrusively on a tall cart directly underneath the wireless link box behind the fabric that formed the boundaries of the carbon performance space. We then ran HDMI and USB cables from the workstation into the booth to a monitor and mouse/keyboard respectively (see fig. 4.11).

Inextricably linked to design principles of scenography and aesthetics, the room-scale design of the VR component was created iteratively, moving between design aspects of the CR room, user experience and story integration. These iterations were made possible by the workflow created in the various programs being engaged with. The technological design impacted the creative development process of the CR scenographic design which is examined in section 4.5.13, "[The CR Performance Space](#)," later in this chapter. Room-scale in VR was dictated by the available cubic area and scenographic materials and by our desire to ensure the virtual environment did not feel claustrophobic.

Taking the idea of room scale literally, we aimed to match the physical room size to the virtual room size. This ensured that there was little displacement experienced by the participants when they entered VR in order to blur reality boundaries further and stabilize the experience. The final dimensions of the virtual space were 8'x10'x 7' and the dimensions of the performance space were 10' x 16' x 8', allowing for a safe distance between the virtual wall and the CR wall.

The design of the grave was an iterative process that began with a 2D image of roots and dirt that I created (fig 4.15). Initially I was going to attempt to create a 3D image out of this



Figure 4.15 Original artwork of roots and dirt that was the inspiration for the mud for *Bury The Wren*. © Beth Kates 2020

image and use the existing layers as texture maps, but it was on the advice of Tim Davison that we explore [Quixel Mixer](#) made by [Quixel](#), (fig. 4.16), a company now owned by Epic Games that produces high-resolutions “Megascans,” environmental scans from real world objects. Using

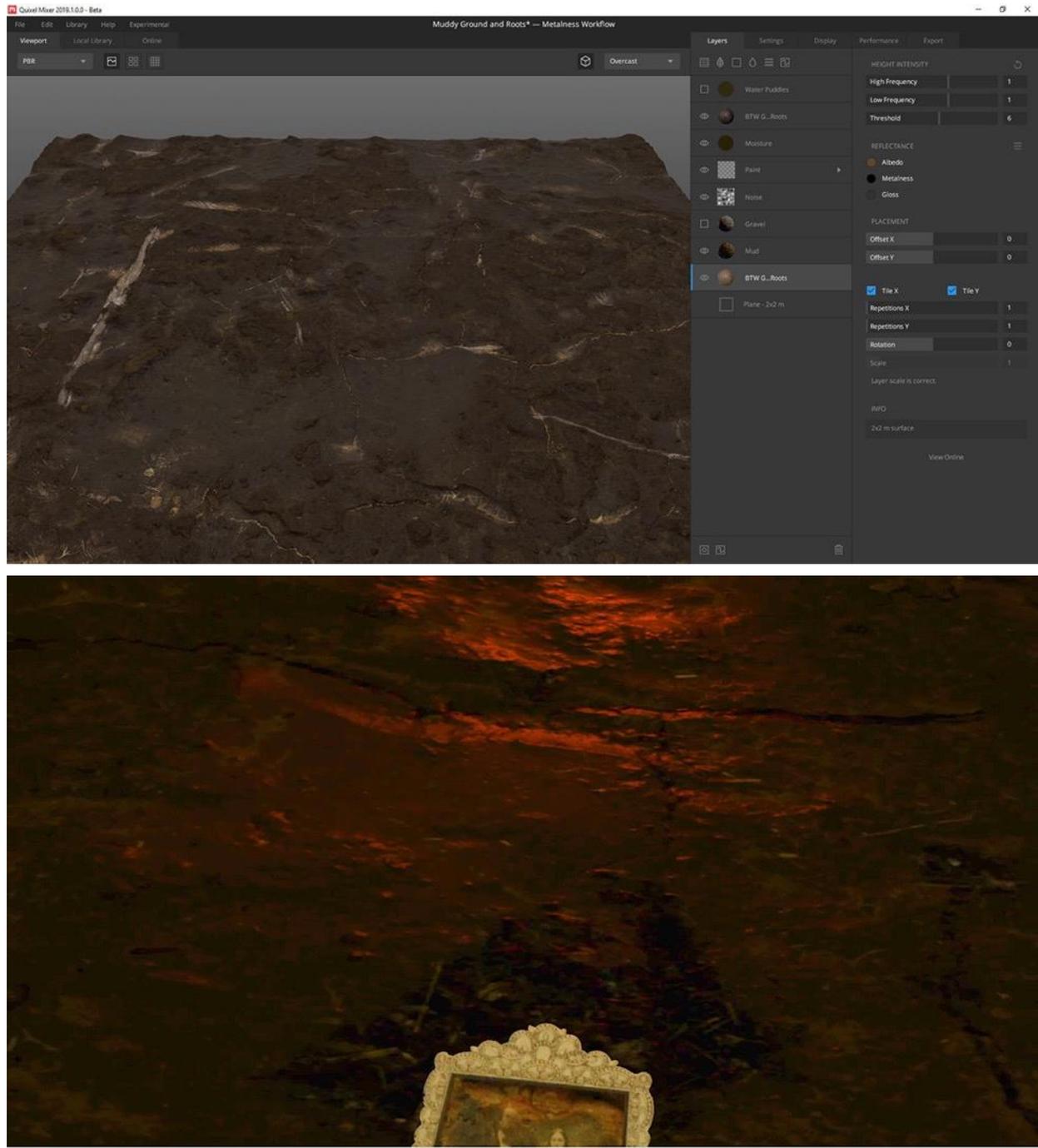


Figure 4.16 (Top) Screen capture of the mud texture being created in Quixel Mixer. (Bottom) Screen capture of the environment from inside VR. © Christensen/Kates 2020

Quixel Mixer, Christensen was able to blend, modify, randomize and layer Megascans of mud, gravel, and roots to create the realistic texture of Annie's grave.

4.4.6 Passthrough Camera

Prioritizing engagement with AR, we continued to investigate the capacity and quality of the Vive Pro's embedded passthrough cameras. The cameras provided the ability to switch from the fully created 3D world of VR into an augmented version of the carbon world of the performance space without removing the HMD. Our research revealed that there was pretty significant latency (the lag in image from real time to broadcast) of 200-500ms from the cameras to the HMD. Due to the latency and the very low resolution (640 x 480 pixels) of the Vive's cameras, Christensen and I began to explore what this might be able to provide us in the crafting of our narrative. We settled on turning the passthrough image into a kind of living daguerreotype. We effected the natural black and white image with several shaders (tools generally used to effect and manipulate the look of textures in 3D programs) like bloom, contrast and tinting⁵⁰ to amplify the daguerreotype look. Post-processing effects added a vignette around the edges to also try to soften the frame of the image. Once theatrical lighting was added, the image took on an ethereal quality that integrated with the aesthetic and themes of the production (fig. 4.17 below)

⁵⁰ The development of this image continued in the theatre, requiring bringing in a 'stand in' or light walker so that I could alter the stage lighting and Christensen could alter the shaders to get to a more desirable effect. This process was deeply reminiscent of the painstaking work that I had to do in every venue to make the live video in *Bigger Than Jesus* work as desired.



Figure 4.17 Annie Donnelly (Val Campbell) as viewed through the pass through cameras in AR. © Christensen/Kates 2020

It is important to note that the primary purpose of the cameras is as a safety mechanism to show users their surroundings when one gets too close to the play area boundaries. We were therefore using the cameras in ways the developers had not intended. Encountering several technological issues along the way, during development we lost access to the cameras because of a software update to SteamVR.⁵¹ Once this was resolved we embarked on final development of the transition from VR to AR, which was also not an established function of the existing software. The end result was the implementation of a script that allowed this switch, but also took the viewer into what I called “Tron Land” (named after the digital landscape of the 1982 [Hollywood film](#)) while the application loaded the programming. This ‘[nowhere-land](#)’ was embraced aesthetically as will be examined in sections “Passthrough” and “AR, Robert’s Scarf”,

⁵¹ Detail on the problems and programmatic solutions are detailed in [Christensen](#) 80-3.

however the switch did cause Unity to stop working properly and required a full system shut down and restart every time we switched to AR. The live switch in the performances of *Bury The Wren* was not always stable and failed on several occasions in performance. This inconsistent failure (which we never found the real cause of) would either leave the participant in “Tron Land” or blackness and is a clear indication that we were pushing the technology well beyond the designed intent.

Most participants did get to experience the AR component. Though brief, this interaction in AR was a critical contributor to the diffusion of lines between realities. The lenses of the camera provided a much wider and more distanced view of the carbon world. This slightly strange point of view, enhanced by the above-mentioned visual effects applied to the image, created an important bridge and distortion between realities.

4.4.7 Photogrammetry

Photogrammetry is the process of creating a 3D digital object from a series of photographs. Using photogrammetry software, a 3D mesh and projected UV texture are created from the photographs. The photographs are used by the software as an image-based scan of the object, which allows algorithms to digitally reconstruct the object based on the angles and camera coordinates – data which is embedded in the original images.

The choice of objects⁵² to be engaged with in VR was guided by the technical capabilities of creating the virtual object using the process of photogrammetry. Guiding our object selection

⁵² All objects will be hosted at www.burythewren.ca and a project is underway that will allow them to be engaged with in VR via an Oculus Quest. An archive of the 3D objects can be seen at [Sketchfab](https://sketchfab.com/) where they can be also viewed in VR by accessing the sketchfab library through a browser in the Oculus Quest (or similar).

was also the subjective ideas about what we believed would (or would not) look real in VR. Other guiding factors in the object choices were the theatrically focused questions of what Annie Donnelly would have in her grave and which objects would provide us as theatre-makers strong entry points into this story. When choosing the object, we had also several story-related parameters detailed in the section [“Choosing of the Objects”](#). The process of photogrammetry and implementation in VR also provided two further guidelines we attempted to follow:

1. The object should be of manageable scale so that it can be believably held by one hand in VR
2. The object should not be transparent or reflective due to the photogrammetry process limitations

The photogrammetry process and test proofs were done early on in the development in order to test the workflow and ensure that we could produce objects that were of a satisfying realistic quality (fig. 4.18 below). Christensen executed a very successful rough test of the photogrammetry process with a Cylon toy head using a Canon T5i Rebel DSLR in RAW format in October 2018 in overcast daylight. Operating manually, he shot 36 photos, circling the object to capture from two different angles of height to the object, and then tested the workflow with

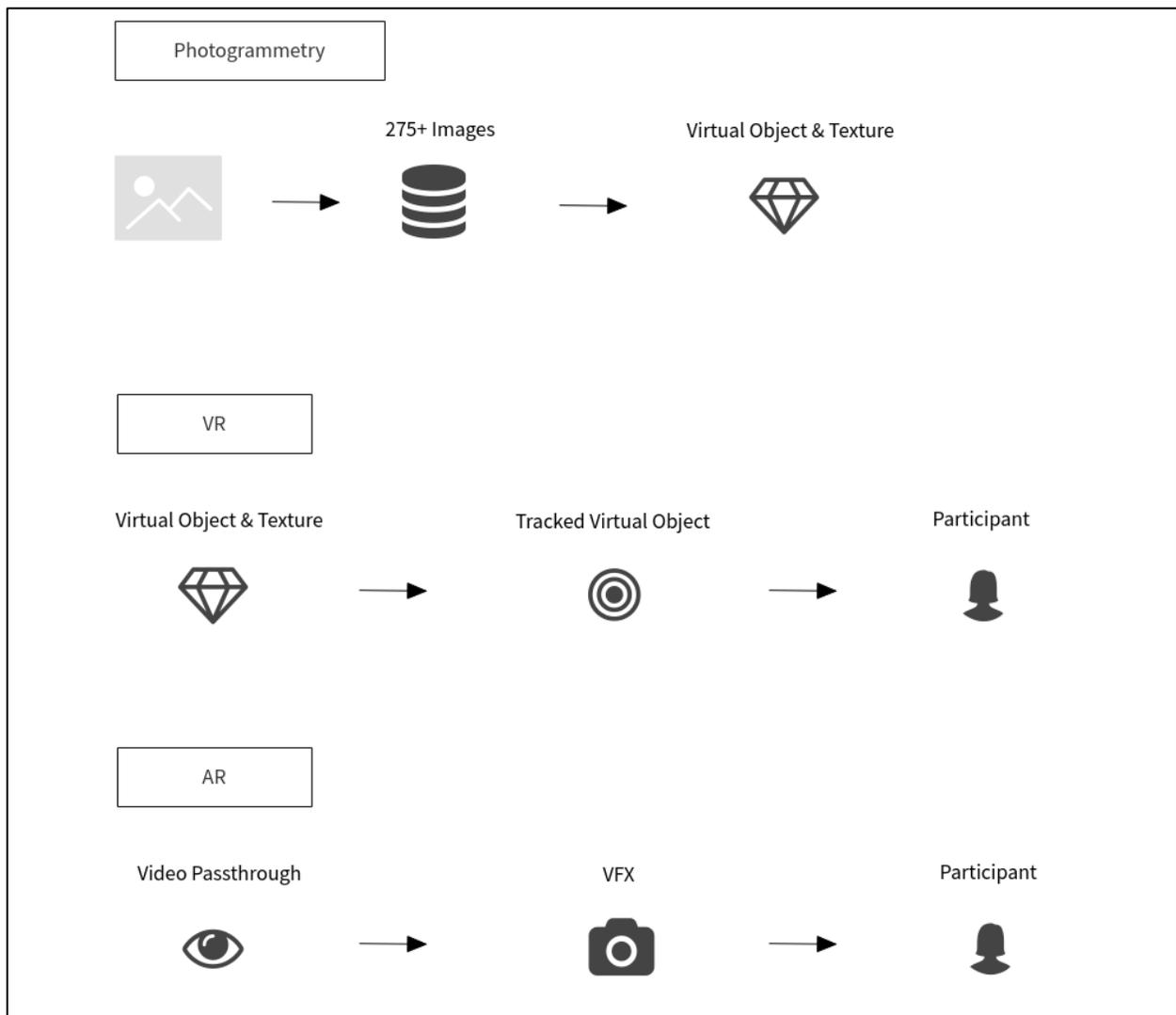


Figure 4.18 General workflow for virtual object creation and display in XR (VR / AR). © Christensen/Kates

several different photogrammetry softwares for comparison (Meshroom by AliceVision, Photoscan by Agisoft and RealityCapture by Capturing Reality). [Reality Capture](#) produced the most satisfactory replication of the object, and so was chosen as the photogrammetry software we would be using.

With the workflow established, Christensen and I moved our photography process indoors to the graduate photography lab in the University’s Art department to shoot the

necessary photographs of our first object, the [stool](#). In this lab we were lucky to find a large quantity of used greenscreen paper, which we used as our backdrop. In the devised theatre spirit of ‘using what’s in the room,’ we crafted a turntable out of a spinning stool and a plank of wood we found in the studio, which let us easily rotate the object. Having worked with greenscreens many times, I was familiar with exactly how we needed to light the object (flat field, no shadows). However, this photography studio was not very well equipped, and we had to cobble together enough lights and extension cords to try to light the stool (fig. 4.19). Unable to perfectly



Figure 4.19 Photogrammetry process with the stool, November 16 2018 at the University of Calgary. © Beth Kates 2020

light the object from enough points to create a flat field without shadows underneath, we decided that we would find a solution for eliminating the shadows “in post” (ie: in the post-production software environment we would use to build the 3D models). I took some test shots on my Sony Alpha 7iii mirrorless camera in full frame RAW format (with an 8K resolution of 6000 x 4000 pixels per image). We then did a rough “knock-out” of the green screen in Photoshop on a MacBook Pro laptop and decided that it was a viable enough result to proceed with the shoot.

We believed that by shooting in such detail (8K) the resolution would allow us to overcome any flaws in the setup. As neophyte photogrammetry makers, we assumed that this higher resolution capture would provide an even better result than the Cylon tests. From Christensen's research, we knew approximately how many photographs we would have to collect (275+) while rotating the object 360 degrees, shooting from three different heights in order to capture everything from the underside of the object to the top, plus close ups for detail. We placed the camera on a ceiling rigged, jib-style tripod, and I released the shutter and shifted the height of the camera while Christensen spun the object.

This session proved to be a very useful info gathering session, but when Christensen started to try and build the 3D object (beginning in After Effects after batch processing the RAW files) the 275 8K images were too large and impossible to process efficiently on his

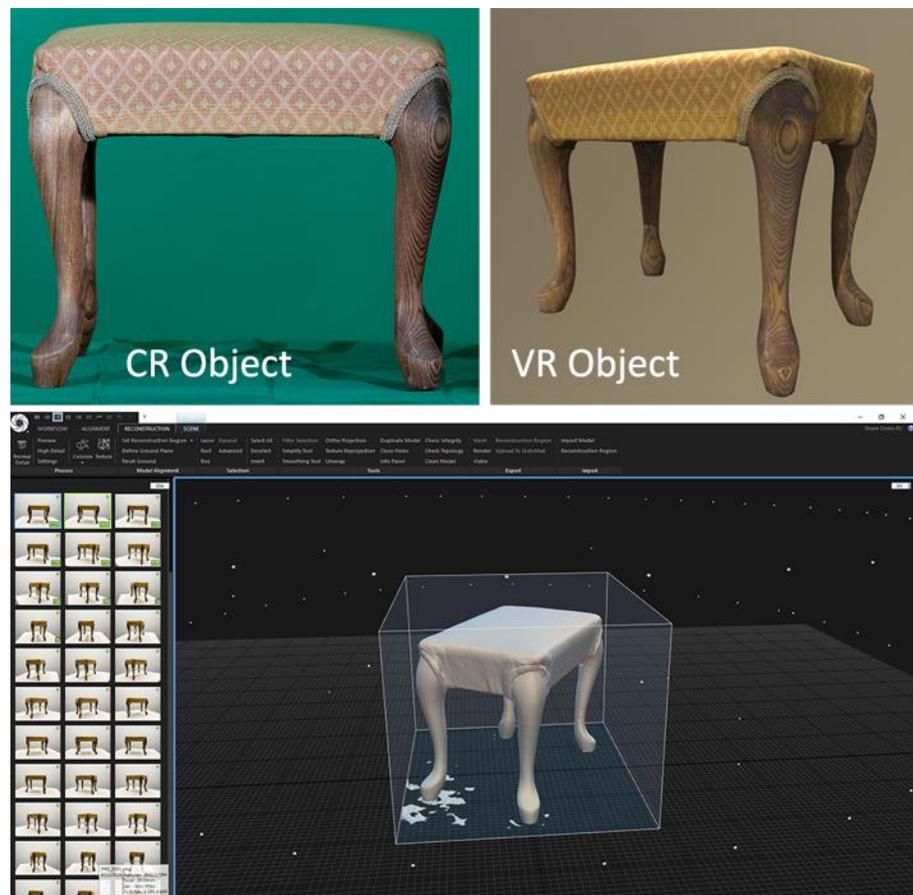


Figure 4.20 Original stool, photogrammetry process, final virtual object.
© Christensen/Kates 2020

gaming system (a PC with 64GB of RAM, dual GTX 1070 Nvidia GPUs and a multi-core Intel i7 CPU). Christensen then batch reduced the images to 4k resolution, but the green screen keying was resulting in a large number of unwanted artifacts making it difficult to build the model.

With this knowledge we revised the process. Bringing together all the objects into Christensen's studio in the Art department and using NO extra lighting or green screen, but instead using the studio's white walls, existing fluorescent light, a large white reflector board, an iPhone X as the camera and a Bluetooth enabled remote shutter release. This method of photography was incredibly successful, and the results in Reality Capture were more than satisfactory.⁵³ (fig. 4.20 above)

The [teapot](#) (fig. 4.21) was the simplest shape to recreate in photogrammetry, with 95% of the object "intact" once it was brought into Reality Capture. The spout and the bottom needed reconstructing, which was done in [Cinema 4D](#) (a 3D production tool). The original texture



Figure 4.21 Photogrammetry teapot.

map was used, and the object was successfully outputted at the required resolution with excellent results. The teapot has become the iconic element of the production, and one that we

⁵³ I would again like to refer to sections 5.1.3 and 5.1.4 in [Neil Christensen's thesis](#) which do an exemplary job of detailing the technology used in the creation of the photogrammetry. Further, his appendices provide setup guides and the source code for Bury The Wren, and can be downloaded for implementation. <http://hdl.handle.net/1880/111311>

continue to use in web-based examples of AR, which can be seen at www.burythewren.ca/teapotAR—which must be viewed on smartphone or tablet (instructions are included in [Appendix C](#)).

Taking into consideration the technical constraints of the photogrammetry process, Christensen and I chose items that we believed could lend themselves well to the technical process of photogrammetry. This meant that no glass or highly reflective objects would be considered. That was until Carolyn Choo, head of props at the University of Calgary, sourced the

perfect [candelabra](#) for us (fig. 4.22). The drawback to finding the perfect item and it contravening the “rules” of photogrammetry capture is that, when we scanned it, the resulting digital image was less than a true representation of the CR object. The reflectivity of the silver resulted in “lost geometry” when the 275 images were imported and processed in the Reality



Figure 4.22 CR candelabra (photographed during the photogrammetry session) © Christensen/Kates 2020

Capture software. This resulted in an extensive and complicated “rebuilding” exercise that required using [Cinema 4D](#) to remove and remodel complex shapes and [Pixologic Zbrush](#) (a 3D sculpting tool) to repair some of the more complex shapes freehand. Essentially Christensen became a 21st century digital reconstruction artist, having to learn the intricacies of the complicated Zbrush software while using reference photos to restore the details and shapes of

the candelabra. As Christensen eloquently puts it: “In art as in life often the constraints of the material or the skill of the artist directs the result to one different than originally thought” (Christensen 67).

In the research that followed we discovered a technique used to help with the photogrammetric capture process of reflective objects. The technique is to spray them with a matte chalk or non-damaging paint-like material to make it easier to process the geometry and then apply a digital (PBR) material that matches the original. In a delightful convergence with theatre, when something is too shiny on stage we often “spray it down” or cover the object with very diluted paint of hairspray to remove the shine.

Despite Christensen’s remarkable reconstruction efforts, it was clear that the candelabra (fig. 4.23) was never going to be a “pristine” VR object. The resulting *digital tarnish* ended up

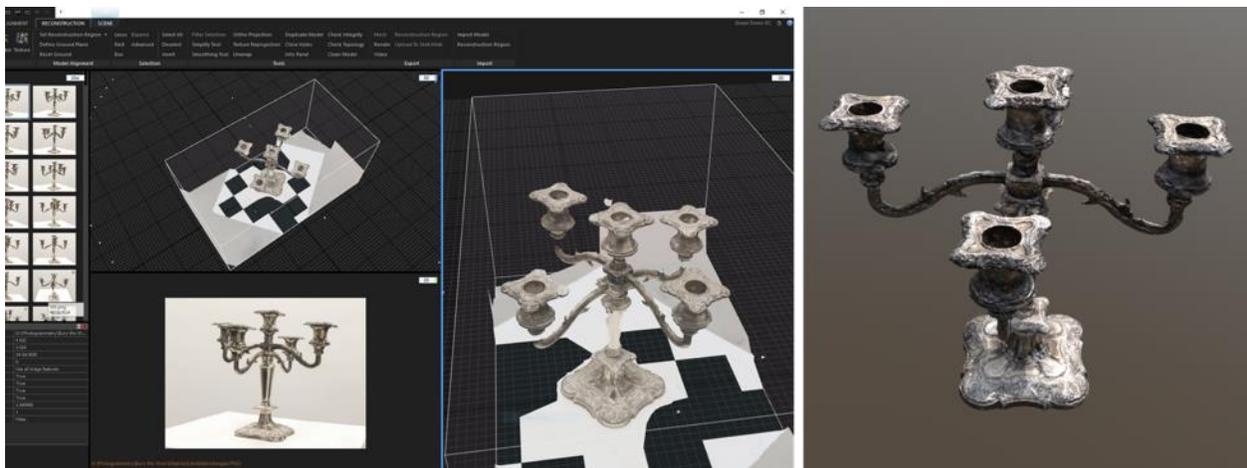


Figure 4.23 Photogrammetry process (left) and final 'digitally tarnished' virtual object (right) © Christensen/Kates

being embraced and ultimately was a combination of our corroded, daguerreotype aesthetic that was informing the overall production. As Christensen observes, “[t]his is an interesting approach when considering how we perceive the original object compared to the virtual re-

creation and similarly the use of an inaccurate texture map and scan also provided a mechanism to challenge our perception.” In many ways, the computers decided for us that the candelabra would be a mediated reflection of the original, rather than a faithful replication. We, as Christensen wrote, “opted to accept our happy accident” (Christensen 68).

The [clock](#) was the final item scanned and, while it was a culmination of all the technical knowledge acquired, it also represented some unique challenges. Many details were lost or compromised in the scanning and needed to be rebuilt during processing. This included the convex glass door over the face, the detailed minute and hour hands, the roman numerals, and the small wooden feet on the bottom of the clock. However, it was discovered that we could turn the clock over and photograph the bottom of it and the program would orient the image properly. The glass door, hands and numbers were faithfully recreated, and likely ‘fooled’ any participant, but they do represent a significant variation from the CR clock (fig. 4.24). Detail about the creation of the [frame](#) can be found here in the subsection “[The Picture Frame...](#)” and on page 68 of [Christensen’s thesis](#).



Figure 4.24 (left) CR clock, (right) photogrammetry clock. © Christensen/Kates 2020

Christensen estimates that the total creation time at 4-6 working hours per object from photography to completion of the digital object. They were, in fact, so finely rendered that they required very little modification once I saw them in VR. Each object can be viewed and interacted with here at [Sketchfab](#).

4.4.8 Performance Environment: Using Steam and Unity as Live Control Systems

In order to utilize and push the boundaries of the real-time rendering capacity of Unity, the original intent for *Bury The Wren* was for it to be an improvised performance, meaning that the actor's performance would be different each time. Constructing a work environment in Unity that allowed the ability to switch to any of our virtual objects at any time was therefore a priority. A very simple graphical user interface (GUI) was developed for the *Bury The Wren* in the Unity environment consisting of a series of large simple buttons. The buttons triggered one of the virtual objects or special effects and could be switched quickly with little to no noticeable latency (fig. 4.25).

While we eventually deviated from the improvised performance aspect, building this GUI and the ability to switch the objects precisely at the click of a button provided flexibility to the creation and execution of the production. We were not locked to a timeline, but instead had the flexibility to change order and modify the objects as the story required. This interactive interface also allowed the operator (Christensen) to remain responsive to the real time nuances of a live performance. The simple GUI of the buttons (figure) that controlled the objects were

reminiscent of lighting board submaster buttons, which are traditionally used to manually control specifically chosen lights⁵⁴.

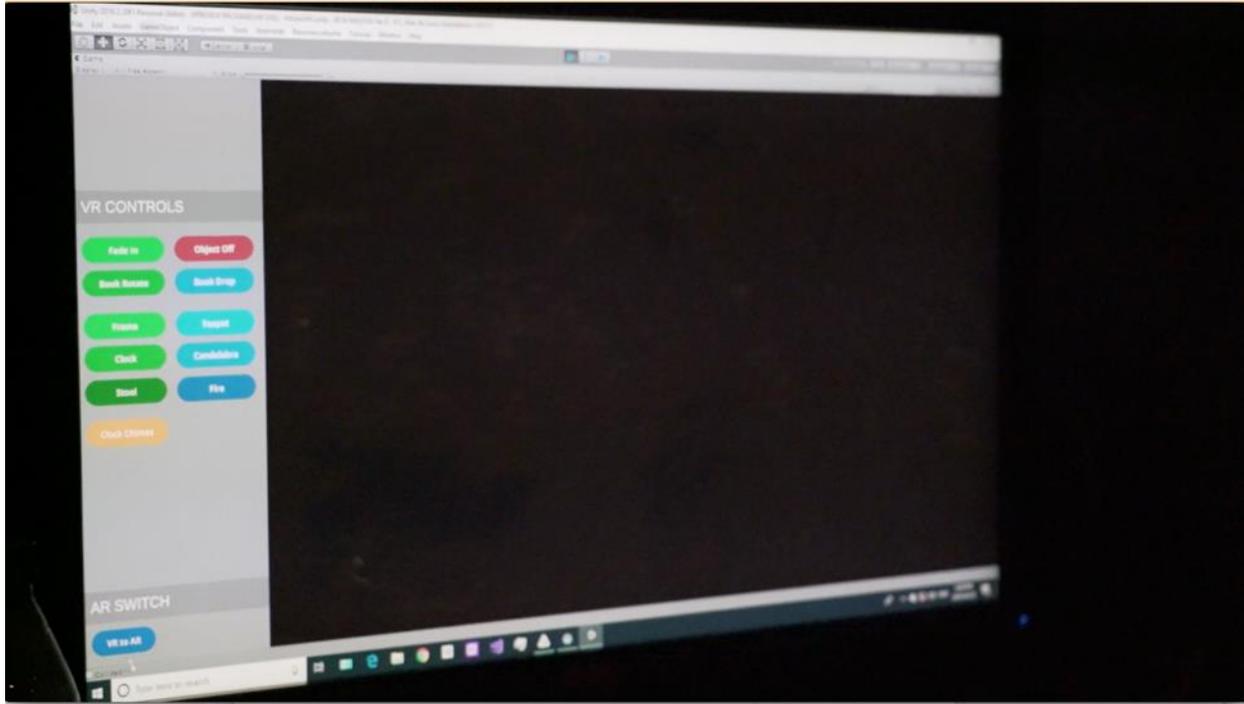


Figure 4.25 Screen capture of the control GUI used during the performance to control the objects, switch to AR, fire effect, etc.

4.4.9 Continued Technological Development and Summary

As will be addressed through the analysis in the following sections, the technological components of *Bury The Wren* continued to be developed through the rehearsal/creation and performance process. Our methods of implementation were continuously refined and streamlined as we learned more about the show, and how the technology was or was not working with it. This is reflective of the *technodramaturgical* aspect of digital dramaturgy, explored throughout the rest of this thesis. While VR continues to grow as a creative and technological form, so too does *Bury The Wren*. At the time of writing, Christensen and I are

⁵⁴ This is of particular personal relevance too, as Submasters are how I responsively operated lights for the rock and roll bands when I started my career.

developing a version that embraces new technological developments in hand tracking and the advancements of the Oculus Quest VR integrated HMD that will afford new ways of delivering the performance.

The technological process of development and implementation for *Bury The Wren* was complex, however I remain confident in the choice to not create new technology but carefully consider what minor modifications the existing technology required in order to serve the storytelling. This allowed us as the theatre makers and technologists to critically assess the technology and, effectively, ‘pick our battles.’ The technological progress achieved within the project manifested in invention and innovation of application, resulting in a robust mixed reality performative event.

4.5 Process and Performances

The medium of immersive virtual space is not merely a conceptual space but, paradoxically, a physical space in the sense of being extended, three-dimensional and enveloping. As such it is an entirely new kind of space that is without precedent. I think of immersive visual space as a spatiotemporal arena, wherein mental models or abstract constructs of the world can be given virtual embodiment in three dimensions and then kinaesthetically, synaesthetically explored through full-body immersion and interaction. No other space allows this, no other medium of human expression

Char Davies (“OSMOSE: Notes on Being” 69)

Shifting from the computer science lens to weaving it together with theatre studies, this section offers a detailed view into the creative process that resulted in *Bury The Wren*. The research study that accompanied the production revealed a common response among the participants of excitement at the ‘new form’ they experienced, engagement with the storytelling and intrigue into where these technologies could expand the form of theatre. I include here

several participant reactions, including one eloquent in their observation, which I include in its entirety:

[The experience] was SO realistic—I wanted to reach out and touch the objects with the other hand. In particular, the person speaking so closely and coordination with objects made this an extraordinary experience. To see the person at the end resemble what I saw in the headset was amazing—had no idea what to say! I thought the time went too quickly—I could have definitely enjoyed a longer performance! I found the spinning book at the beginning caused me to close my eyes a few times as it was making me feel a bit dizzy. I would have liked a longer period to get used to the environment—perhaps a scene or something to get comfortable with it for a few minutes before the story started. I think I missed a few details at the beginning. I was very comfortable otherwise with the technology. The details of the objects was very good—and it was very easy to get lost in the story and forget I was wearing a headset. The fiery candlestick holder was incredible! (Participant 015)

It makes me feel like I can ask to be spoken directly too even thru virtual mediums—it challenges the notion that technology is only for the future perhaps it is what we need to re-frame our ideas in how history speaks to us (Participant 018)

It's more than theatre because of its intimacy; it's not quite reality because it's theatre. (Participant 008)

The sensory elements of the experience were unique and like nothing I'd experienced before.(Participant 032)

Having the object first projected and then physically placed in my hands was a very new and engaging part of the experience. (Participant 006)

The study was overwhelmingly positive, which is encouraging (fig 4.26 below). These results confirmed our hypothesis about how to create an affective intermedial work with AR, VR

and theatre. The evidence from the study is included throughout the following sections and can also be viewed in in [Appendix B](#).

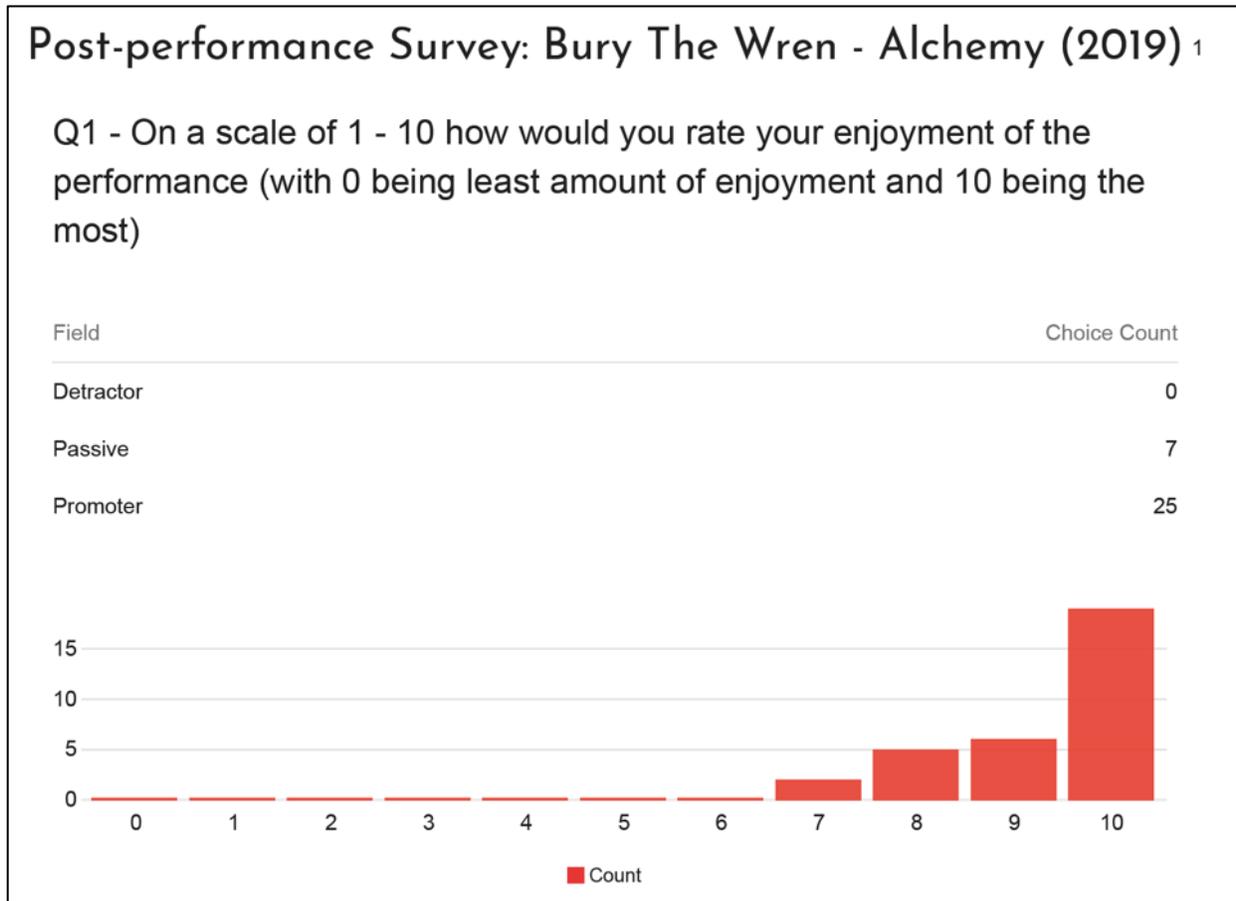


Figure 4.26 Graph from the Qualtrics generated results of the study.

I have used the term *portal* to talk about the moments that are entry points into the story through objects. I have borrowed the term from several sources – science fiction and a commonly used term in VR and AR experiences where the participant is required to find, enter, exit, or otherwise engage with a “portal” in order to move the game, story or experience forward. Entering a portal is a crossing of planes, emotions, dimensions, perceptions, manifestations and realities. Our chosen objects are portals into the story, bringing with them an element of magic

4.5.1 *Objects and Object Theory*

Having established the object as portal in *Bury The Wren*, it is important to acknowledge the relevance of [Object Theory](#), referenced in [Chapter 1](#). The work of philosopher Bruno Latour reconfigures the subject (culture/politics) / object (nature/science) binary, arguing that the non-human, quasi-objects and hybrid objects have agency, and should be granted autonomy and rights (Veldman). In “Reassembling the Social,” Latour asserts that “[o]bjects too have agency: anything that modifies a state of affair, acts” (Latour 63), and in that action the object becomes an *actant* that “puts action in motion” (Veldman). Object Theory and New Materialism understand that there are particular *ways of being and knowing* that are made possible by the meeting of human and non-human entities. Objects, understood in this way, have the power to affect change in and of themselves beyond a human’s understanding (or imposition) of an object’s instrumentality. This assertion of agency is embraced, explored and expanded in *Bury The Wren* as the objects we engage with are at once generative and performative while existing in multiple worlds: physically, digitally and textually. Objects are key creative collaborators, performers and actants in *Bury The Wren*. As Marlis Schweitzer declares, the objects are not “inert human possessions,” but hold within them “energies and potentials to affect human and nonhuman worlds” (Schweitzer 2). Text and story were generated in *collaboration with the objects*, making them central to the creation and performance of the work as the locus of where the story emanates from and by which it is catalyzed (literally and figuratively).

Objects, in the world of *Bury The Wren*, are further complicated by their complexity of existing in both the virtual and carbon world at the same time. The existence of the virtual objects is convoluted in that they do not *exist* for the participant until the participant’s gaze is on them. One step further back, the virtual object does not exist except in the programmatic memory

of the computer, until the performer calls for them. Even then, the object does not exist in the embodied experience of the participant until the operator pushes the button to call up the programmatic memory of that object. And yet, accepting objects as actants in the dramaturgy, we have imbued the objects with a supernatural power over the story, which provides them further agency over their human counterpart. We, the makers, have given these objects that only exist in 1's and 0's the agency as *actants* to alter the story. For us, these objects were and are alive, operating with full agency. They are a critical part of telling an engaging and compelling story while using this technology as a means of their expression.

Many of the objects had qualities in VR that they did not in CR in order to emphasize that Annie Donnelly's virtual life contains some supernatural magic. The variation in object representation throughout *Bury The Wren* challenges the participant's notions of reality and subtly acknowledges that memory is flawed, reminding us that in our conjuring of memories we alter them without realizing it.⁵⁶

We could have turned these objects into actual 'magical portals' as exist in many video games that allow players to 'level up' to move to new worlds, gain powers, etc. However, positioning the objects as actants allows the traversing of time and space to be rooted in the story being told by the performer and object and in the fissures of reality caused by this object that is there and yet not 'there.' Thus, the objects provide the story with a theatrical, but not overly

⁵⁶ In his description of memory, philosopher Henri Bergson speaks to the simultaneity of memory while using a relevant technological metaphor. In his chapter, "Of the Survival of Images. Memory and Mind", he writes that in act of memory "we detach ourselves from the present moment in order to replace ourselves, first in the past in general, then in a certain region of the past—a work of adjustment, something like focussing a camera" (Bergson 1911, 77).

technologically dazzling, portal. Less *Doctor Who*-timelord-wormhole-portal-leaping, more theatre of the mind, keeping the central goal of ‘affect over effects’ at the fore.

4.5.2 *The Choosing of the Objects*

Once Christensen and I decided that we would be using tracked virtual objects created by photogrammetry, I visited the University of Calgary props department and enlisted the help of Carolyn Choo, the head of props. Choo helped me search for objects based on reference images and conversations around the general idea of what we were looking for.

Other than searching specifically for a picture frame and a candelabra for thematic and storytelling purposes, the objects could be anything – within the rules we had established:

1. Object should “feel” as if it could belong to Annie (regardless of period)
2. Object should have properties that can provide access to story
3. Object should be of manageable scale so that it can be believably held by one hand in VR
4. Object should not be transparent or reflective due to the photogrammetry process limitations ⁵⁷

During my first hunt for objects I had my mentor Paul Thompson’s voice in my ears warning, as he has many times before, that ‘anything that is brought into the (rehearsal) room may end up on stage’. Searching the closets and shelves, I chose a small Victorian footstool (fig. 4.28), primarily to use as the subject for our first



Figure 4.28

⁵⁷ It has already been revealed that we broke this rule fairly early in the process.

photogrammetry test. Thompson's warning proved true, and the stool became a significant part of the *Bury The Wren* as the place from where Annie recounted her experience of the massacre, and where Annie was sitting on when she was told of her family's brutal death.⁵⁸

In our mythology, the objects chosen for *Bury The Wren* are the intimate belongings that Annie has chosen to entomb with herself and Robert. We did not restrict ourselves to any single time period when considering these objects. While I was compelled to choose objects that appeared to be antique, in order to evoke an older era, our approach to choosing objects opened up all of history to explore. If a woman who died in 1919 could tell her story through the virtual reality technology of 2019 (fig. 4.29), I felt that her unsettledness and the rupture between time



Figure 4.29 Annie holds the HMD in the final moments of a performance, engaging with the participant in CR.
© Christensen/Kates 2020

⁵⁸ Ultimately both Christensen and I believe that the photogrammetry version of the stool is the finest of all the objects re-created digitally. Perhaps that is because it took several attempts to create it, the process of which is detailed earlier in 4.4.7.

and space in her grave was so significant that she could potentially access *any* kind of object from *any era* of history. Her grave is her treasure chest of secrets, objects that are both comforting and necessarily distressing. This is why we placed the weight of the massacre on two objects (candelabra and stool) that she was obligated by unseen powers to have in the grave with her, which we subtly wrote into the script.

Continuing the search for props, Christensen and I hunted for items that would be appropriate, including any part of a human male skeleton. I believed that it was important to represent Robert Donnelly's bones in rehearsal as we began to explore the story. We found plastic bones that became a useful development tool, and, as will be explored in "[The Bone](#)", we eventually sourced real human bones from the Kinesiology department at the University. The other objects – candelabra, teapot, small brass boot, mantle clock, a red book of poems by Yeats, stool, bones, wedding dress, purple velvet scarf – were each chosen for their resonance to the story and, often, their age or tactility. Each object was imbued with power and agency, whether it was power over Annie and the inescapable grief, or as important actants and portals through which she was finally able to share her story.

4.5.3 *Rehearsal Creation*

The theater as an art form continues to attempt to make the invisible visible. We also are attempting to communicate with spirits, to receive messages from ghosts. Sometimes I find it helpful to think of a rehearsal as a seance. As with the clairvoyants, great care must be taken with the circumstances that might allow these spirits to "come-through." I have also often used the metaphor of a Ouija board for rehearsal. The Ouija is a flat board marked with the letters of the alphabet, the numbers 1-9 and the words "yes" or "no." Participants start by asking a question and then placing their fingers on a planchette, a small heart-shaped piece of wood or plastic. The planchette subsequently moves around the board to spell out words. Similarly, in rehearsal we begin with a question, put our bodies into a shared space, listen and begin to move in order to address the question.

Anne Bogart ("Ghosts")

Making theatre is an intangible thing. As Anne Bogart says, it is akin to communicating with the spirits—one never actually knows what will come to be. This is the alchemy and the magic of bringing humans, objects, technology and all of our histories, all of our potentials, all of our strengths and weaknesses into the room together.

Bury The Wren marks the first time (since a high school production of *Whale*) that I was the leader and the de-facto “director” of the piece – along with being a writer, designer, and creative technologist. Utilizing my learned methods of devised and collective creation, this work also engaged and challenged my own creative practice of digital dramaturgy, which importantly employs tools of “practice as research,” previously defined in Chapter 3. I began the performative devising stage of *Bury The Wren* contemplating the ways I had participated in making shows that were created from a central idea. Creation processes like those engaged with in *Bigger Than Jesus* and *The Last Donnelly Standing* were active, progressive and dynamic. *Bury The Wren* required me to find ways to overcome the fact that we were engaging with a mode of storytelling and a virtual environment that was going to be mostly invisible to the performer. This meant searching for the methods of adapting the devising process.

Drawing the umbilical cord from *The Last Donnelly Standing*, and desiring to intentionally engage with the live real time rendering capacities of the Unity game engine, I originally wanted, as has been mentioned, to keep the performance as an improvised text guided by ‘handholds’ to aid the performer’s path through the story. I also wanted the performer to have the freedom to choose what stories she wanted to tell based on what object she conjured. With Unity and the way the virtual objects were triggered, we had the technical capabilities to switch live between any object or effect at any time. This was a parallel to the process and performance of *The Last Donnelly Standing* where the text, lighting and video design was sketched, but

everything was different every night. It was with this idea of improvisation in mind that we began the devising process, with and without the technology.

By the time we began the theatrical devising process, the technological development and design of *Bury The Wren* was well underway with our portal objects chosen and successful tests of the photogrammetry process completed. Bringing the aforementioned objects, and Doctor Theatre the alchemist, into the rehearsal room we began the devising process. Doctor Theatre is one of the shorthands director Paul Thompson uses for the unknowable force that brings us both good and back luck – or medicine – when creating a work of art (fig. 4.30). Also in the rehearsal room was my favourite photo of Robert Donnelly, a selection of texts about the Donnelly's and



Figure 4.30 Val Planche pictured in the devising process, January 15, 2019 in the Doolittle theatre, which we used as our rehearsal hall. © Christensen/Kates 2020

specific daguerreotype and mud texture images⁵⁹ that influenced the tone and aesthetic of the production (fig. 4.31)



Figure 4.31 Two original artworks. (top) Root and dirt base image which was the inspiration for the look of the VR grave. (bottom) Daguerreotype image used in the poster for *Bury The Wren* and which served as an aesthetic inspiration.
© Beth Kates 2020

The Doolittle Studio Theatre at the University of Calgary served as our rehearsal space and performance venue. We worked in a small portion of the room, under stage lighting in order to mimic the physical constraints of the eventual performance space. Contra to what I've said

⁵⁹ These two textures are images that I created for Peter Hinton's 2015 production of *Alice in Wonderland*. They took an extraordinary amount of time to create, and I have since used them either in, or as influences in, the development of several other productions, including *The Last Donnelly Standing*?

about using tech in the room, we had no technology with us as we began. The initial plan was to bring the technology into the room, but we were experiencing several technical challenges which made it more important to leave the equipment in the lab where development could continue. This delay in being able to access the technology that was going to be playing such a significant role in the production, interestingly, was not devastating. I am deeply curious about what we can achieve when improvising story creation in VR – a fully manipulatable world – but the technology was very clear that this was not the time for that.

There are many stories, and I have my own, about occurrences – magical and supernatural – when working ‘with’ the ghosts of the Donnellys. I do not take responsibility for their memories lightly. I and others, have taken personal care to respect, honor, and pay tribute in various ways to the unsettled souls. Part of that is done through our art-making, part of that is done in other ritualistic and private ways. Given my various experiences with the ghosts of the Donnellys, it was no surprise to me to experience a technological delay that significantly altered our process. One wonders if this delay or shift wasn’t an intervention, a ‘guiding hand’ if you will, to a somewhat different process that provided access to storytelling that we may not have found on the planned path. Interestingly, in the moment of making this decision, it also was not in any way devastating. This was what Doctor Theatre and the ghosts of the Donnellys were telling us to work with, so this is what we moved forward doing. What I held, as the leader of the devising process and the ‘keeper’ of the Donnelly story, was the embodied knowledge of the technology, and a tacit understanding of what we were creating with. Having integrated technology into creation processes many times before, I was acutely aware of how different this particular scenario was, and how important my embodied knowledge of the invisible technology would be to allow the piece to grow.

The initial approach to creating the performance followed a traditional devising method of research, conversation and improvisation. In this process I would work with Christensen in the computer lab, then move to the rehearsal hall to work on the devised components with our actor Val Planche, bringing knowledge of the progression of the technological components into the rehearsal room. As a primary collaborator it was vital for Christensen to also be part of the devising process, knowing that discoveries made in the rehearsal room could potentially impact the technological development. With Christensen having to endure the long process of that development, we ran the risk of him becoming disconnected from the primary objective of *Bury The Wren*: to tell a compelling story. By being present and engaged in the creation of intention, story, motivation and physical blocking, Christensen impacted the process with his keen dramaturgical insight while also contributing valuable information about how his technological discoveries might impact Planche's handling of tracker, ideas for sound, etc. His knowledge of the rehearsal/creation process then allowed him and I to integrate conversation about the performance, and performance dramaturgy into our technological work in the lab.

This circular, integrated and transdisciplinary involvement of *all* members of the team in *all* aspects of creation represents a significant implementation of digital dramaturgy. This practice was a critical step in the successful integration of the technology, story and performance in *Bury The Wren*. The companion to this action of working with Christensen in the rehearsal hall, was bringing Planche into the computer lab to experience the VR component as it was being developed, which is detailed in the following sections.

4.5.4 *Improvising and emergent technology*

The development of the performance began with actor Val Planche in December 2018. A director, teacher, seasoned performer and experienced improviser, Planche's curiosity about emerging technology⁶⁰ and her extensive experience in devised creation, made her the perfect choice to embody Annie.⁶¹ The first steps in bringing Planche into the production was to immerse her in everything that I knew and thought about Annie, the desired tone of the piece and what I was hoping to explore. I created a lengthy document that provided detailed info about Annie and, as further source material, I provided Planche a rough draft of a full-length play about Annie that I had written to help provide her with a sense of who *I* was imagining this woman to be.

Christensen and I also shared with Planche our intentions to explore manipulation of reality and perception for the goals of storytelling. Through these conversations, Planche learned that Annie would be invisible in VR and that certain objects that were going to be 'alive' (in their digital state) and that they were the portals into the story. We spoke at length about the nature of performing to an audience that would be wearing an HMD, which would be delivering different information from the world Planche was in, as well as severing her from any performer-participant eye contact. Planche related stories about performing an immersive piece where the audience members were blindfolded throughout, and the adjustments and awareness of physicality and orality that the performers needed make in order to remain connected to the audience in that scenario.

⁶⁰ Planche is one of the few performers that I have met who has their own VR headset (c. 2019).

⁶¹ I originally had a younger actor in mind as I wanted someone who could play an instrument. After connecting with Planche, I became more and more interested in the idea of someone of an older age. After all, Annie was speaking to us from the grave; She could be any age.

I brought all the CR objects noted earlier into the rehearsal room and placed them on a table at one end of the performance space (fig. 4.32). Christensen, Planche and I began that first



Figure 4.32 Rehearsal hall set up. © Christensen/Kates 2020

day with conversation about Annie, and our respective understandings of her and her historical era. As noted, the historical research I have done into Annie Donnelly has elicited very little hard evidence of her existence. There is a marriage certificate, her signature on one family deed shown earlier in this thesis, but almost nothing else. Scouring the records at the [Glencoe and District Historical Archives](#) in Glencoe, Ontario where she and Robert lived for many years revealed no verification of the deceased baby that historian Ray Fazakas asserts existed in a poster at the [Lucan Area Heritage and Donnelly Museum](#) (fig. 4.33 below), and elicited nothing

more than a death notice of Robert and a tiny book called *Glencoe in the 1880s* by Rose Stuart which contains a very brief, first-hand account of Robert and Annie.

We also spent considerable time talking about Post Traumatic Stress Disorder (PTSD) as something that would have likely been part of Annie and Robert's life. In the research process of *The Last Donnelly Standing* we uncovered a series of medical records from the [London Asylum for the Insane](#), where Robert Donnelly was committed by Annie and his son James Michael in 1909, and from which he escaped – twice. (Fazakas “Donnelly Album”). It was at the Asylum in a conference report written by six doctors, that Robert

was “diagnosed as suffering from Melancholia Vera. A mental condition characterized by extreme depression and feeling of hopelessness and worthlessness” (McKeown “Donnelly Treatise”).

Since the time of Hippocrates, the “two most important meanings of melancholia had to do with affective disorders (mainly depressive mood), and abnormal beliefs” (Telles-Correia and Gama Marques 1). Our knowledge of Robert's diagnosis, combined with the many traumatic history of Robert's life (his father's imprisonment for murder when Robert was 7, Robert's own wrongful incarceration in Kingston Penitentiary while newly married to Annie, the murder of his youngest brother Michael in 1879, the brutal massacre of 1880, and then choosing to live in

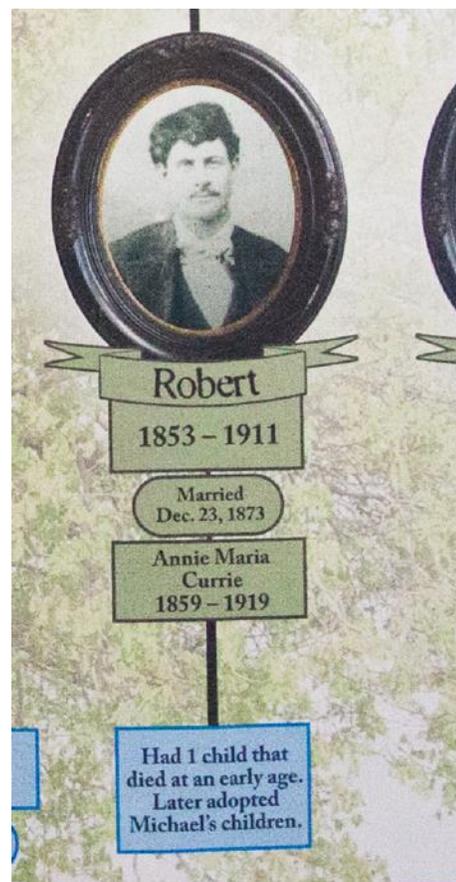


Figure 4.33 Detail from Donnelly Family Tree in the Lucan Museum.

Lucan among the vigilantes who killed his family), led us to consider that Robert would have very likely been suffering from a form of what we now call PTSD. These conversations about PTSD, depression and the role of a spouse in the care for the ill person were critical to the development of the character of Annie. We acknowledged that she would have spent her whole adulthood married to a man dealing with this illness in a time when there was not extensive awareness or support for mental health. Equally important is the fact that Annie would have been experiencing effects on her own mental health, as she also directly experienced most of these traumatic events beginning at the age of 17.

Several research questions, already stated, formed the foundations for our combined explorations into the development of the character and the story: *Why did Annie need to use VR to tell this story? How was it protecting her? Is VR the only place where she was free to share this vision of herself?* Answers were found through our active explorations and are detailed throughout the rest of this chapter and in the conclusion. We worked efficiently in rehearsal, with Planche beginning improvisations as Annie almost immediately. We quickly discovered important entry points into the stories aided by our actant objects.

4.5.5 *Presence*

Exploring notions of presence, the devising process paid close attention to Planche's embodied sonic presence and physical blocking as we worked to identify how much movement was "too much", and what story there was in her movements. When I speak about "presence," I am referring to an aspect of theory, a concise definition of which can be found in Kayes and Giannachi's article "Acts of Presence," where they write that:

presence is thus processual: a dynamic structure of intention, feeling, and perception emergent in the contextual performance and reception of the sign, rather than a quality inherent to the body, individual, or action or established in the real or illusory stabilities of a specific time and space. (Kaye and Giannachi 91)

On the second day of rehearsal, Christensen and I introduced Planche to the VR world of *Bury The Wren* (fig. 4.34). Knowing that her performance would be integrated into a virtual space she could not see, feel or share with the participant, it was essential to the creation process that Planche understood what this story world was like from the participant's point of view. The virtual world was not fully complete, but we had object tracking ready with a blue cube in VR to mimic the virtual objects. There was also a version of the AR passthrough camera ready. While Planche was in VR, we experimented with physical proximity of the performer (played by me) in order to explore intimacy between performer and participant.

The second part of our lab work involved demonstrating the switch from VR to AR, while I stood as close to Planche as I imagined she would be to the participants. This work in VR and AR created embodied knowledge for Planche about the participant experience that she could then bring back into the devising process. It also created an important shorthand between the collaborators.

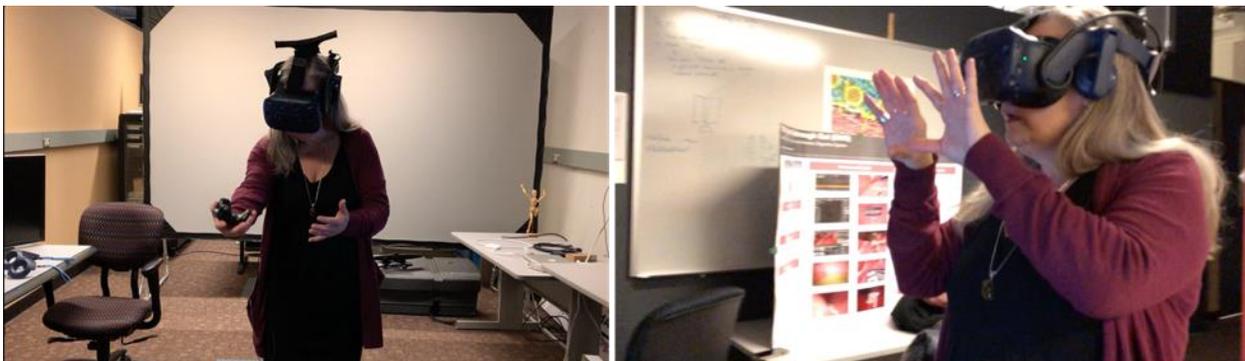


Figure 4.34 Val Planche is introduced to VR, January 16, 2019 in the Lindsay Virtual Human Lab, Calgary.
© Christensen/Kates 2020

Planche's reaction to the shift into AR, captured in our research video⁶², demonstrates the power of the sudden introduction of the real human mediated through the headset. Planche observed:

It's really beautiful, going from VR to AR. When you said: 'ok this is the transition' and you were RIGHT in front of me, that was a bit breathtaking. Which was very cool, because your eyes were the first thing [I noticed]. And then doing this [CR without the HMD on] and having that flesh experience, that colour and the detail of your shirt and your face vs the AR... that's amazing. (qtd. In Christensen/Kates "Val Planche January 16, 2019" 11:06:00 – 11:49:00 transcription mine)

4.5.6 *Dramaturgical Process: Making Theatre With Closed Eyes*

Returning to the rehearsal hall, I made an intuitive choice to shift from observer/director to participant/director which was crucial to the continued development of *Bury The Wren*. As we did not have the technology in the room, I had to imagine the VR components in order to try to understand what the holistic story world could be without my sense of sight active in the CR world. I did this by standing in the middle of the performance space with my eyes closed, mimicking the visual occlusion of the HMD. Discoveries about storytelling related to the physical placement and movement of the actor were made through close listening and being attuned to Annie's presence in these improvisations. The discoveries affected story changes and revealed new ways to engage with the objects. Explorations also revealed practical places where

⁶² The research video recorded of Planche's first experience in a very early iteration of the VR world of *Bury The Wren* is a remarkable record of a performer's embodied experience of something new, magical and inspiring. This record (stored here as part of my personal *practice as research* method) and the experience of observing and interacting with Planche are among the most inspiring and encouraging moments that happened during the creation of *Bury The Wren*. The inclusion of this video as part of this paper is in part to illuminate the extraordinary power in this switch to AR, but also to capture a 'first time' experience with an articulate user and the immediate impact that it had on our performer-collaborator.

more words, pauses, music or movement were required in order to allow Planche to move or retrieve objects in a way that provided her time and space to tell the story well.

Christensen was occasionally the participant, which meant I could sit outside the ‘action’ and observe ‘traditionally.’ During these instances I expanded my method of noting blocking and the shifting of various realities into the form of a play text. ⁶³

In the participant/director mode it was impossible to take physical notes as a director traditionally would. I had to employ several mental processes at once being both participant and creator. It was helpful that I did not also have to also mentally process the VR components, but could focus on my senses, my experience, the presence of the performer and the story. I intuitively knew the only way to help move the piece forward as an “effective dramaturgical presence” was to shift to the position of participant/director. In his article *Navigating Turbulence: The Dramaturg in Physical Theatre* Bruce Barton supports this (critical) act of integration, writing that, in devised creation, “the potential for deep dramaturgical insight” may only be found in “surrender of the safety of physical and imaginative distance and by means of a fundamental relocation to within the spatial, rhythmical, and conceptual site of collision” (Barton 112).

Relying on my recall, conversations with Planche and Christensen after improvisations helped to examine critically what I had experienced. These recall-conversations are a form of bearing “immediate witness” that, as Bruce Barton asserts, is a key “effective” dramaturgical action in devised creation and the “embodies the fundamental tenant of communal objectivity

⁶³ It was in these moments as an observer that I noticed it was just as fascinating to watch this performance as to be inside it. This was emphasized by responses from participants who also got to watch the performance from the outside as part of the research project. I am not able to explore this in depth in this thesis, but I highlight it as an important and intriguing result of this case study.

within the collaborative unit.” It is “through the commitment of its intimate attendance” that the witnessing “embodies the fundamental tenet of communal objectivity within the collaborative unit” (“Navigating Turbulence” 112).

As with most devised creations, being in the middle of the development process makes it extremely hard to maintain a critical distance. While I would often require time after rehearsal sessions for reflection and notetaking, I also needed to be able to respond from within the moment, just as Planche did from within her place as performer. This important “element of self-examination” in collaborative work “continually encourages reflection” on the contributions of oneself and others in the process (Barton, “Navigating Turbulence” 114).

Shifting to participant/director and keeping my eyes closed altered understandings of the story and how to tell it. Through my observations we discovered that when Annie (invisibly) stood in front of the participant and spoke about Robert, their courtship and his “blue eyes,” it created such an enormous emotional impact that I felt like *I was Robert* standing there. When we began rehearsing in VR, I became even more aware that I was not an avatar and, in the absence of an avatar I re-aligned my point-of-view to associate with the evoked character. The ability to reconfigure the ‘casting’ of the participant with blocking and sonic direction is a powerful tool in this form of mixed reality performance. The lack of avatar or dynamic gamification (like flying, magical portals, etc.) provides the participant an opportunity to disappear into the story. I was with Annie, in a warm and muddy place, but she was also not there, and yet she was with me in carbon space. We were both virtually absent – absent from the virtual world – and yet physically present in the carbon world.

John Parry Barlow described his experience of being in early VR as feeling as if “all of me is amputated” (qtd. In Hayles 1). In my experience, I did not feel absent because I knew

Annie was talking to me through the spatialized placement and direction of her voice and her gentle physical contact. I did not feel like an interloper, observer or an ‘other.’ (I felt like me, and not like me.) However, my experience in the virtual world was not one of complete disembodiment. This is something importantly echoed by several participants, one of whom observed that “I didn’t lose connection with my body in this experience unlike when I play video games or surf the internet. I was totally aware of my body and my breath the whole time” (Participant 017). Only one participant noted any sense of disembodiment. A first-time user of VR and AR they described not being able to see their hands as “a little strange” (Participant 032).

VR trailblazer Char Davies highlights this “paradox of immersive virtual space” noting that “the *immersant* feels embodied and disembodied at the same time” (Davies 71, emphasis mine). I suggest that a distressing ‘amputation’ from the self was also avoided thanks to the *grounding mechanism* in the Vive Tracker, which provided much the same effect as the sand and the lantern/tracker-hybrid did in *Blue Hour*, examined in Chapter 2. Annie’s live voice and presence (heat, breath, sound, imagined weight, energy and spirit) also grounded me as being present myself. These are important grounding principles to keep fore of mind as performance makers continue to explore these emerging technologies.

Closely observing the participant body in “immersive virtual space,” Char Davies notes a particular concern with the “immersants” sense of their own body (Davies 70). Davies’ insight from the very early days of VR provides context for what I experienced in *Bury The Wren* and supports my hypothesis that VR can provide us with deeper engagement with story worlds.

Davies writes:

My concerns with the body in immersive virtual space are not with its objective representation, i.e. how it is perceived by others, but rather how the immersant's mind and body are subjectively felt, how the immersant senses his or her own interior body as a centre-of-being within immersive space. *By its very nature, immersive virtual space invites fullbody kinaesthetic exploration, leading to deeper engagement than that involving just the mind.* (Davies 71, emphasis mine)

Our careful crafting of the “kinaesthetic” experience of *Bury The Wren*, coupled with the decision to not gamify the experience, helped to convey a sense of physical and psychological stability. With Annie's welcome at the beginning of the experience we are assured that we are safe, that the ground is not going to fall away and that zombies are not going to attack. Establishing this trust with the participants was extremely important for me, particularly knowing that many would be unfamiliar with, and perhaps even afraid of, being in VR. I did not want fear to damage the participants experience of the story.

I do wonder if those participants who are big gamers were expecting something more extreme to happen. There is nothing concrete in the collected research data that suggests this or indicates that the twelve self-identified gamers were in any way disappointed or dissatisfied with their experience. There was one participant who noted that the least “entertaining” part of the experience was when there were “no changes to the environment” (Participant 20). The other resonant observation from a gamer participant noted that their expectations of VR immersion was centred around “being in another place that isn't ‘here’ ... like being in a video game” but that their experience in *Bury The Wren* helped them to “realize it [VR] can be used for connecting with someone and understand something that might be more difficult in the tangible,

real life plane” (Participant 25). While far from conclusive, these observations provide a glimpse into gamers’ expectations, and indicate that they may be more likely to be more accepting of these experimental cyborg forms of theatre.

I believe the careful crafting of the trajectory from CR into the VR world of *Bury The Wren* assured most participants that nothing unexpected was going to happen. I suggest this is an important aspect of caretaking to remember for future performances that engage with VR. All immersive performance, as Biggin, Alston, White and others have noted, has enormous potential to manipulate the audience and must be considered ethically. VR, with its profound immersive capabilities and impact on our perception and cognition, is an even more powerful tool of manipulation. There is significant potential to craft an environment that fools the participants into a state of comfort only to completely abuse that trust later on. This potential for manipulation means that makers must consider the caretaking and safety of our audiences as we develop work in this form.

4.5.7 *Yeats, the red book, sonic presence, blocking and the process of discovery*

Creating this affective experience happened quickly and contained a number of “happy accidents” prescribed by Doctor Theatre. I had chosen a W.B. Yeats poem called “[The White Birds](#)” for inclusion in my other play about Annie and my intuition told me that bringing Yeats into the *Bury The Wren* creation room would be useful. Having chosen a book as an object to be used in CR and VR, Christensen already sourced a lovely 3D model of a gold embossed, red book—we just did not yet know how we were going to use it in VR or in performance. Incredibly, the copy of the *Collected Poems of WB Yeats* I later found in the library was a gold embossed, red bound book.

During our second day of rehearsal, Planche chose to read from book. In the alchemical, ‘magical’ way Doctor Theatre appears in the rehearsal room, the book, which I had not previously looked at, opened immediately to page 46 which is shared by both *The White Birds* and a poem called *A Dream of Death* (fig. 4.35, see the performance text in [Appendix A](#) for the complete poem). I closed my eyes as she entered the space while reciting the poem, listening to her voice as she moved in a large circle around me, growing ever closer. The latter poem’s vivid description of a woman being buried in solitude evoked images of entombment, wood, trees and a “strange place” (Yeats, “A Dream of Death” 1), making the thematic relevance immediately apparent and moving. Just like that, we had found our beginning, with my eyes closed.

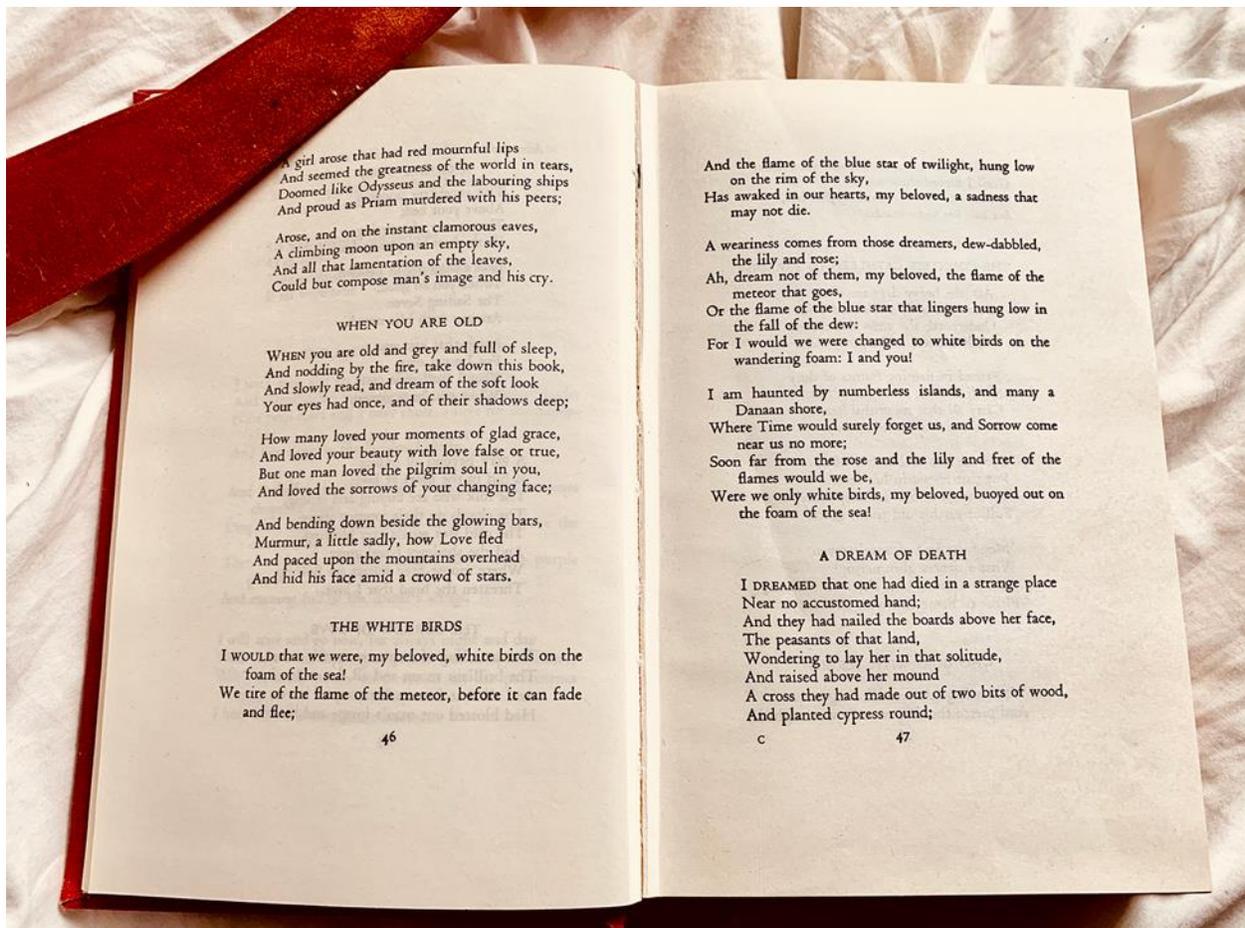


Figure 4.35 Photo of the collection of Yates poems described above, noting that "The White Birds" and "A Dream of Death" share the same page. © Beth Kates 2020

Reading *A Dream of Death* again, Planche this time circled closer to me, my eyes still closed. There was an instant intimacy with her voice and an even more palpable sense of her presence emerged. Exploring the possibilities of the sonic presence of the voice, we experimented with distance from the participant and speed of movement. These experiments quickly revealed that sonic presence was a powerful tool in the crafting of our storytelling. The impact of this is highlighted in a participant's reflection where they noted that "[s]onically, physically ... in a strange way the disembodied voice seemed easy to follow in space" (Participant 14).

From these experimentations, Christensen and I decided that we would begin the VR experience in black to direct the participants full attention to Annie's voice and presence, and that the book would be the first object to magically appear in VR.

As the design of the virtual grave progressed, the poem influenced aesthetic choices as we continued to find visual-thematic connections with it. The fact that the book opened to this exact page is one of those thrilling moments in a creative process that cannot be explained, simply reveled in and marveled at in the moment and in reflection.

4.5.8 *Producing a Text, Shifting Performers and Dramaturging for VR*

As previously noted, the original intent was for *Bury The Wren* to be an improvisational performance with Val Planche in order to explore the potentials of that reactive performativity with of the real time rendering capabilities of VR. However, due to various circumstances, Planche was no longer able to perform the role, and we needed to abandon the improvisation approach and prepare a written text for incoming performer Valerie Campbell. With the outlines of the story in place, working from memory and notes, Planche and I wrote down the text that

had been generated. The collaboration of Christensen, Planche and I was dynamic, positive and incredibly productive. In less than 12 hours of devising we had a working script and the first ‘sketch’ of blocking and object manipulation. Theatrical alchemy.

After a performance by Planche for Campbell where she also ‘watched’ with her eyes closed (fig. 4.36) – Campbell and I began the process of slowly working through the script and doing many of the same tasks I did with Planche around Annie, exploring her history and what kind of story we were aiming to tell. The text work allowed us to refine the language⁶⁴ and focus



Figure 4.36 Val Planche performs for Val Campbell in the Doolittle theatre in January 2019. © Christensen/Kates 2020

⁶⁴ Planche’s Annie was more foul-mouthed, inspired in part by a version of Annie I had created in different full-length text. Focused more on the 1880s, Campbell refined the language, removing the cursing.

intently on the text dramaturgy, identifying points that were confusing, exploring individual words and excavating the intent behind the words. As a result of this work, a second draft of the text was produced, which is what we entered rehearsal with.

Rehearsal with Campbell happened primarily in the computer science Lindsay Lab, so that we could engage consistently with the technology. These rehearsals required enormous focus as the lab is a noisy open concept office space – small, brightly lit, and filled with desks.⁶⁵ This crucial step of integrating traditional rehearsal methods and technological modification created an intermedial and transdisciplinary working scenario that required adaptation from each member of the team. Campbell did an incredible job of maintaining focus in a compromised physical space, running the emotionally charged performance repeatedly over the noise bleed of loud conversation.

In *Presence and Perception: Analysing Intermediality in Performance*, Liesbeth Groot Nibbelink and Sigrid Merx assert that “intermediality allows for particular ways of structuring the stage, employing aesthetic strategies such as montage (spatial, simultaneous) and collage, doubling, difference, framing or interactivity.” Within this structuring of the stage is “the dramaturgy of spectatorial address: the structuring of the encounter between the stage and the spectator,” which became increasingly important to the process (223). *Bury The Wren* requires the audience to be both a passive observer and very active as they engage with the object portals and create the virtual space with their gaze inside VR. The audience experience and importance of audience “orchestration” became part of the focus of our dramaturgical work (Benford and Giannachi 63). Our dramaturgy of ‘spectatorial address’ within this mixed reality context

⁶⁵ I would love to digress into the design and architecture of CPSC spaces and how they could be re-envisioned to be much more creative workspaces.

required us to engage with digital dramaturgy approaches so that we could examine the relationships between text, object, story, narrative, presence, design, aesthetic, sonic elements, technology, interactive interfaces and the audience experience. This complexity is reflective of all mixed reality performances as Groot Nibbelink and Merx state, but it is particularly heightened when engaging with VR.

I was fortunate to be able to engage Brittany Pack and Zachary Scalzo, two student dramaturgs, as we continued development with Campbell as Annie. Conversation, text analysis and active experimentation followed each dramaturg's experience as participant. For those outside VR, we were limited to watching the physical interaction, observing the VR on a monitor and asking questions of the participant and performer. These external observations allowed us to engage in a collective dramaturgy of the experience. For example, I created blocking for the performer externally that we were then able to revise thanks to the embodied observations and reactions of the dramaturg in VR. Using a method that we all found very useful, the participant would often speak out loud, while in VR, about something they were experiencing in the moment (i.e.: "I feel really disoriented now"). This highly productive method of participation, observation and conversation often lead to alteration of text, object or performance in order to strengthen thematic connections and ground the storytelling and participant experience. Employing this practice required adjustment and flexibility on the performers part in order to overcome the disruption of the 'out-loud-in-the-moment' dramaturgy.

These explorations into how to direct the participants attention resulted in significant changes to the text, of which five versions were produced. Following is an example of some changes that were implemented around directing attention to the teapot:

...oh! You can't see the colour!

(The object in the participants hand changes to a full colour teapot.)

This, THIS teapot is the color of my dress. Cream. So elegant.

The yellow is the yellow of my flowers. I had beautiful flowers. Roses.

The green reminds me of the fir boughs scattered through the church. You could smell the pine.

Jenny, Robert's sister, had pink shoes. Just like the pink flower. She loved those shoes, all shoes! My wedding shoes were cream, not my regular brown boots that hurt my feet.

The orange, the glow of the candles and oil lamps. It was so warm and Christmassy in that tiny church.

(pause. Remembering.)

The blue. Oh... This is the blue of Robert eyes. (Bury The Wren VR: Version 1C, emphasis added)

Through our experience of this moment in VR, Pack, Scalzo and I identified a need for the performer to direct the participants interaction *with*, and attention *to*, the virtual teapot. I replaced “the” with “Look at the” to make it a more active direction of attention. As a result, the participant experience became more connected with both the object and the story that was embodied in the object. This also served one of our greater goals of integrating the technology into the storytelling, as it ensured that the participant would engage with the virtual object in a meaningful way that held more than simple curiosity about the technical element. *Active direction* sits in relationship to modes of manipulation in immersive theatre and Benford and Giannachi's concept of “orchestration” in mixed reality performance as the “counterforce that monitors” how the audience is interacting with the performance and “pushes them back toward the scripted route” (224). This valuable discovery of *active direction* was then implemented elsewhere. Many of the discoveries surrounding Campbell's blocking were thanks to the observations made by Pack and Scalzo (fig. 4.37 below).

Throughout the process we continued to uncover the complexity of the participant in the virtual world, experimenting with the dynamic between performer agency, object agency, and participant agency within storytelling. *Virtuality* and the alteration of perception using VR and AR is the root of inquiry in *Bury The Wren*. Theatrically, *virtuality* “occupies a crucial space between what is imagined and actualised, between potential and realization [It] suggests an



Figure 4.37 Dramaturgs Brittany Pack (top left) and Zach Scalzo (top right) making observations with Campbell and Kates in the Lindsay Virtual Human lab in March 2019. © Christensen/Kates 2020

indeterminate status between the potential of the performance and its actualization” (Bay-Cheng, “Virtuality” 142). Noting the “open-ended possibilities” of the virtual to make the “viewer’s perception and participation ... essential components of virtuality,” Bay-Cheng goes on to emphasise that this essentialness expands “theatre’s historical interactivity between audience and performance” and that “*virtuality deepens this relationship* by relying on the viewer for the performance catalyst” (Bay-Cheng 86, emphasis mine). In *Bury The Wren* the participant’s interaction with the virtual and the impact that interaction has on the performance and the participant’s own emotional connection to the story was a primary focus. As the development of *Bury The Wren* progressed, we witnessed and experienced this deepening of relationship.

4.5.9 *Key Transitional States, Portals and Trajectories*

In *Performing Mixed Reality* Steve Benford and Gabriella Giannachi propose the term “trajectories” to describe the “itineraries” that carry participants through a mixed reality experience, indicating the “primary means by which to experience a mixed reality performance environment consists of the trajectories of paths of observation and experience that facilitate one’s route through it” (15). Within the various trajectories that comprise a mixed reality performance there are key transitional states where “continuity of experience is at risk” (267) and so the trajectories must be carefully managed to overcome these moments. Ranging from ticketing and queueing to the “(re)exchange of equipment and personal possessions” (232), key transitional states include “beginnings, endings, role and interface hand-overs, real-virtual traversals, managing access to physical resources, and dealing with so-called ‘seams’ in the underlying technical infrastructure” (267).

“Continuity of experience” is an important component of integration (Benford and Giannachi 267) and disruptions to the continuity bring focus to the transitions and/or the technology and create barriers to integration. We viewed and crafted these transitional states in *Bury The Wren* carefully and worked the technological transitions into the narrative and story.

The most significant transitions (for the participant) in *BTW* are:

- Entering the venue
- Entering performance space
- Entering VR
- Receiving Vive tracker and first virtual object
- Shifts from virtual object to a different virtual object
- Swapping of VR candelabra to CR candelabra’

- Shift from VR to AR (Tron land)
- Removal of VR HMD in AR mode and transition into CR world
- Exiting performance space

Bridging the multiple *key transitions* and *interactional trajectories*, covered in the next two sections, required careful dramaturgy of all the elements involved in *Bury The Wren*. The considered creation of the trajectory through transitional states is one of the keys to design and technological integration in performance and helps to ensure that *affect* remains primary over *effects*. The following section will detail the crafting of the critical transitional states from carbon reality into virtual reality and the gentle and gradual way we attempted to bring the participants into the VR storyworld.

4.5.10 *Interactional Trajectories, Tangible Interfaces and Plausibility Illusion*

In mixed reality performances participant trajectories, guided or implicit, through these key transitional states provide a necessary “sense of continuity” to help guide the participant through the experience. Benford and Giannachi warn of the “danger that participants will be overwhelmed and confused” by the multitudes of directions and interfaces that can be implicated in a mixed reality performance (231). Asserting that the challenge of the “complex hybrid structure” of mixed reality work makes it critical to “design an overall trajectory[...]that establishes and sustains a sense of coherence that enables participants to make meaning from their experience” (231) they identify several different types of trajectories encompassed within this theory. Of particular relevance to the technodramaturgical and digital dramaturgical construction of *Bury The Wren* is that of “interactional trajectories,” which Benford and Giannachi define as the “the structures of interfaces in mixed reality performance [that] form

complex and hybrid ecologies” (117). While we embraced technological “seams,” as Paul Thompson would encourage, we also devoted rehearsal time identifying key transitional states and exploring the “interactional trajectories” within *Bury The Wren* in order to overcome or augment unwanted ruptures in the experience.⁶⁶

The exchanges when the participant first receives the HMD before they enter VR, and later when they receive the Vive tracker during the performance, are both a critical interactional trajectory and key transitional state. The tracker is the interface that each virtual object is mapped to and is delivered by Annie, looking like a picture frame in VR (fig 4.38). The effectiveness of this particular “interactional trajectory” was specifically highlighted by Participant 002’s observation that the “[h]andling of the controllers of the



Figure 4.38 A screenshot of the virtual picture frame.
© Christensen/Kates 2020

objects... was done very gently and felt like part of the story.”

Benford and Giannachi describe physical artifacts that are embedded with “digital information and computation” as “tangible interfaces.” As they note, mixed reality performances often create “hybrid artifacts” that create a “bridge between digital information and physical

⁶⁶ A specific instance of this was when we attempted to create an animated transition from one virtual object to the other to try and avoid the abruptness of the split-second hard switch. The animation actually drew more attention to the fact that we were switching objects, creating significant distraction for the viewer. Hence, the experiment was abandoned.

objects and so fold seemingly opposite worlds into one another.” These tangible interfaces “allow for *tactile* and therefore *tangible* experience of the interweaving of physical and digital data” (122, emphasis original).

The tangible interface of the Vive Tracker modified with “The Apple” does not feel like a picture frame. However, in the moment when the tracker is first handed to the participant, there is an instance of what I call reality dissonance. The weight and shape of the modified tracker seem to trick the mind into associating that weight to the digital object. This “illusion that what is apparently happening is really happening (even though you know for sure it is not)” (Slater 13) is what cognitive scientist and VR researcher Mel Slater calls the “plausibility illusion” (8). Slater’s work here is compelling and could fill many pages of this thesis as I try to grapple with what makes things feel ‘real.’ Slater asserts that there are two “components that contribute to this realistic response. The first is ‘being there,’ often called ‘presence,’ the qualia of having a sensation of being in a real place. We call this Place Illusion (PI). Second, Plausibility Illusion (Psi) refers to the illusion that the scenario being depicted is actually occurring.” In both these instances “the participant knows for sure that that they are not ‘there’ and that the events are not occurring.” Slater continues, stating that “Psi is determined by the extent to which the system can produce events that directly relate to the participant, and the overall credibility of the scenario being depicted in comparison with expectations.” He argues that “when both PI and Psi occur, participants will respond realistically to the virtual reality” (Slater 1). This is helpful in trying to understand what occurred with the haptic exchange in *Bury The Wren*, as I believe the PI and Psi that appears to have occurred is actually critical to maintain affect over effects.

In the case of the Vive Tracker and our modification, the intention of this “hybrid artifact” is to deliver the mixed reality content while providing the participant with a sense of the

object it is representing. “The Apple” modification, which exists as an attempt to overcome the technodramaturgical deficiencies in the tracker’s affordances (shape, weight) transforms the tracker into an affective (and effective) tangible interface. The weight of the interface creates the perceptual slippage, or plausibility illusion, of the virtual object as it is encountered by the participant. One participant highlighted the effectiveness of the modification by noting that the controller that held the “virtual objects actually felt like handling the real object” (Participant 002). Another participant noted the controller as well, but stated that there was “mental overhead of the tracker and being aware of that as an object [that created a] disjunction between what I was feeling and seeing” (Participant 024).

4.5.11 Developing the Transitional State

An experience actually begins with the first point of contact.

Benford and Giannachi (232)

Returning to the idea of the key transitional state – I would like to examine the first point of contact for *Bury The Wren*: A non-descript hallway at the University of Calgary outside the performance venue. This key transitional state could not be modified dramatically. Requiring a place for participants to sign research waivers and fill out the first survey, I designed a small, comfortable waiting space outside the venue that contained a round café table covered in a damask tablecloth and two Victorian chairs, chosen to evoke a sense of occasion and period, and displayed interpretive information about the show (historical photos, bios, etc.). The venue usher was also seated on a small Victorian chair. All this combined to create an intentionally different

space from the homogenous University hallway, providing waiting participants with a welcoming space to inhabit.

Escorting each participant into the venue, this second transitional state was designed very carefully and with more control over the location. Warmly and dimly lit, we attempted to offer a welcoming environment that reflected the world the participant would enter into in VR. Irish influenced upbeat folk music played softly, sung by a female voice. The 10' x 16' x 8' grey fabric 'box' of the performance area was

placed in the middle of the room so that all the participant could see was the fabric.

Black masking was hung next to the performance fabric to create backstage and dressing room space. A large banner poster of *Bury The Wren* (fig. 4.39) stood between the entrance to the venue and the performance space, also gently lit. A small round table covered in a cream damask tablecloth with a Victorian chair held a laptop computer (for survey 2) and a vase of yellow roses. In the left corner, white fabric hung from the ceiling and white canvas was

placed on the ground creating the area where

we took the “research” photo (detailed in “[Virtually Carbon](#)”) and where the participant was introduced to Christensen who measured their pupillary distance for necessary adjustments to the



Figure 4.39 Stand up banner poster placed inside the venue.
© Christensen/Kates

VR headset. Once those steps were completed, we left the participant to fill in the survey, allowing them ample time to settle into the space and the rhythm of the room. The orientation and design of the room made it so that I could execute all my pre-show checks of the technology as well as connect with Campbell without ever disturbing the participant. It was a meditative and welcoming transition space.

Offering this key transitional space was a critical step in being able to gradually move participants out of the CR world and into the VR world fluidly and without an acute or distressing shift. The choice to create this space was shaped in part by my experiences in the designed key transitional spaces before entering VR at *Violette* and *Blue Hour* (featured in Chapter 2). The transitional state before entering VR is rarely considered. I have experienced presentations of VR artworks in boardrooms filled with multiple works (Banff Digital Summit), in computer labs, or in the middle of busy exhibition grounds (PQ2019), all with little or no attention to the transitional state in and out of VR and consideration of noise bleed from the carbon world. The experience of suddenly entering the VR space right out of the natural world is abrupt and disorienting. When it can be in any way controlled, this space must be considered dramaturgically with even more gravitas than a traditional theatre lobby space. I suggest that theatre makers are uniquely knowledgeable of the importance of a transitional space, especially those makers who have created immersive or site-specific work. The importance of crafting this transitional space is reminiscent of carefully considered preshow states in traditional theatre that are crafted as a vital ‘entry point’ for the audience into the world of the play. I think of the preshow state of *Bigger Than Jesus* where we had, through the careful implementations of music, light and set design, created a ‘feeling’ in the theatre of reverence and peace. Manifesting these feelings in the audience was a vital piece of the play and I spent 10 years on tour (as the designer

and stage manager) attempting to preserve these 15 minutes of sanctuary from the invasive ‘pests’ of preshow announcements and raffle ticket sales that threatened to destroy the ‘church’ of our key transitional state.

The first transitional state of *Bury The Wren* continued to be revised during the performance process. Initially participants entered into the space under fluorescent light, and it was changed to the warm dim state described above while the participant was in VR. The intention was to make the participants experience of the space, when they exited the head mounted device (HMD), dramatically different from when they started. On the third day of performances I came into the venue early and had a realization that we had the potential to make the first moments of the experience more transformational and compelling (and less ugly). We were missing out on the full potential of our first transition state. Alone in the space, I altered the lighting so that it illuminated the lobby space warmly and the photo area accurately and I created



Figure 4.40 Mysterious preshow look. © Christensen/Kates 2020

a

mysterious preshow look inside the performance area (fig. 4.40). Now when the participant was led into the performance area only the futuristic looking Vive Pro HMD was illuminated. The dark setting also which practically helped the Vive Tracker to be hidden in the room, allowing it to maintain its connection with the lighthouses and overcoming a technical issue we were struggling with. This is another instance of digital dramaturgy in application.

4.5.12 VR and CR Space development process

The development of the performance space (the grey fabric “box” nestled within the Doolittle Theatre) and the virtual space was influenced by the symbiotic relationship with the technological requirements of the VR system. From the point at which we knew that we would be in Annie’s grave, we began to explore aesthetics and dimensions of the virtual space. This required building the virtual grave in an iterative manner, as described in section 4.2.8 “Performance Environment”, requiring us to go in and out of VR to ensure that the space was not too big or too small. Knowing that we were aiming for a 15-minute VR immersion, it was important that the virtual space did not feel claustrophobic. Annie’s grave was not to be a coffin-sized grave, but it was important for it to feel intimate.

Not content with just the mud walls creating our VR space, Christensen and I added the Easter eggs of a skeleton and an apple. The apple is a nod toward the Donnelly mythology, referencing an eyewitness account from the boy that survived the massacre. The boy, Johnny O’Connor, stated under oath that on the night of the massacre “we fed the horses and did the chores; we came into the house and eat some apples” (Fonds). The apples are a tiny, human,

historical detail that has become part of the Donnelly myth and appears in several plays.⁶⁷ There are two other instances of apples in *Bury The Wren*; as previously noted, I named the Vive Tracker modification “The Apple” and use a CR apple as a grounding mechanism at the end of the performance.

The placement of the virtual apple and human bones in the VR grave was revised as we rehearsed with Val Campbell. Initially Christensen placed the skeleton bones (fig. 4.41) in front of the participant (based on their starting position). This meant that, unless the participant reoriented themselves, they would be facing it directly from the beginning of the show. Their position in the grave ultimately featured the bones, and, though my immediate reaction was to move them, I contemplated their position (chosen by Christensen) for a while to see if their presence provided any kind of unexpected collision with our story. After several rehearsals with

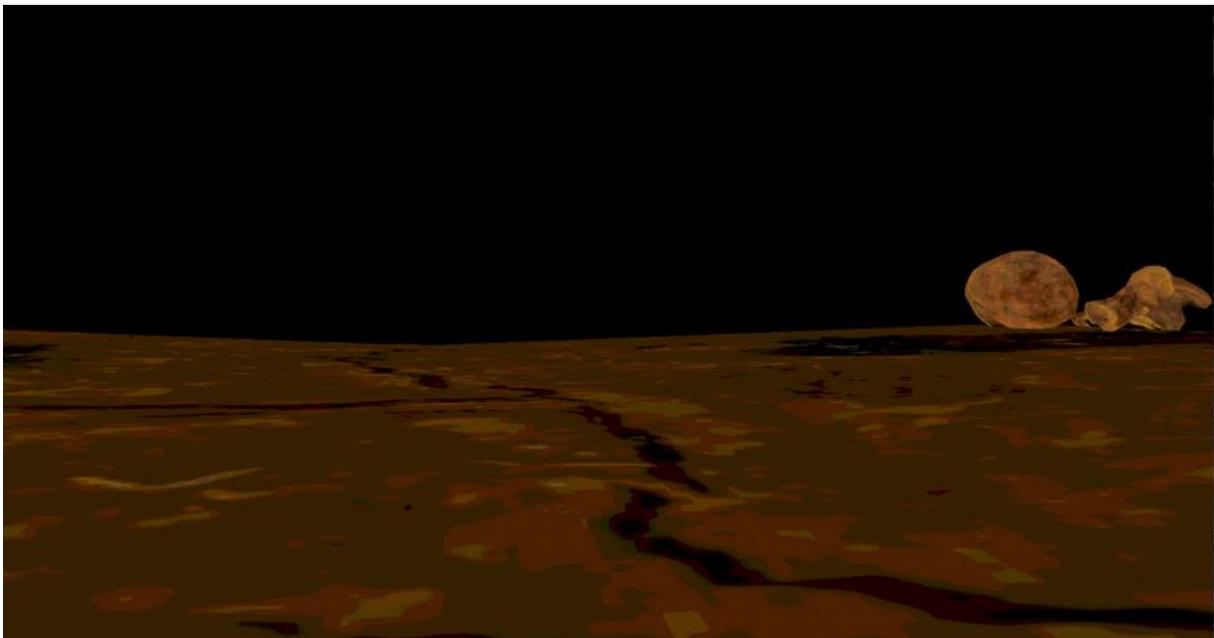


Figure 4.41 The bones visible in the virtual environment. © Christensen/Kates 2020

⁶⁷ I also knew that the whole “apple thing” irritates Paul Thompson – so I put it in there to bug him a little.

the bones in front of me, I eventually decided that they were far too prominent and interfered with the storytelling. We moved them behind the participant position, which meant that they might only be discovered if the participant decided to explore the grave. The apple too was placed out of sight of the originating eyeline of the participant.

Christensen and I continuously modified the diffuse environmental lighting and the multiple layers of textures on the mud of the grave until the environment felt like it held the right aesthetic, tone and presence. This involved moving from workstation in Christensen's office, to auditioning the texture in VR in the lab, and back to the office, and so on. This process felt very similar to the iterative process in a traditional theatrical set design process with visits to the carpentry or scenic paint shop while the set is being built, or like the process of a theatrical video design, where content gets created on one system, is then auditioned and moved to the actual venue and media server system, and is then returned to the creation system for modification, and so on until one runs out of time (or gets it right).

The mud texture we saw on the computer monitor was very different from what was seen and felt in VR. This is another parallel to the traditional theatrical design process, where even 3D rendering and detailed paint samples cannot adequately express the completed presence of the entire set. This made going into VR a crucial step in the process to know if we had captured and created the "right" feeling for *Bury The Wren*. Though, in our process, there was a lot of back and forth from system to system (a process that can be streamlined with different system designs), the various softwares utilized in designing the virtual space offers incredible flexibility in whole-world modifications that can be executed with ease. This is a significant departure from designing in the traditional theatrical space where modifications on a large scale are usually impossible due to time and resources.

Ultimately, without engaging in the full performance, it was challenging to assess affect over effects here. Using intuition and my knowledge of scenography and direction of attention the version we left the Lindsay Lab with was very close to version we used in performance.

4.5.13 The CR Performance Space

In the crafting of a scenographic design for the theatre, knowing the usable space that a design can inhabit is a key starting point for the designer. In this case, we also had to consider how we were going to use both the virtual and physical space, separately and together. The grey fabric performance space, built within the venue (see figure 4.1.1 for the groundplan), was heavily influenced by the technological limitations and requirements of the VR system (detailed in 4.2.1). Taking the technological dimensional parameters into consideration, we aimed to match the physical room size and the virtual room size so that there was a nearly seamless spatial shift when the participants entered VR. As one of the goals was to experiment with space and the perception of space, we wanted to silently alter the physical performance space while the participant was immersed in VR. We intended to change it around the participant invisibly, so when they exited VR they were in the same geographic location but the environment had fully changed. What they would see is a space now inhabited by, among other things, the carbon real objects that they had just experienced virtually. This modification had to be done simply, and by one stagehand. The virtual space was therefore designed to be slightly smaller than the CR space, which allowed for distance between the virtual wall and the CR wall providing a gap to place the CR modifications (detailed in the next section) in a safe area should a participant decide to wander to the edges of the virtual space.

The entry into the performance space was a key transition and the first interactional trajectory for the participant with the introduction to the “magical device” of the Vive Pro HMD (Benford and Giannachi 64). As part of the goal to ensure that participants did not experience VR sickness in any form (nausea, dizziness, vertigo, etc.), Christensen and I decided that a planned but unscripted preamble would be necessary. I guided the participant through how to put on the headset and our safety precautions, assuring the participant that they would not be asked to do anything extreme or be moved around. I let them know they were welcome to move around the space and that a performer would be joining them in the room shortly after they entered VR and would lightly touch their arm or hand at times. Finally, after letting them know that it would be black when they entered VR and that they would be retrieved from the performance space after the end of the show, I helped the participant on with the HMD. I then silently moved the video camera that was documenting angle 2 into the room while giving the final reminders to remove the headset if they felt any discomfort. On cue Campbell entered the room as I exited quickly back to the control booth where Christensen and I were operating the lighting, sound and VR. The participant was now safely on their VR journey, continuing their trajectory into our story world.⁶⁸

⁶⁸ A point of consideration for future projects are designing ways to overcome the need for the ‘attendant’ or the host of a VR piece. Until we have widespread adoption, I don’t think it will be possible. It is therefore necessary to consider instruction when we are crafting XR performance work, and how it will fit into the dramaturgy of the piece. In *Bury The Wren* I tried to make it friendly and casual – aided by the fact that I knew 75% of the participants personally. We did discover that we would have benefitted from some form of pre-show check for the participant once in the HMD to confirm they were seeing everything properly.

4.5.14 *The VR story world of Bury The Wren: Beginnings*

As the participant enters the completely black VR world the sound of a fiddle playing Niel Gow’s [Lament for the Death of his Second Wife](#)⁶⁹ echoes in the theatre’s surround sound system. A female performer enters the space, reciting W.B. Yeats’ “[A Dream of Death](#).” A red book embossed with gold appears in VR, spinning at eye level (fig. 4.42)⁷⁰. Unseen and unheard



Figure 4.42 (left) Annie Donnelly (Campbell) reads from the book of Yates. (right) A screen capture of the red spinning book. © Christensen/Kates 2020

by the participant, a technician silently brings the following props into the room⁷¹: A small antique table laden with a teapot, picture frame, clock, candelabra and apple; a chair with a white heavy silk wedding dress, a male thigh bone and a purple velvet scarf on it; a small stool; a muslin bag filled with human male bones (figure 4.43 below). At the same time, over 30 seconds, a room made out of mud (floors, ceiling and walls) appears in VR.

⁶⁹ The version we used was called [Slow Air](#) and performed by Anna Ludlow. After a preview, U of C student Lizz Windnagel sent me a message asking if using a piece of music invoking a lament of a wife was intentional. This was what brought me to the correct name of the piece of music and another “happy accident.”

⁷⁰ A short video of the book spinning in the mud environment can be [seen at this link](#).

⁷¹ A video walkthrough of the room can be [seen at this link](#).



Figure 4.43 (right) The performance space fully populated with props. (left) detail of the skeleton and wedding dress.
© Christensen/ Kates 2020

The participant cannot see themselves or the performer; They are both virtually absent. As the performer finishes the poem and closes the carbon real book she is holding with a muted thud, the virtual book simultaneously falls with a thud. Employing the [physics engine](#) in Unity (the algorithms that can be attached to objects to give them “real-world” reactivity using the principles of “real-world” physics), when the book fell to the floor and bounced “realistically,” it landed in a different place each performance as it was triggered to fall only when the performer closed the book.

The music continues to play, and the performer, now standing invisibly two feet in front of the participant, begins to speak:

“You’re here! (exhale) Good. This is my grave. Our grave. Robert and I. The grave of a Black Donnelly. A real one. (whispering) One they didn’t get. (laughs softly) Sorry. I’m Annie – Donnelly... You haven’t heard of me, no one has. I am invisible.”

Here the music begins to fade to nothing.

I erased us. I thought that might work, bring rest. Us. Enclosed here. Our bits and pieces. But. I’m just – absent. From the story. (She moves far away from participant with the tracker). **I** have been erased.”
(*Bury The Wren VR*: Version 2C, emphasis original)

“Look” she says as the first virtual object, the silver picture frame ⁷², appears about 5’ away and directly in front of the participant (if they have not moved) ⁷³.

4.5.15 *The Picture Frame, Wedding Photo and Live Sound*

In her presentation of the frame to the participant, (fig. 4.44) Annie is committing her first action of trust by sharing her love for Robert, and most importantly her image. During development Planche excitedly emailed me that she had found a picture of Robert and Annie online. I never told her, but she had not. The wedding portrait was clearly from the early 1900’s making it far too late to be either Annie or Robert. The finding of the image did provide us with two things; It helped form Planche’s portrayal of Annie and inspired some of the text about Robert being so “tall in that little old church” (*Bury The*



Figure 4.44 Virtual frame *note this text is not the proper figure style or image and needs to be fixed before the vault.

Wren VR: Version 2C), and it motivated the creation of a portrait of Annie and Robert for the empty picture frame. A complete fabrication, the wedding portrait is a composite of two

⁷³ No participants moved in this section.

photographs that I painstakingly combined digitally to look like a single daguerreotype photo. In addition to the detailed photogrammetry work required to create the frame, great care was taken to make the photo layer of the frame look and feel real. The photograph shows Annie and Robert in their happiest moment (before his imprisonment in 1877 and before the massacre in 1880). This image provides the participant a ‘true’ and intimate view of Annie and Robert and is a critical component in the theatrical construction of their relationship.

As with other objects, there was a variation in the CR to VR version of the frame, the intent of which is to engage with the idea of virtuality by challenging the participant’s perception of reality and subtly acknowledging that memory is flawed. In CR, the frame was intentionally left empty and the participant was able to engage with it after the performance (fig. 4.45). In VR we inserted Annie and Robert’s (fake) wedding photo (fig. 4.46 below) A carefully considered



Figure 4.44 The CR props as placed in the performance space for the participant to engage with after the performance and used by Campbell during the performance. © Christensen/Kates 2020

dramaturgical choice, this variation insinuates that Annie is able to technologically re-insert herself into the image when she is controlling the object – but as soon as it leaves her control, the photo vanishes, representing her continued erasure. The absence of any historical image of Annie Donnelly made the inclusion of a picture frame a symbolic gesture and a priority for me to include in the production.

Our second Annie, Val Campbell, was able to draw



Figure 4.45 Fake Annie and Robert wedding portrait constructed by Kates using Photoshop. © Beth Kates 2020

meaning from the photo for her own portrayal, which, in turn, inspired small modifications to the text.⁷⁴ Creating a powerful image of their courtship and marriage, the photograph allows for a concision of dialog. The text devised around the frame and photo was gentle, brief, and filled with love:

⁷⁴ The completed VR frame wasn't ready until 3 days before the first performance, so it was only seen in VR late in the process. The photo was ready by the time Campbell started the rehearsal process in February.

Look.

Things look different from a distance. Maybe they feel different too. Death does that. (on “feel” she hands the VR Tracker to audience member.)

This is a picture of our wedding. Christmas 1873. I was 16! Robert was so tall in that little old church. (The music, Road to Lisdoonvarna, starts to play) We had three years! Three years.

I dreamed of what my wedding dress would be. (cross and get dress at SL)

I loved it. When I spun around the skirts twirled and swooshed. (live sound effect of the swooshing skirt)

(*Bury The Wren VR*: Version 2C, emphasis original)

4.5.16 *Virtual Lighting & Object Mapping*

Here I will return for a moment to the start of the picture frame scene to highlight an important moment of digital dramaturgy development.

“Things look different from a distance,” Annie says as the frame floats towards the participant, moved by an unseen presence. In VR the frame is lit by a virtual (and invisible) warm amber light that moves with the object (fig. 4.47 below). The final version of this light is a result of an important instance of digital dramaturgy during the development process. After *Bury The Wren* was installed in the performance venue, Christensen and I were working with the objects in VR when I discovered, from inside VR, that by keeping the frame close to the wall of the grave and moving it in a very particular way, the virtual light grazed the wall of mud, illuminating its texture and revealing both environment and object in an elegant and compelling way. This theatrical introduction intuitively felt like the right way to reveal the first virtual object to the participant.

Through this action, the VR frame object became a physically manipulated (and impossible in CR) lighting cue, which required precision by the performer in CR to maintain the trajectory of an invisible object along an invisible surface. While unique to this scenario, this



Figure 4.46 The view inside VR of the frame being introduced "from a distance" to the participant. Note the light being cast along the wall. © Christensen/Kates 2020

kind of physical precision is familiar to many performers, especially those trained in physical theatre and those who work with digital technology in performance where they are often required to achieve precise positions disconnected from theatrical intention so that their body can work in concert with the storytelling technology. The process of discovery of this invisible and virtual blocking can be attributed to the method of digital dramaturgy. The performative event would not have occurred, been discovered or been created without the intersection with the digital.

The further discovery that amber coloured light looked best on the wall led to the alteration of the colour of light on *all* of the virtual objects in order to unify their luminescent qualities. The process of executing this change was the equivalent of swapping [lighting gels](#) in traditional theatre lights. In fact, it took more time programming in VR than it would have taken to change gel in CR. Changing the colour of the light required Christensen to do the computer programming while I remained in VR confirming the colour, intensity and 3D coordinates of

each light – a process we had previously established in the computer lab. At the same time, we also adjusted the mapping of the object to the Vive Tracker, so that when the tracker was set down on the CR ground in the performance space the object also appeared in a realistic relationship to the VR ground. There was a ‘give and take’ modification of this orientation so that the object also felt like it sat in the participants hand in a natural way when they held the tracker. These two ‘simple’ tweaks of each of the five objects⁷⁵ took a great deal of time and patience to execute, which was rewarded as not a single participant mentioned the objects feeling as if they were not in the hand or on the ground.

In a further attempt to apply a theatrical lighting approach to the objects, I added several lights to the virtual teapot in order to explore colour, shadow and luminosity, and to create a dramatic look. This experiment revealed the limit of the [real time rendering](#) capacity on our existing computer system. The addition of more than one light to an object created a processing issue with the workstation that caused the object to lag behind the position of the tracker, meaning the virtual object coordinates and the tracker coordinates diverged. The dramatic lighting would have been valuable in the storytelling of each object, but this ‘seam’ in the technology was not tolerable. In the VR experience, the participant has the freedom to look at the virtual objects with almost no limitation. Steps were taken in the photogrammetry process to reduce the digital resolution ([polygons](#)) of all the objects so they would perform as realistically as possible in VR, with minimal digital delay or interference. If the participant explored the object intensely (ie. moved it very fast, brought their head ‘inside’ the object, etc.), the digital

⁷⁵ Objects: Picture Frame, Teapot, Candelabra, Clock, Stool

‘seams’ were apparent^{76.77} While I was interested in exploring the different mood of each object and using that to explore different facets of realism and theatricality, our priority was smooth, realistic operation of the system to ensure a consistent, realistic and affective participant experience.

4.5.17 Interactional trajectory of the Frame and live sonic presence of the Wedding Dress

Returning to the critical interactional trajectory in the introduction of the Vive tracker, the frame begins to float to the participant. Annie says:

Things look different from a distance...
Maybe they feel different too.
(*Bury The Wren VR: Version 2C*, emphasis original)

⁷⁶ We cannot yet stop a participant from putting their head into the object, without building a CR object that would physically come in contact with the HMD and prevent the participant from intersecting the digital object with the HMD.

⁷⁷ The only real “flaw” with the picture frame is the back of the frame. The photogrammetry of the picture frame was challenging and is actually a painstaking combination of three 3D models (a process extensively detailed on pages 68-9 of Christensen’s thesis).

As she says “feel,” the performer takes the participant’s hand gently and places the tracker (in CR) / the frame (in VR) into their hand (fig. 4.48). Annie briefly tells the story of her courtship and wedding, first speaking close to the participant as if pointing at the details of the photo. The frame is a portal into Annie’s history and courtship with Robert and expands our story world. This exchange leads to story of her wedding dress, moving us rapidly back in time to when Annie was very young. A fiddle and flute tune begins to play, “[Road to Lisdoonvarna Swallowtail Jig](#),” and the performer moves around to the left of the participant as she describes



Figure 4.47 Annie hands the tracker to a participant, handing them the virtual picture frame. © Christensen/Kates 2020.

her wedding dress. She then picks up the virtually-absent dress and swirls it around so the sounds and movement of the fabric can be heard and felt by the participant. She says:

“I dreamed of what my wedding dress would be. (cross and get dress at SL)
I loved it. When I spun around the skirts twirled and swooshed. (live sound effect of the swooshing skirt)

I love this fabric. (A sigh of remembered delight)

(*Bury The Wren VR: Version 2C*, emphasis original)

The sound and action of the “swooshing” wedding dress⁷⁸ (fig. 4.47) was created live and, when layered with the virtual picture frame and wedding portrait, transports the viewer into that moment in time. The intention behind using the live sound and breeze caused by the swooshing dress was to entangle the senses and engage the imagination. This sensorial action operated as a catalyst for the story, acting as a kind of ‘sleight of hand’ (or perhaps ‘sleight of senses’) to assist with the shift in time and space. As one participant noted: “Hearing the words about the wedding, and then hearing the sound of the wedding dress really set my imagination in motion” (Participant 019).



Figure 4.48 Annie 'swooshes' the wedding dress around the participant while they look at the picture frame and wedding portrait.

⁷⁸ The wedding dress was chosen primarily for its acoustic properties as it was not seen by the participants until after the experience. Campbell and I picked the dress together from the University's wardrobe.

4.5.18 *Teapot and the Wedding Ceremony*

The improvisations and explorations with the teapot led us to use it as the portal into the story of the wedding ceremony. Planche and I decided that it was a wedding present from Robert's mother, which was inspired by the true history of the CR object⁷⁹. For the blocking, I drew from my own personal experience evoking the Jewish marriage ritual of the bride circling the *chuppah* (marriage canopy) under which the groom stands. In that ritual the bride is building the home around the groom, and in *Bury The Wren* Annie circles the participant in the same way, building the home for Robert.

Chosen for its handmade quality, wear of age and use, the boldness of the colouration influenced our storytelling and made for a beautiful photogrammetry object. The opportunity to look at the brushwork of the flowers close-up without fear of damaging it made telling the story through the colours exciting. I have already examined the impact of active direction in the crafting of the teapot text in section "[Producing a Text, shifting performers and dramaturging for VR,](#)" and how the object has profoundly guided text building.

In performance, before the teapot is revealed the participant is holding the silver picture frame with the black and white wedding portrait. Recalling the transition to colour as Dorothy opens the door to Oz in the 1939 film *The Wizard of Oz*, Annie acknowledges that the participant could not see the colour of the wedding dress in the black and white photo of her, leading us into the "door to Oz:"

⁷⁹ The original teapot belongs to Christensen and was a wedding gift from his Aunt. Inside the teapot is a handwritten card [FIGURE*Need pic] from his aunt detailing the history of the teapot. The card has a small bird on the front, reminiscent of our emblematic wren. More lovely coincidences.

It's so delicate. A beautiful cream... (cross from in front of participant to the teapot table)

...oh you can't see the color! (during the line x to the teapot table. SX created by performer interacting with the real tea pot as the VR object is switched from picture frame to tea pot.)

(*Bury The Wren VR: Version 2C*, emphasis original)

On cue the operator switches the VR object from the frame to the teapot (fig. 4.50). As our first transition from one virtual object to another, we used the live sound of the CR teapot and the physical placement of the performer behind the participant to try to get them to turn around so that we could switch the object unseen. Choosing, again,



Figure 4.49 The virtual teapot.

to use the physical 'sleight-of-hand' over a technological effect in VR makes this an inherently theatrical moment:

This, (*Annie clinks carbon real teapot*) THIS teapot is the color of my dress. (*x to SR of participant with teapot*) Cream. So elegant.

(*Bury The Wren VR: Version 2C*, emphasis original)

On this line, Annie moves back to the participant, orchestrating their gaze back to the VR teapot. The participant is now holding a real-sized, full colour teapot—cream coloured and decorated with gold trim and pink, yellow, blue and orange flowers. Annie uses the sound of the teapot to guide their attention while she carefully guides the participant through the colours, connecting them each to different part of her wedding ceremony or a different person in her life (fig. 4.51). This connection resonated with many participants and was particularly noted by one



Figure 4.50 Annie guides the participant around the teapot. © Christensen/Kates 2020

participant who wrote that they “loved it when she was talking about the colours on the teapot” and “how happy [Annie] was when she was describing what each colour on the teapot reminded her of” (Participant 013). They further noted that connecting “each thing to the colours of the flowers” was compelling (Participant 013). Here we also included another nod to the Donnelly myth with a specific mention of Jennie (Donnelly’s) shoes⁸⁰. The music starts to fade so that by the time Annie gets to the blue painted flower it is silent and she is standing directly in front of

⁸⁰ In the continuing dramatic saga of the Donnellys—Jennie Donnelly (sister of Robert) eloped with Annie’s older brother. During a dramatic escape from the Donnelly homestead to marry James Currie, Jennie ruined her shoes on railway tracks while fleeing. Currie bought her a “smart new pair” as a wedding present. When her family finally caught up with her, James Donnelly supposedly seized the new shoes and threw them into a fire (Fazakas “In Search” 147 – 149).

the participant as if at the wedding altar. She says, “Look at the blue. Oh... This is the blue of Robert eyes.” Then, re-aligning the participant as Robert, she says:

I, Annie, take thee, Robert, to be my husband...”

(Bury The Wren VR: Version 2C)

Highlighting the gold on the teapot and noting it’s worn state, Annie, parallels it with their wedding bands, and drifts a little into deeper memory:

“Can you smell the tea? All the tea. So many late nights drinking tea.”

(Bury The Wren VR: Version 2C, emphasis original)

Here I wanted to engage the only other sense we were not playing with – the sense of smell. Original plans were to have hot tea brewing in the teapot, so that when the performer said the above line and poured the tea, the participant would be able to smell it, and would be allowed to drink it post-show. This became a logistical issue and we had to abandon the idea, but it remains something I am interested in exploring – olfactory augmentation.

4.5.19 Audience Response to The Teapot

The teapot was a highlight in many of the participant experiences, with 8 specific unprompted mentions in responses. One participant wrote about the emotional journey created by their interactions with the teapot, writing that they “had a real moment of connection when I held the teapot. She didn’t ask me to hand it back to her yet somehow I knew she needed it so I held it out for her. Very moving” (Participant 030). The impact of the object continued for them outside VR, which for me is compelling evidence of the potency of these actant object portal to create deep emotional impact. The participant writes that “[w]hen I saw the teapot outside the

VR, I was genuinely excited. That excitement led me to find the note which I did not expect. ... I really liked the exploration of the colours on the teapot. I really can't emphasize how cool it was that I was so excited to see the real teapot" (Participant 030). Another participant highlighted how they felt "emotionally linked and engaged when she was talking about the teapot," and when asked about the "most entertaining" part of the performance declared that it was "when she talked to me and asked me questions, and told me to look at the colours of the teapot" (Participant 025). Another participant stated that they were "very engaged as she [Annie] described the colours on the teapot." They "listened deeply to her story, and imagined her wedding day beautifully" and enjoyed being "encouraged to interact with the object, which was fun" (Participant 010).

These responses indicate that the teapot was an instance of a kind of virtual "subject technology," which Jennifer Parker-Starbuck proposes emerges when a tool or "prosthetic extension of the body, or system begins to claim concepts of agency. Subject technology carries its own weight on stage" (41). I would suggest that these responses are also a reaction to the fact that the teapot section actively and fully engages performer, object, story and participant at length. All elements were all in dialog, resulting in a totally integrated scene. I also believe that these "connections" are a response to the teapot being a highly visually compelling object, expertly rendered, and therefore providing a really rich portal into story through design.

4.5.20 Reality Dissonance and the Impact on Participant Experience

In terms of all of our virtual objects, the teapot was perhaps the most successful. The hand-painted quality survived all digital manipulation, and it reflected the virtual light just as it reflected light in CR. While developing the objects with Christensen, I would often attempt to

grab the teapot by the handle even though I knew for certain that it was not physically there. This is a phenomenon that I have termed *reality dissonance* and was also experienced by Christensen, the only other person who was more familiar with the objects than myself. Liesbeth Groot Nibbelink and Sigrid Merx, in their observations about the deconstruction of perceptual expectations in intermedial / mixed reality performance observe that “digital technology and its capacity for image and sound manipulation ... significantly extended the potential to disorient the spectator” (219).

It was precisely this disorientation, or reality dissonance, that Christensen experienced while developing a special effect on the candelabra, detailed in section “[Candelabra...](#)”. The most significant ‘special effect’ we used in VR was setting the candelabra on fire (fig 4.52). Christensen noted that while he was testing the final version of the fire and viewing the object in VR he felt his hand getting warm, though he knew he was in VR and he knew that he was holding the Vive Tracker. Just as Groot Nibbelink and Merx recognize the disorientation to the

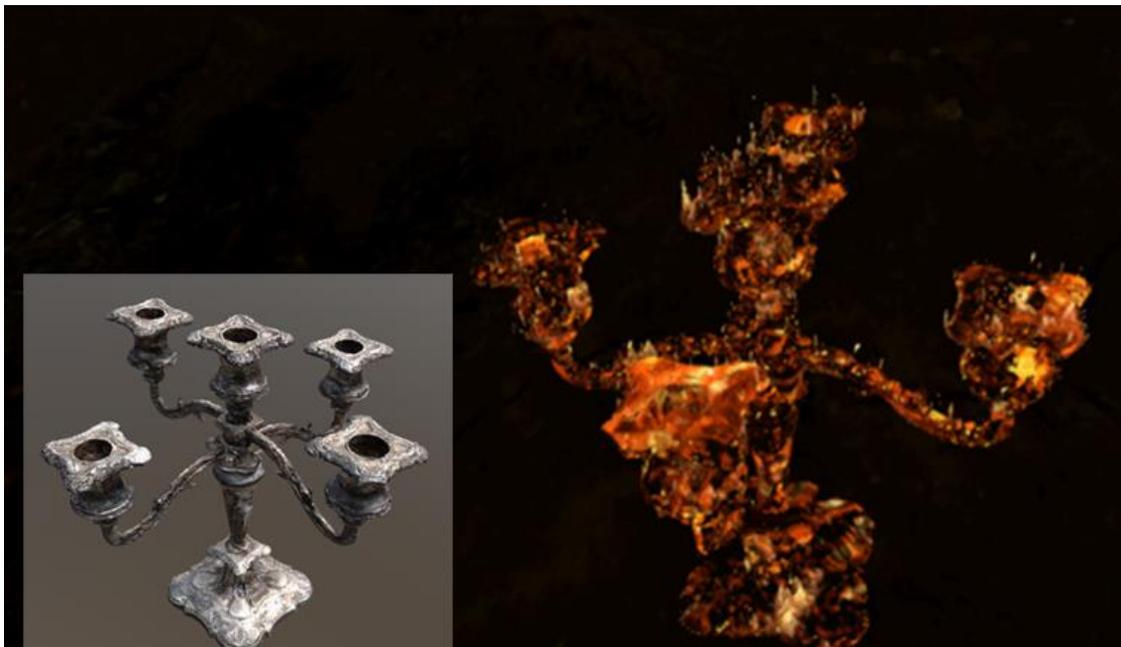


Figure 4.51 Candelabra in VR with and without fire shader. © Christensen/Kates

spectator in instances like this, it is worth revisiting cognitive scientist Mel Slater's concept of plausibility illusion here. As Slater specifically cites VR as a "fundamentally different type of experience, with its own unique conventions and possibilities, a medium in which people respond with their whole bodies, treating what they perceive as real" (1). His paper focusing on participant response to VR, highlights similar experiences to the ones Christensen and I had with the candelabra and teapot respectively.

Reality dissonance in *Bury The Wren* was reflected in various ways by the participants. One participant declared that the experience of the objects was "SO realistic—I wanted to reach out and touch the objects with the other hand" (Participant 015). Another described their feeling of being transported elsewhere and how they were "surprised by how much I felt I was somewhere else" (Participant 013). We captured other participants' reaction to the questions we had about their experience about reality in the post-performance survey:

Question 17: *Is your experience of what is real altered or challenged in any way by this performance?* Those who answered "yes" went on to elaborate:

Not so much altered ... it was more a reminder of the general slippage that accompanies daily engagement with current and emerging technologies. Also, this production reconnects mediated experience with emotion and subtlety (Participant 001).

As has been quoted previously, but is important to revisit here in this context, Participant 008 stated:

Yes, and perhaps in multiple ways... it's more than theatre because of its intimacy; it's not quite reality because it's theatre. Holding an object I can't see asks me to... REALLY "feel" .. explore the dimensions of the bone, and of the candlestick (Participant 008)

While no participants specifically mentioned reality dissonance as Christensen and I experienced it, Participant 020 recounted how they “really wanted to open the teapot,” which points to a related experience of the lines of reality being blurred. There were several observed occurrences of participants moving the virtual candelabra away from their bodies when it caught on fire. In the case with one participant (a computer scientist), they moved the flaming object away from their body and the book on the floor so the book would not catch on fire, as was relayed to us in person post-show. Another participant highlighted an acute awareness that there was distortion in their perception of what is or is not ‘real.’ They experienced this dissonance in “the breakdown of space and sensation (seeing a thing in one place, not being able to feel it, and then hearing it somewhere else. Which one is real? Is EITHER?” (Participant 008, emphasis original).

Question 17: *Is your experience of what is real altered or challenged in any way by this performance?* Those who answered “no” went on to elaborate:

“though realistic, there were still cues that I was not holding real objects, but imagination takes over” (Participant 015)

“The tactile information my hands received was different from what I saw which made it easy to tell apart things” (Participant 020).

Ultimately, the knowledge that they were not holding “real objects” did not seem to impede these participants ability to enjoy the show, follow the story, or have a moving experience. Ultimately the question probably could have been constructed better to try and understand at which points the lines between realities was blurred by PI and Psi, as opposed to

the generalised and somewhat vague query about the possible alteration of their experience of “what is real”.

Theatre, as Chiel Kattenbelt asserts is a “hypermedium,” that holds the “capacity to incorporate all media” (Kattenbelt 23), which provides exciting opportunities to engage with the possibilities offered in the reality dissonance of VR and AR. Through digital augmentation we can both trick the audience into believing something that is not ‘real,’ but we also have the potential to conjure something for the audience that could never actually (or safely) happen beyond the capabilities of our traditional theatrical tools. Stemming from an early conversation in the computer lab about an audience being able to throw virtual fire during a digitally augmented performance by using a special ‘marker’ cube and AR glasses, the idea of putting fire *into* the participants hands during *Bury The Wren* became an important focus that manifested in the virtual candelabra. This exploration of the impact of reality dissonance is central to my interests in what these digital tools offer us in terms of audience experience that our traditional tools cannot. Setting something on fire in the hands of an audience member is certainly that.

4.5.21 Candelabra, Virtual Fire and the Weight of Murder

Fire is a central and powerful image in the Donnelly tragedy. Being able to invoke fire in the grave is anachronistic and strange and was very important to the telling of the story. I knew I wanted a candelabra to conjure the massacre fire and I searched fruitlessly, until finally an ornate, five branched⁸¹, silver candelabra weighing eight pounds was discovered.

⁸¹ Five branches also, serendipitously, symbolically represent the five murdered members of the Donnelly family (James Sr., Johannah, Tom, John and Bridget Donnelly)

As previously mentioned, Christensen and I decided the candelabra was such a perfect object that we would attempt the photogrammetry against all cautions to stay away from reflective or transparent objects, which has been described at length in “[Photogrammetry](#).” Our choice to work against the known capacity of the technology and risk ‘breaking’ it in order to explore the dramaturgical potential of this object was an important step in our exploration of the technology and pushing those known boundaries. Working resolutely against technical common sense created the happy accident of the digitally-tarnished candlestick (Christensen 66-67). The final version of the virtual candelabra created a compelling corroded aesthetic that provided unexpected thematic weight to the object.

The fire significantly manifested through the candelabra and the physical weight of the CR object inspired performance text and participant interaction. Planche and I focused improvisation with the candelabra on the intertwined story points of fire and massacre, exploring various ways of telling the massacre story and investigating Annie’s relationship to fire. Seeking different ways to make it ‘appear’ in the story forced us to answer dramaturgical questions like “why are the objects appearing now?” and “how do the objects appear?” The answers transformed the candelabra and the stool into the objects in the grave that Annie did not want, but that she needed bring with her because they were key items to the traumatic truths that altered her life, and perhaps caused part of her unrest in the grave. The candelabra needed to be there, but she avoided it at all costs.

Can you smell the tea? All the tea. So many late nights drinking tea. My God... With all the tea we drank over the years, we could’ve put out that fire... (*VR: On “fire” the teapot suddenly switches to the CANDLEABRA*)

(*Bury The Wren VR: Version 2C, emphasis original*)

The “magic word” in performance that made the candelabra appear in VR was “fire”. The arrival of the candelabra pushed engagement with unnatural naturalism further than anywhere else in the performance and expanding the magic of her grave.

We did not attempt to hide the transition to the candelabra – in fact we wanted to draw attention to it. In the performance Annie is now distressed at the appearance, which happened without her coaxing, and its clearly driving her into parts of the story she does not want to go:

(there is an audible intake of breath and a long pause as she takes in the Candelabra and tries to reconcile its' appearance)

Wait. Wait. Wait. I didn't... No... Please... I'm not ready to... I just want... (pause) I'm not ready for... I just... The blue of his eyes... Not yet.” *(VR candelabra catches on fire)*

(Bury The Wren VR: Version 2C, emphasis original)

On cue the candelabra catches on fire, a sound effect of a fire burst playing through the HMD headphones and in the multi speaker system in the performance space. It took a significant amount of development and trial and error before we achieved a naturalistic flaming, molten fire effect that reacted to being moved around. Christensen implemented an effect ([shader](#)) that was originally designed for a zombie skeleton and modified it to wrap around the candelabra in all dimensions. It flamed up on cue and dripped molten fire that obeyed real world physics, sparking and flaming when it hit the floor.

The sound of fire continues in the performance space, engulfing the participant in the sound and eventually moving directionally to the end of the performance space where Annie stands, directing the participant's attention. The whole virtual object is engulfed in flames, with drips of fire falling off the five silver branches and bowls. A video of this captured in VR can [be seen at this link](#).

The participant is left holding the flaming candelabra for a short while before Annie takes it and places it on the floor in front of them. She then hands the participant the CR candelabra (fig 5.53 below), which is made of solid silver, and is heavy, cold and virtually absent:

(She takes VR Tracker and puts the still flaming Candelabra down on the ground)

Feel how heavy it is. *(she hands them the carbon Candelabra. It is unseen in VR)*

Murder is heavy. I'm haunted by that moment. That single moment in time.

I hate the story. You don't need to hold this anymore. I have to have it here, but you don't need to hold it.

(VR: switches to the VR STOOL)

(Bury The Wren VR: Version 2C, emphasis original)



Figure 4.52 Annie hands the participant the CR candelabra, which is heavy and cold. © Christensen/Kates 2020

As the CR candelabra is taken from the participant and placed audibly down adjacent to the tracker where the VR candelabra sits, still flaming, on the ground. The sound of the fire continues into the massacre story. The virtual object switches to a small ochre footstool.

4.5.22 *Annie's Yellow Foot Stool as Memory Keeper*

As noted earlier, the first performer (Val Planche) and I decided that the stool was where Annie was sitting in the middle of the night when the news of the massacre came to the Donnelly/Currie household. This continues the use of object as memory keeper and portal. A finely-executed photogrammetry object in terms of realism and reproduction, it was also the object that was awkward to hold in one hand. Compared to the other objects, there also was not as clear or integrated a reason for needing to observe the stool closely.

I wonder now if perhaps there is another tracker embedded in something very heavy, a box that requires both hands, but looks like a stool in the HMD. This could build a continuum of thematically 'heavy,' unwanted but necessary, objects. Another tracker would also allow the participant to see both 'heavy' objects at once. Regardless, this object would require digital dramaturging in future iterations of *Bury The Wren*.

Christensen and I experimented with where the stool would be mapped to the tracker (ie. where would the participant hold it). It was first mapped so that the participant would be holding it by the leg, then we experimented with holding it on the underside of the upholstered part, and while this felt a little more natural and a little less like a superhero holding a car up with one hand. However, when the tracker was sitting on the ground (which is where it was when we switched from the candelabra) the positioning made the VR stool sink into the mud floor of the grave. For this reason alone, we left it mapped to the leg.

Annie then picks up the tracker/VR stool and hands it to the participant, continuing:

"I loathe this stool!"

(*Bury The Wren VR*: Version 2C, emphasis original)

With the stool active in VR, Annie creates a live sound effect as she then drags the CR stool across the floor from left side of the participant to far in front and to the left of them. The placement of the sound of the fire also shifts to emanate from that location, shifting its sonic presence and actively directing / orchestrating participant attention. Annie sits on the 1' tall stool, locating her live physicality lower down than before. As the participant holds the stool, the sound level of the fire drops lower and Annie begins to recount the story of the massacre:

Alright (breath).

There is a knocking...

It is the middle of the night. Deep in winter.

Something horrible has happened... a mob... The vigilantes.

They beat them. They shot them. They set them on fire.

They burned the homestead to the ground.

Those people...

Robert lost his mother, father, two brothers, and a cousin... he was away.

My husband lost his family and I sat here on this stool,

mouth open,

heart split.

Oh Robert, I am so sorry.

(pause)

This stool... I have to have it here.

(Bury The Wren VR: Version 2C, emphasis original)

By the middle of the above passage the fire has faded to silence so that, when Annie says “I sat here on this stool,” it is silent in the VR and CR spaces, except for her voice. Standing, Annie continues the story and walks toward the participant, coming to rest in front of them as she talks about continuing her successful life post-massacre with Robert (creating a possible realignment again for the participant with Robert).

“But we went on...”

(Bury The Wren VR: Version 2C, emphasis original)

Music begins to play in the CR space, “[The Wren](#)”, a traditional fiddle tune played on a mandolin. Annie moves to DS of the participant, fairly close, using similar blocking to the earlier wedding vow scene, and says:

...Somehow. We moved away. We raised our boy. We raised a barn from the ashes. We had a life. We built a life. People rushing across muddy streets to say hello to US. The king and queen of Glencoe. We did that. Together. (pause)

(*Bury The Wren VR: Version 2C, emphasis original*)

4.5.23 The Clock: Rewinding Time and Active Memory

A clock chimes in the headset, placed spatially in 3D so that it sounds as if its chiming way off over the right shoulder of the participant. Ideally, the participant looks far over their shoulder allowing the virtual object in their hand to be changed from the [stool](#) to the [mantle clock](#) without being seen (fig. 5.54). This is another ‘sleight of hand’ intended to create a trajectory through a transitional state and try to overcome this particular technological seam in order to avoid disruption of the story.

Time is frozen on the highly-detailed clock as its arms do not move. Annie moves counter-clockwise around the participant, metaphorically rewinding time while moving in the opposite trajectory from the wedding (teapot) scene. She tells a condensed version of the



Figure 4.53 Screen capture of the clock, rendered in Sketchfab. © Christensen/Kates 2020

timeline of her later life while the participant holds the clock:

(clock chimes) (VR: Clock)

Time.

Tick. Tock.

Tick. Tock.

Time.

The time he made us move back.

The time I spent standing at the window, watching him on the porch, pacing, pacing, shouting greetings at those people, day after day after day.

(standing behind participant, whispering into their right ear. remembering)

Robert... come inside

The time I worked while he was in prison.

The time I worried while he rebuilt the barn.

The time he slept there.

The time when he escaped from the Asylum and went missing. I knew taking him there was for the best.
He thought differently.

The time he died in our bed.

(*Bury The Wren VR: Version 2C*, emphasis original)

There are two key points within the text where the dramaturgy of the text, physical presence, and design converged, but could only have been discovered through digital dramaturgy while I was participant/director while immersed in VR. This section is an example of text dramaturgy, engaging with a method that I termed *active memory*. Utilizing active memory helped move out of the mode of “and then I...” style of describing memory that appeared throughout the early drafts. Instead, as it reflected above, Annie makes the memory active: “The time I...”

This segment also contains a beautiful bit of blocking discovered while in VR that, again, realigned the participant as Robert. I asked Campbell to make her “tick tock” revolutions around me end so that she was close behind me by the time she delivered “Robert come inside.” The result was that it felt as if she was talking to me as Robert standing on the porch of their house in Lucan as he stood outside day after day, watching his family’s murderers walk past.⁸²

As the scene ends the participant is no longer “Robert,” the dialogue having shifted from active memory to storytelling, with the final line of the scene being “The time he died in our bed” (*Bury The Wren VR: Version 2C*, emphasis original). Annie takes the VR tracker from the participant and moves quickly behind them so that the virtual object can (ideally) be shut off

⁸² It is noted in several sources that Robert used to stand on the porch of this house and greet the vigilantes (who walked free) day after day. Donnelly purposely built by him at the end of town on the main street so that no one could come in or out of town without passing by the house. (Souces: Butt, “Donnellys”; Stott, “Oblivion”; McKeown “After the Massacre”).

without the participant seeing. The clock is the final virtual object. Robert is dead, but Annie is not done with her story. The participant is now left empty-handed *and* virtually absent. Annie is silent. What follows this silence are several important interactional trajectories and transitional states that serve to slowly, and unknowingly, bring the participant to the end of the experience.

4.5.24 *The Bone*

One remarkable day in rehearsal with Campbell, I was in VR and we were slowly running through the whole show, stopping and starting as we went. In the silence after the clock scene Campbell placed something invisibly into my hands, held my hands for a moment to ensure I was holding the object. She quietly said:

Do you think bones can be at peace? Moving them... Sometimes I wonder if I did the right thing bringing him here. I hope so. I hope there are enough molecules in his bones still, that his soul can feel me... I can feel him.

(*Bury The Wren VR*: Version 2C, emphasis original)

In that moment I realised that I was holding the human bone we had on our prop table. My heart started to race, and I became very emotional. The story had landed in my hands. It was a beautiful and shattering moment that we kept in the performance (fig. 2.55). The bone, a non-digital portal and actant like the heavy silver candelabra, acts as an interactional trajectory that serves to bring the participant concretely into a new phase of the storytelling.



Figure 4.54 Annie hands the participant the bone, which they cannot see in VR. It is a moment of very gentle exchange. © Christensen/Kates

There was a lot of participant reaction to holding the bone. We observed two people who laughed, but no one threw it down or dropped it, which we had been worried about. There were many participant comments about the bone that supported our belief that this would be a powerful moment. One participant, who experienced a profoundly emotional reaction to the performance wrote that they were “momentarily gut wrenched when the bone was placed in my

hands.” They observed both their reaction to holding the bone, the thematic connections and their disrupted sense of real. Further recounting their emotional journey with the bone, they recounted that “[a]t first I didn't know what it was (felt like wood—was it the clock, maybe?)... then Annie told me it was a bone... and then the experience of ‘exploring’ it suddenly had immense weight. The only ‘real’ experience of a ‘body’ was holding a bone I couldn't see. It was visceral and emotional” (Participant 008).

4.5.25 Carbon Real (CR) objects: Grounding Objects

The hypothesis heading into the creation process was that the CR objects would provide theatrically valuable occurrences of reality dissonance and thus become interesting spaces in between realities to explore. We also hypothesised that they would serve as grounding mechanisms and aid us in overcoming any ill effects that VR might cause for participants. Improvisation with the CR objects, as we've seen with both the bone and the candelabra, revealed the potency of tactile interaction with those objects while they were virtually absent in VR. *The success of the explorations during the devising process revealed an even more fertile territory to explore and experience than we had expected.* The unseen objects draw attention to the various realities manifested in the performance. They create dramaturgically useful ruptures in the participant's sense of reality while also highlighting the power of objects as actants and portals and our specific theme of erasure. The effectiveness of the virtually absent tactile experience encouraged us to deeply investigate what elements of story could be told through engagement with the haptic experience of participants and their permeable sense of reality.

As Groot Nibbelink and Merx observe, mixed reality performances often “invite the spectator to work through these unstable sensual experiences to become aware of precisely this

instability of the reality we live in,” allowing the “intermedial affects” to excitingly “[ignite] reflection on perception itself” (219). The effects of the CR interactions are revealed in many participants’ responses, including one that I will recall from earlier in the thesis:

“[h]olding an object I can't see asks me to... REALLY ‘feel’ ... explore the dimensions of the bone, and of the candlestick.” Highlighting the impact that this had on their perception of “reality” and bringing theatre into the equation, the participant goes on to say that the experience of holding the CR object is “more than theatre because of its intimacy; it’s not quite reality because it’s theatre” (Participant 008).

As has been explored in earlier sections about the Vive Tracker, candelabra, and the bone, the grounding capacity of the carbon object can have a significant impact on the participant. In a scenario where one is dislocated from familiar, tactile CR space and is also virtually absent, providing grounding points outside the virtual space (again, like the sand and the lantern in *Blue Hour*) helps the participant feel to safe and present. This, in turn, provides the conditions for their willing immersion into the story, narrative and experience. Another participant noted that “to physically interact with objects—even AR objects—makes me feel and remember things in my body in a different way. I think it helps me be rooted in the words” (Participant 010). A first time VR user wrote that they “thought the interactions with the physical object(s) [were] a great way to bring a tactile experience into the work. It felt fully immersive. ... The sensory elements of the experience were unique and like nothing I'd experienced before” (Participant 032). I believe these results provide important information for the future creations that integrate these emerging technologies with theatre and form a strong argument for the consideration of grounding objects in this particular form of theatrical experience.

4.5.26 *Passthrough Camera and the Daguerreotype: The Security Camera of the 1800's*

The idea of seams is a useful metaphor here. One can think of the fabric of an experience as being stitched together from many parts. For example, a hybrid space involves the stitching together of initially disjoint physical and virtual spaces using combinations of sensing and communications technologies... Rather than being seamless, however, these threads all too often become visible to participants... [with the] various technologies being used to establish a fabric of many adjacent and overlaid real and virtual spaces.

Steve Benford and Gabriella Giannachi, *Performing Mixed Reality* (63)

Having examined the low resolution of the passthrough cameras in [4.4.6](#), this subsection focuses on the influence of the technology on the aesthetic of the production. The time frame of the Donnelly's investigated in *Bury The Wren* (1850s–early 1900s), placed us in the era of early photography and overlaps with the height of the daguerreotype in the 1860s. Oliver Wendell Holmes, in an 1859 article in the *Atlantic*, famously called daguerreotypes “mirror with a memory” (Holmes “Stereoscope”). As the first commercially-successful form of photography, the process of creating a daguerreotype fused the image onto a light-sensitive silvered copper plate. The result is quite fragile and surviving daguerreotypes are often marked with erosion due to the multiple chemicals required to create the image. The ground-breaking process was the first to capture very fine details of the subject (not unlike photogrammetry today). The length of exposure also often captured nearly invisible double images of the subject⁸³ (Sources: Stauble “Brilliant Jewels”; Dageurrobase.org “Knowledge”). It also gave birth to the Stereoscope and Stereography – which could be, perhaps, considered the first HMD providing 3D views of the natural world captured on the “mirror with a memory”. Holmes, so taken by the transportive

⁸³ Knowledge of these multiple images is one of the ways we were able to accurately simulate the look of a daguerreotype photo when it came to the construction of the “Annie and Robert Wedding Portrait” and the memento photo noted at the end of sub section [“Virtually Carbon”](#) In those photos we slightly offset and blended double images of each portrait to simulate the multiple images of the historical dageurrotypes.

quality of the experience of the daguerreotype, especially in combination with stereography wrote about it in a way that could be easily applied to VR:

Form is henceforth divorced from matter. In fact, matter as a visible object is of no great use any longer, except as the mould on which form is shaped... We must, perhaps, sacrifice some luxury in the loss of color; but form and light and shade are the great things, and even color can be added, and perhaps by and by may be got direct from Nature. (Holmes "Stereoscope")⁸⁴

Original daguerreotypes are beautiful relics of pre-colour photography that evoke age and wear, which provided many thematic connections to *Bury The Wren*. There is also a technological synchronicity in incredible achievement of the invention of the technology of photography and our contemporary image reproduction technologies of VR and AR. This historical dovetailing of revolutionary technology, combined with the absence of an image of Annie, and our own image capturing process held photography fore of mind as we created *Bury The Wren*. We applied this inspirational palette to our manipulation of the passthrough camera,

⁸⁴ Holmes' effusive observation of the Stereoscope mirrors my experience of being in VR and especially observing new users. I wonder what he would have written had he been able to fly around the world using Google Earth as I can sitting at my desk chair with my Oculus Quest. He writes: "Oh, infinite volumes of poems that I treasure in this small library of glass and pasteboard! I creep over the vast features of Rameses, on the face of his rock hewn Nubian temple; I scale the huge mountain-crystal that calls itself the Pyramid of Cheops. I pace the length of the three Titanic stones of the wall of Baalbec,— mightiest masses of quarried rock that man has lifted into the air; and then I dive into some mass of foliage with my microscope, and trace the veinings of a leaf so delicately wrought in the painting not made with hands, that I can almost see its down and the green aphid that sucks its juices. I look into the eyes of the caged tiger, and on the scaly train of the crocodile, stretched on the sands of the river that has mirrored a hundred dynasties. I stroll through Rhenish vineyards, I sit under Roman arches, I walk the streets of once hurried cities, I look into the chasms of Alpine glaciers, and on the rush of wasteful cataracts. I pass, in a moment, from the banks of the Charles to the ford of the Jordan, and leave my outward frame in the arm-chair at my table, while in spirit I am looking down upon Jerusalem from the Mount of Olives" (Holmes "Stereoscope")

augmenting the AR image with a series of post-processing effects (as detailed in subsection [“Passthrough Camera”](#)) to make the image look like a “living daguerreotype”⁸⁵.

4.5.27 *AR, Robert’s Scarf and the Transitional Seam of Tron-land*

Still standing in front of the participant, Annie gently removes the bone from their hands, and places it down silently on the wedding dress. There is silence while she does this and then she places the very soft purple velvet scarf invisibly into the participant’s hands, maintaining brief physical contact as she says:

“I have something special I want you to see.”

(Bury The Wren VR: Version 2C)

At this point the VR switches to the AR passthrough cameras. This is one place where the technological seams show strongly in a key transitional state. In the switch to AR, there is an intermediate state where the participant is in a neutral grey, dome-like space. Challenging the affordances of the VR system, the switch from VR to AR needs to be forced through a technological hack⁸⁶. I called this liminal state “Tron-land” for its non-descript and geometric presence that evokes the 1982 futuristic science fiction film [Tron](#). We modified this world from Unity’s standard default of a high contrast white and black grid to a more neutral grey environment to limit the perceptual shock of the switch on the participant. As one participant

⁸⁶ As has been demonstrated by the recent release of the Oculus Quest VR headset, it is possible to move more seamlessly, but this clunky shift is what was possible with the Vive/Unity/Steam set up we were creating with in 2018/2019. See pages 78-84 of Neil Christensen’s [thesis](#) for more detail about the technological hack required to make the AR component operational.

noted, “[t]he switch from VR to AR brought me out of the story because the blue/empty world didn't fit in the story for me” (Participant 019).

This “Tron-land,” if we ever needed to keep it in future iterations of the *Bury The Wren*, is a virtual space that requires more scenographically-minded digital dramaturging. Hopefully technology progresses and, in the future, this transitional state will be eliminated or more pliable. At the same time, I wonder if the disruptive seam might have provided us with some unknown usefulness. Regardless, I would like to see what a more fluid transition would look like.

After a brief moment in “Tron-Land,” the passthrough cameras activate, and the participant is suddenly looking at Annie’s mediated image and into her eyes (fig. 4.56). At this point the participant is now semi-reunited with their body, being able to see their hands and feet through the same living daguerreotype filter. Due to the distortion from the wide-angle lenses of the passthrough cameras, everything in the participant’s field of view appears a little bit smaller and a little bit further away in the mediated image than it is in CR. It is through this mediated / augmented representation, that Annie has taken the next step in revealing her ‘real’ self to the participant. The experience of AR is closer to CR, but it’s still not quite ‘real.’ The CR objects are also now in the room with the participant, and they are holding Robert’s scarf—but the question intentionally remains: What, if anything, in their view is ‘real?’

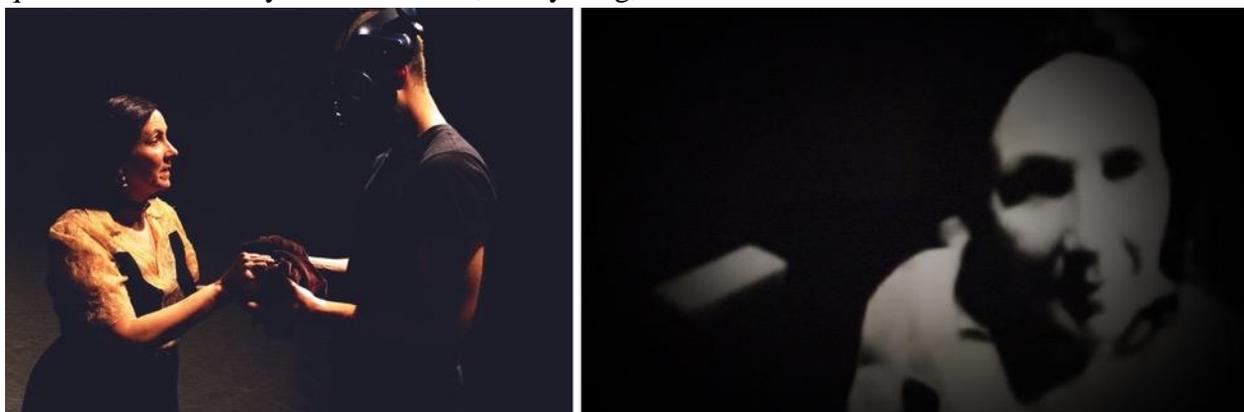


Figure 4.55 Annie hands the scarf to the participant and the view in the HMD shifts to AR. © Christensen/Kates

Now engaged in physical contact with Annie and the scarf, there is a very brief interaction (fig. 4.57):

I can still smell him on it, but you probably just smell dirt. It's so soft.
I gave this to him. I didn't want him to catch a chill... He wore it every day. (pause) Maybe he remembers my touch. In his bones.

You listen so well. May I?

(Bury The Wren VR: Version 2C, emphasis original)

Annie then removes the VR headset and battery, holding them in her hands. There is an exchange of eye contact that she holds for as long as she is comfortable:

“Here we are!
Thank you for listening. For seeing. You are most welcome to stay here for a while. This is for you.

(Bury The Wren VR: Version 2C, emphasis original)



Figure 4.56 The final, brief, CR exchange between Annie and the participant. Campbell reported that the majority of these exchanges were quite emotional, with tears in the eyes of many participants (Campbell “Notebook”). © Christensen/Kates 2020

Annie gently takes the scarf from the participant, possibly maintaining physical contact as she hands them an edible red apple. She then wordlessly exits the performance space as music then begins to play in the surround sound system. It is [*Road to Lisdoonvarna Swallowtail Jig*](#), the same song as during the wedding story. The participant is given at least a minute to ground themselves in the ‘here and now’ and to explore the performance space, which is now completely changed from when they entered.

Guiding many, if not all, of the choices I made about the construction of the show and the integration of the technology, was the facilitation of human exchange. The design of the piece is focused on deferring the unmediated engagement with Annie / the human performer, to the last possible moment so that everything – the story, the technology, the history – becomes encapsulated and defined in that last moment of exchange. Limiting the engagement with the unmediated human performer was intentional and was a dramaturgical choice. Connected to Annie’s own encapsulation in her steel casket, I made the choice that she would not be ready to reveal herself until the last moment, when she was also free to leave the room. That more could be said in the few words and exchange of a piece of edible fruit than could be by an extended scene. The intentional delay, or perhaps extended promise, of the reveal of Annie, allowed the moment of exchange to be filled with a heightened sense of presence for both the performer and the participant, and I believe a pure human exchange. The technology in that moment, manages to vanish, no one was unsteady or otherwise perceptually confused. The human exchange becomes immediately grounding and complete (fig. 4.58 below):

This is for you.

(Annie hands them the apple, smiles, and leaves.)

(Bury The Wren VR: Version 2C, emphasis original)



Figure 4.57 Annie retrieves the scarf, the HMD and hands the participant an edible red apple. In part, this is a nod to the Donnelly mythology, a gift of thanks and a grounding mechanism—welcoming the participant back into the CR world.
© Christensen/Kates

4.5.28 *Virtually Carbon*

As previously noted, the space is now filled with objects; the wedding dress, the bone, an antique table holding the CR objects they experienced in VR, the VR Tracker, and the book of Yeats poems. There is also an antique chair for them to sit on. In a corner of the room there is a human skeleton on the floor, in pieces, wrapped in old muslin ([see fig 4.43](#)). The candelabra is

sitting on the floor close to where it was in VR, and the stool has also been left where Annie dragged it to during the massacre story. As has been noted, there are variations in several of the CR objects as opposed to their VR reproductions. The Yeats compendium is bookmarked to “A Dream of Death,” and there is a small Easter egg surprise of the original handwritten note to Christensen and his wife-to-be in the teapot, which was found by those who explored the props in depth.

After observing the participant on our video feed and ensuring they were ready to leave the room, I quietly entered to collect them. As they exited, I handed each participant a sealed cream envelope with their name written on it in calligraphy. Inside was a card containing the poster image of *Bury The Wren* (fig. 4.59), the text of the Yeats poem and a photo that is a replica of the ‘Annie and Robert’ wedding portrait. However, it is not an *exact* replica.

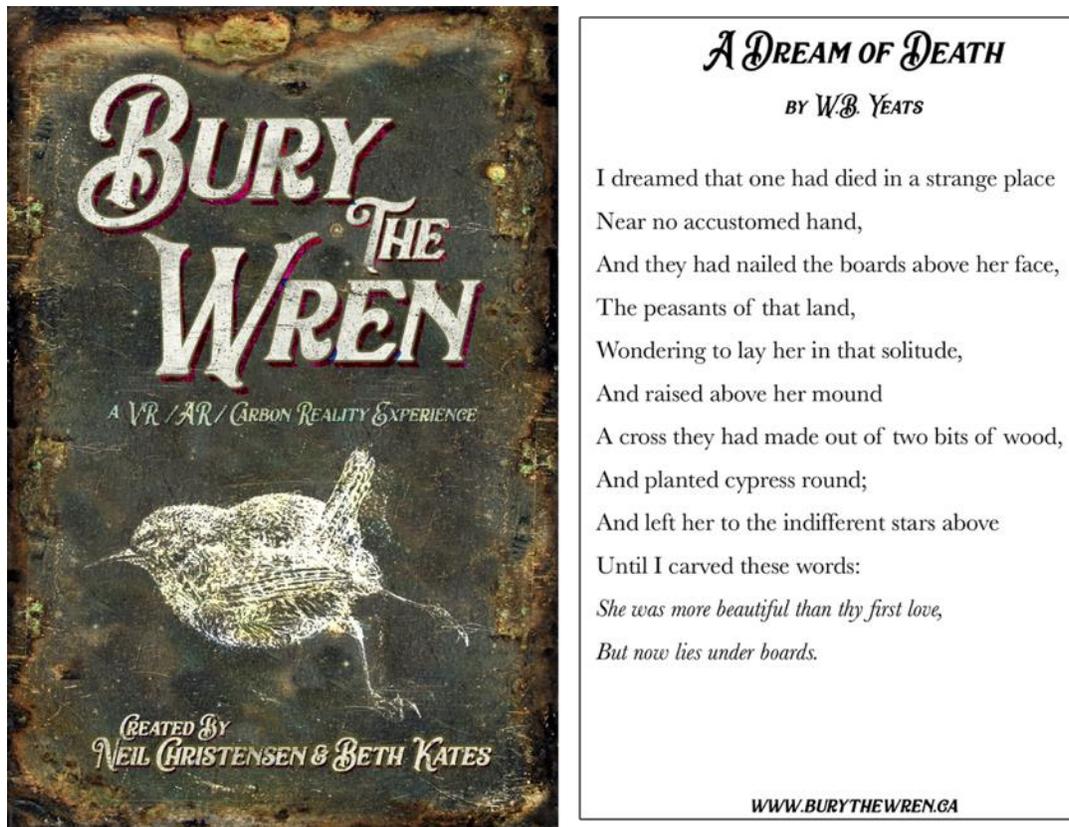


Figure 4.58 Replica of the front and back of the postcard. © Christensen/Kates

Early in the process, Christensen and I had decided to give the participant a photograph as a physical souvenir. One last fracturing of realities, this photograph is of our Annie and the recipient. The image was digitally manipulated and printed out by Christensen and me during the performance. Combining a photo of Val Campbell as Annie, the research photo of the participant, my daguerreotype background, and the same filters in Photoshop⁸⁷ that had been used to create the ‘Annie and Robert Wedding Portrait,’ we created this augmented image. Our intention was to further blur the lines between realities in the form of a tangible object that would remain with the participant permanently after the experience. Each participant leaves the experience with an apple they can eat and a memento of a moment that never actually happened – a virtual carbon object (fig. 4.60).

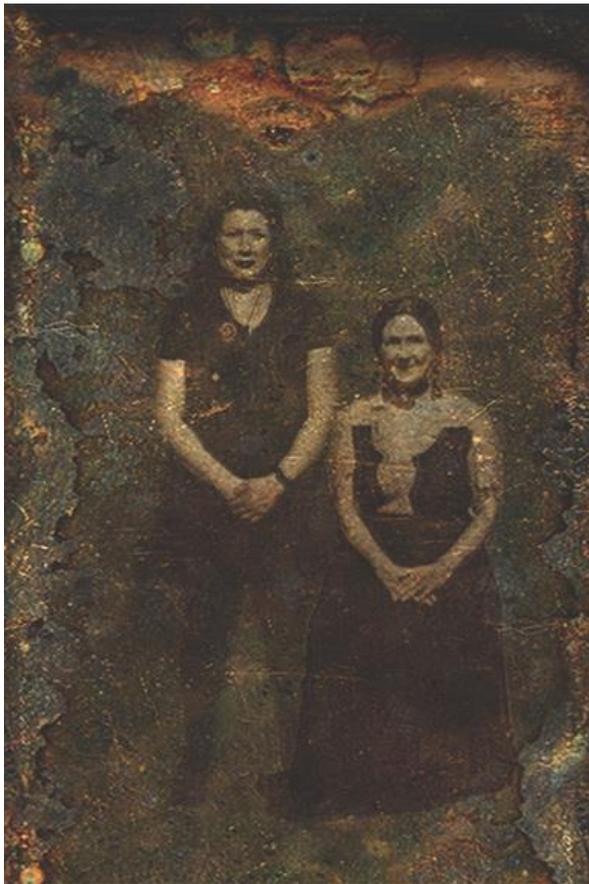


Figure 4.59 Image of Kates and Campbell as Annie. This was a test image for the participant photos.
© Christensen/Kates 2020

⁸⁷ See page 86 in [Christensen's thesis](#) for a breakdown of the Photoshop process used to create the portraits

Conclusion

L'art éphémère creates a direct connection between creation and destruction and forces us into direct contact with an ever-changing sense of reality.

Billy Klüver, 1960 (qtd. in Dixon, 285)

In the next 50 years, computer science will give birth to a delightful new vernacular art form that combines the three great artforms of the 20th century: cinema, jazz, and programming. The result will be a mass theater of spontaneous shared imagination and dreaming. My fond hope is that it will take the form of networked VR with inspirational authoring tools that are capable of quick, improvisatory creation. But whatever the specific form, what we are building, will encourage people to share interior vision and treat it as a tangible, worthy thing... This is the frontier that information science opens up to mankind. There are other frontiers enabled by science, of course—the exploration of space, the study of the brain. But only ours will continue to reveal unsuspected potential in the most precious of natural phenomena, relationships between human beings.

Jaron Lanier, 1989 (“Frontier”)

I began this degree and research project broadly wanting to explore the intersections of VR, AR and live performance. I wanted to investigate these emerging tools and figure out both what we as theatre-makers could do with them now, and how to be best prepared to use them in the future. With the creation of *Bury The Wren*, Neil Christensen and I had an abundance of questions that guided our research. Ultimately the iterative and emergent process of creating it taught us what we needed to know. Many of our questions were answered, and many more have come from the experience, especially as we watch adoption of VR grow rapidly and witness new modes of engagement.

Considering ‘best practices,’ creating *Bury The Wren* confirmed my belief that having access to technology and working with the technology in the creation process has a profound impact on the story being told. Though we worked for a significant amount of time without the technology, the early exposure to it critically impacted how we crafted our story. Guiding the rehearsal process, I and my collaborators held the embodied knowledge of the technology and a very clear plan of what we were creating with. Similar to the development of *The Last Donnelly*

Standing, when experiencing the delay of technology we were able to imagine it instead, because we had knowledge of what the VR component would hopefully become.

When the technology was finally introduced into the later stages of development, it had been so present of mind in the devising process that it easily integrated with the work we had already created. Once integrated, the technology began to reveal more about what we could achieve with the storytelling. For me, one cannot develop a piece of VR Theatre without somehow engaging with the tools from the very beginning. I wonder how much further we might have been able to expand the story and design of *Bury The Wren* had the technology been present in the creation room from the outset.

The bridges between traditional theatre practices of devising and design and VR were exciting uncover. The lighting discovery made while I was interacting with the picture frame in VR was a very different experience from how one designs lights in the CR space. However, the feeling of familiarity in the act of lighting in a virtual space has proven to be a deeply inspirational and informative moment within the process. Shifting between the virtual and the CR space during the development process was deeply reminiscent of the act of moving from conceptual sketch to set model and then into the full scale installed set in a theatre. This is the magic of the transformational process of creating theatre, which was mirrored unquestionably in our creation process.

The discovery of the tension between the virtually visible, invisible and tactile was a potent discovery concerning the affective use of the blurring of realities. The dramaturgical implications and storytelling capacity found in the combination of the CR and VR objects and environments was even richer than I imagined it was going to be. I have many curiosities about

the different ways this can be employed and how much further we can go, especially when considering the AR space and the modification of objects that we can see, feel, taste and smell.

Live performance in VR for the general public is slowly beginning to take root. L.A.-based VR theatre company Tender Claws places live actors in their VR multiplayer game to interact with the gamers. In July 2020, in the same platform, they introduced their most recent production, a version of Shakespeare's *The Tempest* which performs live multiple times a day. In May, Double Eye Studios experimental production *Finding Pandora X*, directed by Kiira Benzig, used VRChat, a 'social VR' platform, to host their unique world. This live performance integrated the audience members as a chorus and experimented with audience interactivity. The production is being expanded on for another iteration in the fall of 2020 and will premiere at the Venice Biennale. These two encouraging examples confirm, for me, that VR is a viable and fertile place for theatre makers to explore.

The next step in engaging with VR and AR as theatrical tools is to find ways to have them facilitate effective collaborative creation. I have witnessed the promise of this in metaverses like NEOS, where a creator named Medra hosts the weekly *Creator Jam* that facilitates open collective world building. This event routinely has twenty or more people working together to create worlds that did not exist before they were collectively made. NEOS is a dreamlike playground of a continuously expanding idea of scenography and world design, and a manifestation of Lanier's concept of post-symbolic communication. I wonder what happens when an entire theatre collective – performers, writers, director, designers – are able to build their performance world together? In the age of COVID, the ability to gather and have an embodied, creative experience together without having to travel or risk our health by being in the same room is exciting and feels necessary, urgent and vital. As I see it, this kind of collaboration

and story-world building has the very real potential to expand the kinds of stories we are telling and world views we are representing.

It worth revisiting Joris Weijdom's proclamation that "theatremakers understand mixed reality experiences as no other" and that we are "capable of dealing with the simultaneousness of the play, as a virtual dimension of the actual experience" (Weijdom). I believe that *Bury The Wren* proves this. The experience was not unlike approaching digital design in traditional theatre. I believe employing a devised approach to creation was a very useful approach to the development. I adapted many theatre-making techniques in very practical ways, just as one would do in a devising practice. As I have discovered many times in my historical digital theatre practice, so too have I determined in this VR Theatre practice that it is possible to craft simple and affective story-worlds with these tools that do not allow the technology to overtake the storytelling.

As we are seeing an influx of so-called 'digital theatre' during the pandemic, we are also seeing that it remains primarily bonded to screen displays. The immersive and volumetric qualities of VR and the real-world overlay of HMD oriented AR eliminate the 2D screen and creates embodied experiences for the audience. The discoveries made in the creation of *Bury The Wren* confirm for me that these tools of VR and AR offer theatre-makers a rich creative palette, and are extremely viable and valuable for the development of new forms of theatre.

At the heart of this research was the quest to 'tell a compelling story,' which could also translate to wanting to tell an affective story that created a human experience in the midst of all the technology. We wanted to weave the technology into the imaginary space so that after introducing the headset to the participant it simply felt as if it was part of the world they were in without having to question it. In this we were attempting to understand relationships to the

technology for both the character and the participant without overtly answering it for either. Loss of human connection was a very real possibility in covering up the head of the participant and rendering both humans invisible. I think that by crafting a simple and gentle engagement with the technology we were able to prioritize and facilitate the human exchange that occurred through the technology.

By approaching the technology with a kind of minimalism we ensured that the technology was not an overwhelming presence, even though the world the immersant was in for most of the show was created by the technology. The simplicity of interaction meant limited instruction to the immersant was required. This provided space for them to settle into the virtual world and engage with the sensory and perceptual shifts without becoming overloaded by having to process an enormous amount of information. Audience members will, in time, become more accustomed to being in VR, just as the technology will be able to provide ever more complex visuals and interactivity. However, like with staging in CR, I suggest that this approach of a focused and simple aesthetic is the most affective. Simplicity does not, of course, mean lack of complexity.

Just as we could have turned each virtual object into a gamified ‘magical portal,’ there was more theatrical gravitas by positioning the objects as actants, solidifying their rooting in the story and in the cracks of reality caused by this object that is there but also not ‘there.’ The non-magical objects provide the story with an affective portal. Within an approach guided by simplicity, the introduction of the epic and aesthetically complex can be used to great effect.

The dramaturgies (or technodramaturgies) that reside within the technologies will change as technologies change. It was therefore encouraging to see the tested methods of devising and designing had incredibly useful places within this process of development. The changing

technology will result in an ever-shifting practice of how to prioritize integration and affect over effects with these emerging tools, just as technological advancements have continuously altered practice in traditional theatre.

We are currently in an era of great change, where there is great concern and worry about the future of theatre. However, I am hopeful. My intuition heading into this degree more than three years ago was that VR and AR offered theatre-makers powerful modes of creation and expression. I approached the research that is culminating in this thesis with the curiosity focusing on questions of the necessary knowledge for theatre-makers to work with these tools. At the completion of the research project I was convinced of the viability of these tools and I could see their integration as part of the future of theatre. The pandemic has brought the future closer, and this is where my hope lies.

We cannot make compelling performance in VR or with AR without designers and technologists to build and light the worlds, craft and costume the avatars and sculpt the sonic spaces. Theatre artists of all forms are uniquely suited to working with these emerging tools. Designers, directors and performers understand 3D space as it resides at the core of our craft. We hold unique knowledge about how to tell story through scenography, movement, lighting and costume. These skills undeniably transfer into the virtual space and are needed in the virtual space, now. There is an important and vital place for all theatre-makers in VR, but most excitingly is that it is a form that can be strongly led by designers. This is why I am hopeful.

Annie

Christensen and I had our technological and development questions at the heart of our research, but in following the edict of ‘affect over effects,’ we had dramaturgical questions about

Annie Donnelly and the use of VR. We discovered the important personal connection to each object that was in the grave with her either physically or virtually through the improvisation. We started the process with more objects, but through that improvisation discovered the ones that deeply resonated with the character and the story. More complicated was uncovering why Annie needed to use VR to tell this story, how was it protecting her and questioning if VR was the only place where she was free to share this vision of herself. Ultimately, I believe that being able to remain invisible to the participant was a safe and comfortable place for Annie. By not having to engage face to face with the stranger in her grave she was more able to reveal her inner most thoughts, treasured memories and traumatic nightmares. In our approach of unnatural naturalism, the magical device of the HMD was what needed to be invented before Annie felt like she could find a way to communicate with a world that had not wanted to listen to her while she was alive and yet did not leave her and her beloved alone in death. Thus, the spirit of Annie Donnelly needed to wait 100 years for an HMD to appear to her and act as the portal through which she could communicate her unrest while remaining safely hidden and only sharing her treasured possessions as digital copies in a magical mode. The mysterious push of the technology, we devised, was what required Annie to tell the most difficult part of her story in an effort to find some peace. This was not explicitly expressed in the text but was a critical shift in the storytelling. If the play is revisited, expanding the design and the text would be crucial to development so that Annie ultimately has more time to speak to her life and experiences. Like with any Donnelly piece, this is only the beginning.

In closing, *Bury The Wren* represents Annie's reclamation of self and is a love letter to Robert. I have previously noted that Annie having Robert's bones exhumed and interred with her in the steel casket was a final act of love, a final act to find some peace. Annie's gesture shaped

the work that we did and shaped the motivation to return the loving gesture. The creation of *Bury
The Wren* is my artistic gesture to helping Annie's spirit settle. It is my act of love for her.



Figure 4.60 My incredible collaborators. Neil Christensen and Aaron Chaisson in the control booth during *Bury The Wren*.
© Christensen/Kates 2020



Figure 4.61 The Family Portrait.
© Christensen/Kates 2020

Glossary

Collision (detection) Refers to the detection of collisions between objects in a virtual environment. This is often used to stop objects from moving through other objects (i.e.: a wall). Collision detection can be used anywhere in a virtual environment between any object; characters, terrain, vehicles, etc.

HMD (head mounted device) A headset (helmet, goggles, glasses) used with a virtual reality system.

Lighting Gel A translucent coloured high temperature plastic filter placed at the end of a lens of a theatrical lighting fixture to colour the beam.

Physics Engines Is the component of a computer software that approximates or simulates real world physical systems in the virtual world (i.e.: gravity, collision impact, fluid dynamic, terrestrial dynamics, etc).

Plug-in A software component that provides special, customizable features or actions to an existing computer program.

Polygons 3D digital objects are constructed out of a polygon mesh which contains vertices, edges and faces that combine to create the object. The higher the polygon count, the more detailed the 3D object can be, but more computer processing power is required to display the object.

Room-scale VR Allows the user to move around all available space after establishing safe boundaries with the VR system (vs. stationary VR where the user sits in place and moves through virtual space with a controller).

Shader A software that allows the user to create special effects or post processing on video elements.

Texture Mapping is the process of creating the surface detail, colour and texture of a 3D digital object

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Appendix A: Performance Text of *Bury The Wren*

Bury The Wren

A VR / AR / Carbon Reality Experience

(Version 2C)

Co-Created by Neil Christensen & Beth Kates

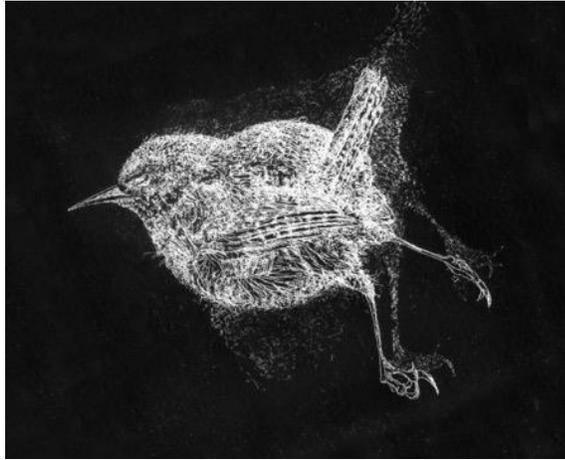
VR / AR / CR Design by Neil Christensen & Beth Kates

Text devised by Neil Christensen, Val Campbell, Beth Kates, Val Planche

*Inspired by the events surrounding the lives of the very real Donnelly family, who lived in
Lucan, Ontario, in the late 1800's.*

*Also inspired by the play "The Last Donnelly Standing"
by Gil Garratt, Beth Kates & Paul Thompson.*

For Annie and all the other women...



There is a 12-minute time limit to the playing of this script. Participant enters an empty space, lit in work lights. A VR Headset is placed on them. They see blackness and then a spinning red book, with gold embossing. Live performer is cued to begin. Green highlights indicate VR Cues

Intro

Reading of Yeats as technicians silently place the carbon real versions of the objects seen in VR into the space, as well as a small table, chair, tea cup, book, scarf, etc... The work lights are turned off and the theatrical lighting is engaged. The participant cannot see or hear any of this happen. There will be sound underneath the book spinning and the poem.

(A DREAM OF DEATH by WB Yeats)

I dreamed that one had died in a strange place
Near no accustomed hand,
And they had nailed the boards above her face,
The peasants of that land,
Wondering to lay her in that solitude,
And raised above her mound
A cross they had made out of two bits of wood,
And planted cypress round;
And left her to the indifferent stars above
Until I carved these words:
She was more beautiful than thy first love,
But now lies under boards.

(VR: The Book drops and lands on the floor. The blackness slowly fades to a small, low ceilinged, muddy, mottled, earthen enclosure - rectangle in shape. It's about 6' x 10' x 8' high. The audience member cannot see themselves, or Annie.)

ANNIE:

You're here! *(exhale)* Good. This is my grave. Our grave. Robert and I. The grave of a Black Donnelly. A real one. *(whispering)* One they didn't get. *(laughs softly)* Sorry. I'm Annie – Donnelly... You haven't heard of me, no one has. I am invisible. I erased us. I thought that might work, bring rest. Us. Enclosed here. Our bits and pieces. But. I'm just – absent. From the story. *(She moves far away from participant with the tracker).* I have been **erased.**

(She is standing far away. The PHOTO FRAME appears in VR. She holds the tracker far from the audience member. The approach with the object for the hand-over is slow.)

Look.

Things look different from a distance. Maybe they **feel** different too. Death does that. (*on “feel” she hands the VR Tracker to audience member.*)

This is a picture of our wedding. Christmas 1873. I was 16! Robert was so tall in that little old church. (*SX starts*) We had three years! Three years.

I dreamed of what my wedding dress would be. (*cross and get dress at SL*)

I loved it. When I spun around the skirts twirled and swooshed. (*live sound effect of the swooshing skirt*)

I love this fabric. (*A sigh of remembered delight*)

It’s so delicate. A beautiful cream... (*put the dress down*)
(*cross from in front of participant to the teapot table*)

...oh you can’t see the color! (*during the line x to the teapot table. SX created by performer interacting with the real tea pot as the VR object is switched from picture frame to tea pot.*)

This, (*performer clinks carbon real teapot*)

THIS teapot is the color of my dress. (*x back to SR of participant with teapot*) Cream. So elegant.

(*SX created by performer interacting with the real tea pot - Sound of the pot lid clinking.*)

Look at the yellow. That is the yellow of my flowers. I had beautiful flowers. Roses.

Look at the green. Mmmmm... it’s the green the fir boughs scattered through the church. You could smell the pine. (*put carbon real tea pot back on the table*)

(*@ SL*) Jenny, Robert’s sister, had pink shoes. Just like the pink flowers. She loved those shoes, all shoes! **My** wedding shoes were cream, not my regular brown boots that hurt my feet.

(*@SR*) Look at the orange. (*music slowly starts to fade out so that it is quiet by the vows*)

Just like the glow of the candles and oil lamps. It was so warm and Christmassy in that tiny church.

(*pause. Remembering.*)

Look at the blue. Oh... This is the blue of Robert eyes.

I, Annie, take thee, Robert, to be my husband...

Look at the gold. That's the gold of our wedding bands. It's worn away here. It's seen a lot of use... this teapot...

Can you smell the tea? All the tea. So many late nights drinking tea. My God... With all the tea we drank over the years, we could've put out that **fire**... (VR: On "**fire**" the teapot suddenly switches to the **CANDLEABRA**)

(there is an audible intake of breath and a long pause as she takes in the Candelabra and tries to reconcile its' appearance)

Wait. Wait. Wait. I didn't... No... Please... I'm not ready to... I just want... *(pause)* I'm not ready for... I just... The blue of his eyes... Not **yet**.

Oh Robert! I'm sorry.

(VR: "yet" The candelabra catches on fire. There is a long moment while she observes the fire, giving the audience member a chance to really look at it.)

I suppose you want to hear the story. (Everybody does)
I hate telling it because from that moment on our lives went to hell.

(She takes VR Tracker and puts it / the still flaming Candelabra down on the ground)

Feel how heavy it is. *(she hands them the carbon Candelabra)*
Murder is heavy. I'm haunted by that moment. That single moment in time.

I hate the story. You don't need to hold this anymore. I have to have it here, but you don't need to **hold it**. (VR: switches to the **VR STOOL**)

(she swiftly takes the carbon Candelabra & replaces it with the VR tracker)

I loathe this stool!

(Live Sx – drags the stool across the floor.)

Alright *(breath)*.
There is a knocking...
It is the middle of the night. Deep in winter.
Something horrible has happened... a mob... The vigilantes.

They beat them. They shot them. They set them on fire.

They burned the homestead to the ground.

Those people...

Robert lost his mother, father, two brothers, and a cousin... he was away.

My husband lost his family and I sat here on this stool,
mouth open,
heart split.

Oh Robert, I am so sorry.

This stool... I have to have it here.

But we went on. (*Music begins to play in the CR space; "The Wren", a traditional fiddle tune played on a mandolin*) Somehow. We moved away. We raised our boy. We raised a barn from the ashes. We had a life. We built a life. People rushing across muddy streets to say hello to US. The king and queen of Glencoe. We did that. Together. (*pause*)

(*clock chimes*) (*VR: Clock*)

Time.

Tick. Tock.

Tick. Tock.

Time.

The time he made us move back.

The time I spent standing at the window, watching him on the porch, pacing, pacing, shouting greetings at *those* people, day after day after day.

(*standing behind participant, whispering into their right ear. remembering*)

Robert... come inside

The time I worked while he was in prison.

The time I worried while he rebuilt the barn.

The time he slept there.

The time when he escaped from the Asylum and went missing. I knew taking him there was for the best. He thought differently.

The time he died in our bed.

(take tracker and put it behind audience, pick up real bone & scarf. VR CLOCK OFF once behind audience)

(put real bone in audience hands)

Do you think bones can be at peace? Moving them... Sometimes I wonder if I did the right thing bringing him here. I hope so. I hope there are enough molecules in his bones still, that his soul can feel me... I can feel him.

(She takes the bone and places it down on the wedding dress) (pause)

I have something special I want you to see.

*(She places the scarf in both participants hands. She is possibly holding hands with the person during the switch to AR. This is where we **switch to AR** and need to take time for that to happen and then to connect. A light Q will indicate the transition is complete.)*

I can still smell him on it, but you probably just smell dirt. It's so soft.

I gave this to him. I didn't want him to catch a chill... He wore it every day. *(pause)* Maybe he remembers my touch. In his bones.

You listen so well. May I?

(she removes the VR headset and battery, holding them. She holds the scarf and may make physical contact with the participant, but holds eye contact in this final exchange, grounding them, connecting with them.)

Here we are!

Thank you for listening. For seeing. You are most welcome to stay here for a while. This is for you.

(She takes the scarf, hands participant a red apple, and after a moment, leaves. The participant is given a brief moment to stay in the room before a technician comes to get them.)

Appendix B: Complete Research Survey Results

These documents have been uploaded to the Vault.

They are also hosted in secure Dropbox Links:

Complete list of research questions:

<https://www.dropbox.com/s/gi14cd04kd8db7c/Bury%20the%20Wren%20Interview%20Questions%20Clean%20Ver%202.pdf?dl=0>

Pre Performance Survey:

<https://www.dropbox.com/s/zshij7wuurvbn82/Pre%20Performance%20Survey%20Report%20-%20BTW.pdf?dl=0>

Post Performance Survey:

<https://www.dropbox.com/s/zisfxmti2ahev5/Post%20Performance%20Survey%20Report%20-%20BTW.pdf?dl=0>

Debrief Survey (for participants who observed a second performance from the control booth after they watched the performance):

<https://www.dropbox.com/s/750y0e3suw76jo3/Debrief%20Survey%20Report%20-%20BTW.pdf?dl=0>

Appendix C: AR Object instructions

AR TEAPOT

What you are going to (hopefully) experience is called Web Based AR. You don't need to download anything, the AR content is hosted in "the cloud", not requiring people do to anything more than access a website.

Instructions

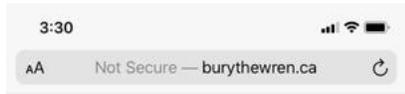
1. Using iPhone / iPad (I haven't tried it on non iOS devices but it should work) open this link in your browser: www.burythewren.ca/teapotAR
2. Click on the teeny tiny little icon on the right
3. Follow on screen instructions to move your phone around. This is the app scanning the surfaces in your space
4. a see-through tea pot will appear if you tap it, it will get put down on a surface. Sometimes the teapot puts itself down.

You can now make it bigger or smaller by "pinching" it with two fingers. You can move it around with one finger. You can also walk around it, move it up high so you can see the bottom. You can't really break it. The worst that can happen is you make it so small it vanishes or the application stops working.

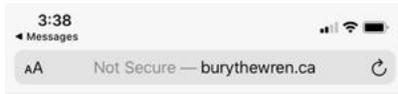
If you are reading this and do get it to work and can take some screenshots, I'd love to see them. I'm sure you will be able to find me online somewhere if bethkates@mac.com is no longer active.

Fun fact - the teapot, an important part *Bury The Wren*, was scanned from a real life tea pot using an iPhone XR in 2018. Gratitude to my collaborator Neil Christensen who did a lot of the development work.

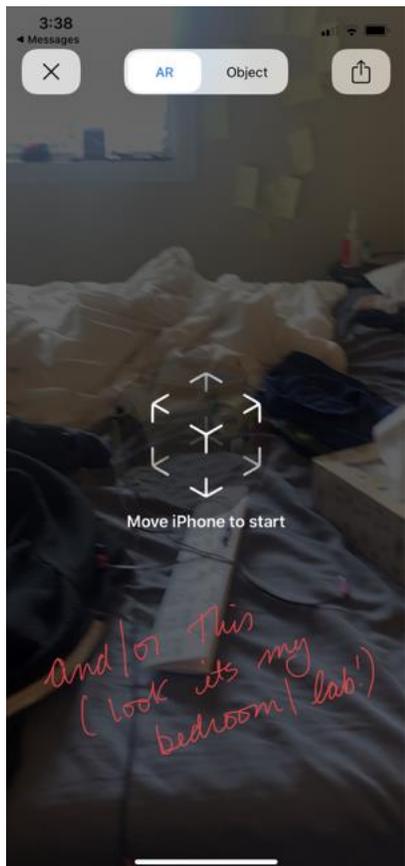
(Pics following)



TAP this icon (it's a cube) it may be very small, be patient.



Magnified!



Appendix D: *Bury The Wren* Alchemy Program and Full Production

Credits



Bury The Wren **An AR/VR/Carbon Reality Experience**

CREATORS NEIL CHRISTENSEN AND BETH KATES
DIRECTOR BETH KATES

This is a one-on-one performance. Pick your timeslot online at scpa.ucalgary.ca

March 29 at 12:15, 12:45, 1:15 and 1:45 p.m.

March 30 at 6, 6:30, 7, 7:30 and 8 p.m.

April 1 at 12:15, 12:45, 1:15, 1:45, 2:15, 6, 6:30, 7, 7:30 and 8 p.m.

April 2 at 12, 12:30, 1, 1:30, 2, 6, 6:30, 7, 7:30 and 8 p.m.

Doolittle Studio

Synopsis

Based on real events.

In 1880, five members of the Donnelly family were brutally murdered by their neighbours. Annie Donnelly and her husband Robert survived and lived among the murderers, who were never brought to justice. An immersive one-on-one performance, *Bury The Wren* uses Augmented Reality and Virtual Reality, mixed with 'Carbon' Reality, to exhume Annie's voice from the grave of history.

Bury the Wren is a practice-as-research performance project and collaboration with the Evolutionary Swarm Lab (Computer Science) and the School of Creative and Performing Arts.

Cast

Val Campbell, *Annie Donnelly*

Creative Team

Production, Virtual, and Augmented designs by Neil Christensen and Beth Kates

Original devised text created in collaboration with Val Planche

Supervisors: Bruce Barton and Christian Jacob

Image: Beth Kates & Neil Christensen

Bury the Wren is being presented as a CFREB approved research project. The research component is anonymous, and participation includes videography of each performance and surveys completed during your time slot. Attendees may opt out of the research component at any time before, during, or after the performance. You will be contacted in advance regarding all details. (REB18-1717)

Appendix E: Laval VR

Screenshots from *Performance Experiment: Creative Physical Collaboration and Performance*



at RectoVRso, part of Laval VR. Devised and led by Beth Kates, with support from Judith Guez, Neill O'dwyer, Tanja Bastamow and Joris Weijdom. A video of one of the performances can be viewed here: <https://www.dropbox.com/s/6zzh5s145wslgcq/2020-06-09%2019-57-25.mp4?dl=0>

Appendix F: Copyrights Permissions / Image release

 ★ **mariel - bluemouth** 2020-08-10
To: Beth Kates > 

Re: Cafe Sarajevo
📁 Found in U of C Inbox

[ΔEXTERNAL]

Hi Beth,

So good to hear from you! And big congrats on the thesis. That's monumental. I just asked our team about useage and yes you have permission:

"We, the collective of bluemouth inc. (Mariel Marshall, Stephen O'Connell, Lucy Simic & Lisa Humber) give Beth Kates permission to use photos from Cafe Sarajevo in her upcoming thesis, provided that she gives credit to both bluemouth inc., and the photographer Crispian Chan."

A few options for you attached! Once you're through the hard parts of the thesis send me a message and I'd love to catch up.

Best,
-Mariel



★ Kiira Benzing

To: Beth Kates >

2020-08-10

Re: Pandora X image for thesis

Found in iCloud Inbox

Beth,

Of course! I would be so honored.

Best,
Kiira

On Mon, Aug 10, 2020 at 12:01 AM Beth Kates <bethkates@mac.com> wrote:
Hi there,
I'd love to include a screen shot of some kind from Pandora X into my thesis.
Would you be amenable to sharing one and providing written permission (by email) for inclusion? I would be really thrilled to include one.

Many thanks,
Beth

★ Paul Cegys

Inbox - U of C 8:57 AM



Re: Thesis image

To: Beth Kates

[△EXTERNAL]

Hey!

Sorry for the delay. Here is the HiRez link with the proper credit: https://drive.google.com/file/d/1GGaH5ZRluxOJ_35tfyns6aCx_Btabywy/view?usp=sharing

Its not my image, but permission has been given by the PQ as long as Tomáš Brabec is credited.

Hope all is well and you are feeling a 'lightness'.

P.



★ Brittany Pack

To: Beth Kates >

2020-08-02

Re: Thesis images

📁 Found in iCloud Inbox

Go for it!

From: Beth Kates <[REDACTED]>

Sent: August 2, 2020 5:19 PM

To: Brittany Pack <[REDACTED]>

Subject: Thesis images

[ΔEXTERNAL]

Hi there,

There are some images I would like to use in the thesis from our research process that include you. I'm writing to ask for your permission to use them as figures or in the appendix. I am happy to share them if you'd like to see them.

Hope you're well. We will have a visit when this thesis is in the bag!

Beth



★ Zach Scalzo

2020-08-01

Picture Permissions

📁 Found in U of C Inbox

Hi Beth,

I wanted to send a quick message to follow-up on our discussion about images of me contained in your thesis. I give you permission to use them, and please let me know if there's any further action needed from me.

All best,
Zach

Zachary Scalzo
MFA, Playwriting
University of Calgary

Appendix G: Professional proofreader approval

July 10, 2020

Re: Proofreader for Beth Kates' MFA Thesis

I approve the hiring of a professional proofreader for the purposes of checking grammar, punctuation and style adherence to MLA formatting.

The proofreader will not alter the content, structure, or contribution of this thesis.

A solid black rectangular box used to redact the signature of the approver.

Bruce Barton