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Abstract

Technologies of illusion are technologies used to evoke an emotional response in an audience by producing an effect that seems to violate the laws of physics; for example, conjuring apparatuses and special effects are technologies of illusion. Traditional histories suggest that audience members value technologies of illusion for their mystery: when they understand the mechanism responsible for an effect, they lose interest in that technology. This view is empirically unsupported. Instead, technologies of illusion should be considered not as apparent violations of nature but as representations of violations of nature. Like all representations, their effectiveness hinges not on the deception of the audience by the performer but on collaboration between both parties to establish the illusion within the socio-cultural contexts that give it meaning.

The analysis of three case studies, each of which embodies one of the main fields in which technologies of illusion were used in performance in nineteenth-century London, supports this understanding. The ghost illusion jointly developed by Henry Dircks and John Henry Pepper in 1862 and presented by the latter at the Royal Polytechnic Institution is representative of technologies of illusion used in popular-science demonstrations. Likewise, the card-playing
pseudo-automaton Psycho developed by conjuror J. N. Maskelyne in 1875 is representative of technologies of illusion used in performances of secular magic, and the electric sword duel in Sir Henry Irving’s 1885 production of *Faust* is representative of technologies of illusion used to produce theatrical spectacle. Microhistories of each technology based on primary sources and informed by tacit knowledge gained through performance experiments demonstrate that secrecy of mechanism alone did not guarantee popular acclaim. Despite widespread knowledge of the mechanisms responsible for each illusion, these performers worked with their audiences within the conventions of their respective fields to construct meaning for their effects and achieve success for each technology.
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Chapter 1
Introduction

The temptation to reduce a technology of illusion to its physical mechanism is strong until one performs an illusion oneself:

“This demonstration involves two decks of cards,” I announce to the assembled academics. “This one”—I hold up a blue-backed deck of Bicycle playing cards—“and this one.”

The announcement prompts a ripple of laughter: my other hand is empty. I am miming the “second” deck.

My audience came prepared to hear the historical lecture I am introducing with this illustration, not to watch magic tricks. Good sports regardless, they listen as I explain the “psychic” connection between the invisible cards in my right hand and the real one in my left, and the researcher I ask to assist does so cheerfully. Following my instructions, he mimes shuffling the “invisible” deck and then pretends to select a card from it at random. Once he has held up his imaginary chosen card for the rest of the audience to see, I tell him to it flip over and re-insert it into the invisible deck face-up. He does.

Other audience members are eager to answer my questions about the card he picked: was it red or black? Hearts or diamonds? A face card or a number card? Which number? Together, they select the three of diamonds, and now it is time for the difficult part of the presentation. I pick up the real deck, untouched until now, and fan it out for my volunteer.

Does he notice anything strange? Yes, one of the cards is facing the opposite way from the others. Would he like to take that card? He would. And could he tell everyone what card it is that he now has?

Of course, it’s the three of diamonds.

I open this dissertation with a description of this illusion for the same reason I used it to begin my lecture: as well as being an admittedly effective rhetorical flourish, it provides an easy context in which to introduce the concepts necessary to the discussion of technologies of illusion on the Victorian London stage. The illusions examined in the following study are more
mechanically complex and historically significant than a simple card trick. However, my
performance of the invisible deck illusion reflects on a smaller scale the key aspects of my
chosen case studies. Most pertinent among these for the discussion that follows is the concept
often intuitively expressed as “how it is done.”

Trying to figure out “how it is done” is a common first reaction to an illusion of any size. The
performance I described above was given on the first day of an academic conference; on the final
day, attendees were still approaching me to offer their theories on how I had accomplished the
effect. To them, the answer lay in some heretofore undisclosed apparatus or technique—an
unseen sleight of hand, they proposed, or perhaps some clever mind-manipulation through the
exact phrasing I had used to ask questions of the audience. Although none of their suggestions
was correct, their chosen point of attack illustrates the tendency to consider the mechanism by
which an effect is made possible to be the substance of that effect. To my interrogators, any
sleight-of-hand I might have used was not merely part of the trick. It was the trick in and of
itself. Similarly, friends and family for whom I performed the illusion occasionally became
agitated at their inability to explain how I had accomplished the effect. Discussions of
performance considerations other than the secret apparatus or technique they assumed was
necessary—such as how I selected a presentation style to suit my personality or experimented
with different illusions until I found one that was effective with the size and composition of my
likely audiences—did not slake their curiosity. Only after Internet searches led them to the
specific piece of specialist equipment and the exact hand movements I had used were they
satisfied that they understood the illusion.

But comprehension of these one or two mechanical principles was only the bare minimum of
knowledge necessary to produce the experience of the illusion for the audience. It is true that
without that specialist equipment and hours of practicing the hand movements, I would have
been unable to perform the trick. It is equally true that mere proficiency with the equipment and
movements was not enough to evoke in the audience the lasting impression of awe that was my
goal. The core of the illusion is the performer’s seeming ability to turn a single playing card
upside-down without touching the deck in which it is inserted. Phrased this way, the trick is less
appealing: although equally defiant of the laws of physics, the ability to manipulate playing cards
pales in comparison to the mythos of an invisible psychic deck. Focussing on the ability to
control cards also robs the illusion of the audience interaction that engages spectators’ attention
in the miniature drama between volunteer and performer. The audience derives part of its enjoyment of the experience from the construction of meaning inherent in the communication between performer and audience members. For example, directed questions make audience members feel as though they are contributing to the illusion; the sense of being able to direct the illusion through explicit choices and tacit reactions increases the audience’s conviction that simple explanations for the effect are inadmissible. The invisible deck illusion cannot be reduced to sleights and apparatus; the context in which the illusion is performed is just as important to its reception.

It is my contention that the naive reductionism epitomized in the focus on “how it is done” is unnecessarily limiting as an approach to technologies of illusion in general and provides at best only a partial picture of the multifaceted and pervasive ways in which these technologies interact with the rest of the social and technological environments. This dissertation will argue for that conclusion by focussing on primary sources to construct microhistories analysing three major technologies of illusion that appeared on the London stage during the nineteenth century and the performers most strongly associated with those technologies: John Henry Pepper’s famous patent ghost (first exhibited at the Royal Polytechnic Institution in 1862); J. N. Maskelyne’s whist-playing automaton Psycho (first exhibited at England’s Home of Mystery in the Egyptian Hall in 1875); and the electric sword duel in Sir Henry Irving’s production of Faust (first exhibited at the Lyceum Theatre in 1885). Although the physical mechanisms responsible for each of these effects were necessary to their performance, they are not a sufficient explanation of the effects’ success. Historians of technologies of illusion must examine other factors that contributed to audiences’ perception of these effects, such as the ways the contexts in which they were presented guided audiences to construct meanings for the illusions. Before embarking on such an examination, it is necessary first to clarify what constitutes a technology of illusion.

### 1.1 Terminology

For the purposes of this dissertation, a technology of illusion is a technology designed and presented in order to induce an emotional response in an audience by making it appear that the laws of physics have been broken. The technology may comprise a physical apparatus or a technique; its presence may be obvious to the audience, as is the case with theatrical special
effects, or the audience may be unaware that the technology is involved, as is the case with certain conjuring effects. It may be used primarily to amuse, as in the theatre, or to instil a sense of wonder in an educational context, as in a demonstration of popular science. Finally, the technology of illusion must be presented in performance. This can include performances for oneself: consider the simple scientific illusion often taught to children in which the experimenter looks through a paper tube with one eye and holds her hand in front of the other.¹ The object of the experiment is the illusory effect of being able to look through a hole in one’s hand despite knowing that hand is solid. The experimenter is both the subject and the intended audience of the performance. While this definition of technologies of illusion encompasses a wide range of technologies, the features that they have in common ensure they can be studied under a cohesive methodology.

Other terms will also be pertinent to the content of this dissertation. In what follows, it is to be understood that “magic” refers to what Simon During terms “secular magic”:² that is, wonders created for the purposes of entertainment that make no claim to supernatural status. It is also to be understood that secular magic need not take place in the context of a conjuring act—for instance, as During points out, cinematic special effects are also secular magic.³ The definition of secular magic in this dissertation will differ slightly from that of During by including in this category presentations in which the performer makes explicit claims to be harnessing supernatural forces but is not believed by her audience. This second type of secular magic can be defined only with respect to a particular audience, and it will not be contradictory for a performer to be doing secular magic with respect to one group and another type of performance with respect to another. For example, although contemporary mentalist Uri Geller has convinced many that he possesses supernatural powers, with respect to professional illusionist and skeptic James Randi, his act consists of secular magic.⁴ This addendum provides additional specificity by acknowledging that the meanings surrounding performances must be grounded in the perceptions of individuals or clearly delineated groups of audience members located in time and

space, and it prevents confusion when tracing the history of technologies of illusion through situations in which the claims of performers regarding the status of their own acts do not match their own beliefs regarding that status, their audiences’ beliefs regarding that status, or both.

By “magic community,” this dissertation will refer to the body of professionals and dedicated amateurs who consider themselves to be illusionists who perform secular magic and who are active within communities of others who consider themselves to be the same. For example, professional illusionists Penn and Teller are as much part of the magic community as is an individual who visits her local magic shop, discusses conjuring techniques on online forums, and performs illusions privately for her own gratification. By contrast, the author of this dissertation is not a member of the magic community, despite having performed an illusion in front of an audience; neither are performers like Geller who, regardless of their personal understandings of their performances, claim to accomplish their feats through supernatural powers and are rejected as colleagues by the magic community. I will refer to individual members of the magic community as “magicians” or “illusionists.”

1.2 Literature Review

Under these definitions, technologies of illusion lie at the intersection of three fields of study: history of technology, history of theatre, and history of magic. As of this writing, each addresses technologies of illusion from a distinct perspective, demonstrating the importance of this kind of study to all three disciplines; however, each perspective on its own lacks an integral piece of the puzzle required to assemble a complete historical picture.

1.2.1 Historians of science and technology

Historians of science and technology have only relatively recently begun to investigate areas encompassing technologies of illusion. Until the last decade or so, historians of technology paid attention to technologies of illusion mainly when they intersected with more mainstream technological subjects—Silvio A. Bedini (1964) characterizes performing automata as a
laboratory to develop mechanical skills for more practical technologies, and Simon Schaffer (1996) addresses them only inasmuch as their presence influenced the motivations of Charles Babbage. In 1994, Roger Cooter and Stephen Pumfrey argued that historians of science and technology must learn to embrace practice and object as well as ideas and text. They made the case that scholars should be open to a plurality of sites for “doing science,” including sites of popular science. Since the publication of their paper, the ranks of those whose research deals at least in part with technologies of illusion have grown. Some scholars investigate the growth of the popular science movement during the Victorian era. For instance, Bernard Lightman (2007) writes on Victorian lecturers and writers who elucidated science for the masses, including those like Pepper who used spectacles and scientific trickery to draw their audiences. Others address the performative nature of scientific experiment. Ian Jackson (2008), for example, argues that the use of spectacle in eighteenth-century electrical demonstrations helped to disseminate scientific knowledge outside the traditional scientific community, while Iwan Rhys Morus (2006, 2010) comments on the epistemological consequences of scientific spectacle and public scientific demonstrations. It is clear that there are myriad topics of interest for the historian of technology who turns an eye to technologies of illusion.

Although historians of technology address the mechanistic and social aspects of technologies of illusion, they often neglect what this dissertation will categorize as the representational aspects of these technologies. These concepts are perhaps more easily described in relation to the field in which they are commonly discussed: the theatre. Performing artists have long understood that “holding the mirror to nature” is not simply a matter of recreating the details of reality in front of

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an audience. An actress knows that genuinely feeling an emotion during a scene is no guarantee that the audience will perceive her character to be experiencing that emotion; rather, she must convey the desired sentiment at least in part through accepted signs and gestures, even though these may not resemble most emotional outbursts one encounters in real life. Similarly, it is not sufficient that any special effect merely resemble in all physical points the object or phenomenon it is meant to represent. Rather, it must also be able to perform as its target: that is, it must be able to take advantage of social and theatrical conventions both to direct the audience’s attention to its salient features and to convince the audience to accept it as representing the desired entity.

While the need to include mechanisms that accomplish certain physical tasks shapes the development of special effects technologies, so do these conventions of representation, built upon both common theatrical practice and the shared social experience of audience and performers. For instance, although the technologies by which gaslight was produced and directed were influenced in part by the need to produce light of certain brightness and colours that could easily be used under ordinary theatrical conditions, their construction was also affected by representational needs: what the audience was willing to accept as realistic and appropriate lighting. 12 The mechanisms of special effects technologies are distinct from the effects they produce; although the need to, say, safely lift a costumed actor from beneath the stage influences the design of the trap-door machinery, more than the simple physical fact of the actor’s emergence needs to be in place for the audience to experience the sudden appearance of Hamlet’s father’s ghost.

Nowhere is this more apparent than in technologies of illusion, which depend as much on presentation as on mechanism. Nevil Maskelyne and David Devant opened their 1911 textbook on conjuring with the admonition that the true secret of magic is not “how it is done” but how the magician displays what is done, 13 and almost a century later, magician Jamy Ian Swiss agrees: “Magic only ‘happens’ in a spectator’s mind. Everything else is a distraction.” 14 Magicians have always been aware that the mechanism itself—the “trick” behind the illusion—is the weakest

12 See Terence Rees, Theatre Lighting in the Age of Gas (London: Society for Theatre Research, 1978) for a detailed look at the capabilities of gaslight and audiences’ reactions to the development of electric light.
13 Nevil Maskelyne and David Devant, Our Magic (E. P. Doughton & Company, 1911), 2.
The true marker of a magician’s ability is not the cleverness with which she invents apparatus or the dexterity with which he operates it. Rather, it is his or her ability to construct a context in which the audience is willing to believe a particular effect is possible and accept it as meaningful. It is not enough to show a volunteer that the single reversed card in the real deck is the same as the imaginary card the volunteer pretended to reverse in the imaginary deck; a magician must also convince the audience members she had no contact with the real deck after the card was chosen and that the volunteer is not a secret collaborator, and she must coax the audience view the feat as more than a technical demonstration of sleight of hand. Unless she can persuade her audience to see an effect as significant and intriguing, a magician is just a performer showing off the fact that she knows more about conjuring than her audience. In other words, magicians designing new illusions—and, in general, all individuals constructing technologies of illusion—must take into account the distinction between mechanism and effect because their success as performers depends on their ability to transform the action of the former into the experience of the latter. This makes the equipment they invent and use interesting cases for historians and philosophers of technology.

1.2.2 Historians of theatre

Given this shortfall in the existing literature on technologies of illusion from historians of science and technology, one might be tempted to turn to historians of theatre for a more nuanced view. Indeed, historians of theatre are better able to provide accounts of the ways in which technologies of illusion mediate the communication between performer and audience. Michael R. Booth (1981) takes advantage of newly available archival sources to investigate case studies from the Victorian era. Terence Rees (1978) tackles the technological development of first gas and then electric lights, and he collaborates with David Wilmore (1996) to catalogue and publish nineteenth-century theatrical patents, many of which are related to special effects and

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16 Ibid., 8.
17 Ibid., 38.
19 Rees, Theatre Lighting in the Age of Gas.
other technologies of illusion. More recently, Philip Butterworth (1998, 2005) uses the Records of Early English Drama archive to detail meticulous histories of early pyrotechnic practices and the use of conjuring effects in medieval and Renaissance English theatre. Each evaluates his sources with an eye to the representational conventions of performance. As historians of theatre continue to turn to rich and hitherto underexplored archival sources, and as scholars attack with new keenness performance studies that embrace non-traditional performance sites such as circus, exhibitions, and sideshows, the future of technologies of illusion in mainstream theatre history seems bright.

However, if historians of technology tend to take a simplistic view of performance, historians of theatre often espouse an equally simplistic view of technological development. First, historians of theatre tend to approach technology as consisting of state-of-the-art physical mechanism, while historians of technology recognize practices and concepts as integral aspects of technology. In the twenty-first-century theatre, practitioners identify “tech” with aspects of production such as electric lighting, sound systems, set construction, and mechanical special effects. Twenty-first-century theatre scholars sometimes identify technology with historical analogues of these elements of production—stage lights, trapdoors, and fly machinery. In both cases, this is an unnecessarily restrictive understanding of technology. Individual technologies, whether modern ones like computerized lighting boards or historical ones like gas tables, exist only within an environment of minor adaptations, collaborating technologies, and supporting techniques. The method for driving nails into the stage floor, the means of weaving and transporting the fabric for the upholstery in the auditorium, the system for organizing the backstage crew, and the gasman’s understanding of the nature of gas are all parts of the technological milieu of the theatre. Furthermore, technology of the theatre is also rooted in the technological context of the time; whether an audience perceives a theatre scene to be appropriately lit will depend not only on its view of the natural world and understanding of representational conventions but also on its interaction with other lighting technologies in day-to-day life. To artificially isolate the physical apparatus of individual pieces of equipment from the

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networks of technologies and techniques in which they are embedded oversimplifies the historical narrative.

In addition, the naïve approach of historians of theatre to the challenge of technological determinism can be problematic. When historians tackle technological subject matter, they must explicitly or implicitly take a stance on technological determinism—that is, the question of whether technological development and use arise inevitably from fundamental properties of technologies themselves, shaping human society and culture, or whether human drives direct the path of technological progress. Most historians of technology espouse a happy medium between the two extremes, recognizing that technologies can change human behaviour while at the same time acknowledging that humans are able to modify technologies to suit their needs. Theatrical histories of technology tend to characterize technology as a force external to the theatre—the fruit of a tree that grows outside the theatrical world, whose choicest specimens may be plucked by performers and transferred to the stage. Although this approach can be suitable when the goal is to recreate the circumstances of an historical theatrical production or to typify the resources generally available to theatrical practitioners of a given time and location, by not acknowledging technology as an organic, interactive part of the experience of creating theatre, scholars restrict their thought. Implicitly, many historians of theatre subscribe dangerously close to the deterministic extreme on the matter of technological determinism, treating technologies of illusion as immutable inventions that theatrical practitioners must work to incorporate wholesale into their performance rather than tools or starting points that can be modified as needed within the theatrical environment. Although theatrical histories succeed in analysing technologies of illusion in the context of performance, they sometimes want in their analysis of technologies of illusion as technologies.

1.2.3 Historians of magic

The last field into which study of technologies of illusion might fall, the history of magic, can be further subdivided into two categories. While recent interdisciplinary studies in the humanities address technologies of illusion and their interaction with contemporary culture on a theoretical

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23 See, for example, Robert L. Heilbroner, “Do Machines Make History?,” *Technology and Culture* 8, no. 3 (July 1967): 335-345.
level, there is also a longstanding tradition among professional magicians of curating a self-constructed history of their predecessors. In the former class, one can find such varied works as English professor Richard Altick’s exhaustive catalogue (1978) of the items, acts, animals, and persons on display in seventeenth-, eighteenth- and nineteenth-century London; art theorist Jonathan Crary’s explanation of how the spectacular optical instruments of the nineteenth century embody an understanding of vision different from that embodied by the optical instruments of the eighteenth century (1990); cultural studies scholar Simon During’s characterization of “secular magic” and subsequent exploration of its influences on modern culture (2002); drama professor Michael Mangan’s history of secular magic in performance (2007); historian James W. Cook’s investigation of the cultural influence of the deceptions of showman P. T. Barnum (2001); and the volume of essays on conjuring in performance edited by English literary scholar Francesca Coppa, philosophy professor and professional magician Lawrence Hass, and theatre scholar James Peck (2008). These works share not only a high standard of academic research but also an emphasis on theoretical understandings of technologies of illusions. Although describing the mechanisms and historical uses of the technologies they cover, they focus on the cultural impact of the idea of magic, and often implicitly cast the technologies as means to this end, rather than objects of study in and of themselves.

The internal history of magicians, on the other hand, frequently focuses on the practicalities of performance to the neglect of overall cultural zeitgeist. Among this group of historians of magic, one can count illusion designer and performer Jim Steinmeyer, who is well known in the magic

community for his reconstructions of nineteenth-century illusions\textsuperscript{30} and who has published histories of certain illusions for the general public.\textsuperscript{31} Others, like magician Milbourne Christopher, collect conjuring memorabilia over their long careers and assemble their findings into overviews of the profession.\textsuperscript{32} Perhaps because the lessons learned from illusions and illusionists of the past can be applicable in ways similar lessons in other fields of performing arts are not—an audience member at a live conjuring performance today can expect to see at least a few variations on techniques that are centuries old—magicians seem to have a strong sense of their own history. Historical articles frequently appear in the pages of professional magic journals, and professional magic societies are seldom without a busy library and archive.

Although the historical research of the magic community is prolific and often makes use of unique resources, its insular nature means it fails to situate itself within the broader context of general history and the more specific realms of histories of performance and technology. Members of the magic community benefit from belonging to the profession they study: not only do they have the personal experience to pick up on the tacit knowledge embedded in some primary sources but as members of an exclusive social group, they often have access to archival material and private collections that other scholars do not. However, the historians of the magic community suffer from not having the same resources as historians in the academic community. These resources may be material, as some university and library archives house books, articles, and artifacts pertinent to technologies of illusion, or they may be cultural, as an academic position and publication credits may lend greater weight to requests for information. For the most part, though, the resources denied to the magic community are conceptual. While academic historians are trained to wield historiographic tools that help them to approach their primary sources in a well defined and theoretically justifiable way, historians of the magic community seldom adopt an explicit historiography and for this reason sometimes make problematic assumptions. For example, in some studies, the reliability of certain sources, such as oral history,


is taken for granted without explicit justification. Perhaps more importantly, because the scholarly works of the magic community are often isolated from those of the academic community, discoveries made in one tend not to affect the other. While historians of magic and those who have taken more conventional academic paths to their discipline have much to learn from one another, this exchange of ideas is often overlooked due to social boundaries.

Although this section outlines this dissertation’s major criticisms of the current fields that study technologies of illusion, there is no intention to imply that the existing literature is poorly done or irrelevant. Each field necessarily approaches its subject and directs its conclusions with a particular audience in mind. Magicians writing for fellow magicians with the practical goal of historical reconstruction or even contemporary performance understandably leave out details that might interest an historian of theatre; an historian of theatre whose focus is the effect on performance of a particular lighting technique might justifiably not care about the development of the gas industry that the historian of technology would see as pertinent. In fact, it is precisely because each perspective on technologies of illusion unearths new, exciting, and enlightening knowledge that the lack of studies that integrate them is such a keen deficiency in historical understanding.

With this in mind, my approach to technologies of illusion will incorporate the most important methodological insights from each discipline. I will treat technologies of illusion as complex systems of mechanisms, techniques, and concepts that develop through interaction with existing technological systems and with the human beings that use them, while at the same time not losing sight of the fact that through this interaction, all parties are changed. While acknowledging that the physical mechanism was an integral part of each technology and crucial to allowing it to accomplish its goal, I will recognize that the goals of these technologies—representation in performance—warrant special consideration in view of unique challenges of this purpose. Finally, I will strive to achieve a good dialogue between theory and practice, balancing between assessment of overall cultural influences and the nitty-gritty of the technologies’ construction and presentation—in other words, taking into account their effects both within the smaller framework of the magic community and the larger framework of their historical context.
1.3 The importance of technologies of illusion

This sounds (perhaps dauntingly) complicated, and adherents of any of the above disciplines might be forgiven for asking: are technologies of illusion really worth this effort? Surely there are less trivial aspects of each field into which to delve; why waste time over-developing a study of what mainstream practitioners have categorized alongside “scientific toys,”\(^{33}\) suitable mainly for education purposes? The answer here is manifold. First, technologies of illusion were and are culturally pervasive. In contemporary Western society, individuals see and use them every day, whether as part of entertainment media or as an aspect of the variety of representations made and accepted in everyday life in areas as diverse as commercial advertising, enforcement of social rules and ideologies, and self presentation. For example, the same lighting technologies that flatter actors and actresses on the television screen sell tempting-looking fast-food hamburgers on billboards; the user interfaces on computers that make the internal workings of microprocessors seem analogous to windows or lines of code are as deceptive as the tricks of make-up, clothing, dress, and behaviour that are seldom considered technologies because they are socially ingrained in our society. Technologies of illusion are ubiquitous in contemporary theatre and film, both conspicuously, in technologies that labelled “special effects” like CGI and the green screen, and in the less noticeable form of technologies of masking and representation that many take for granted, like lighting techniques and teleprompters. Because so much of modern entertainment incorporates technologies of illusion, scholars would be remiss in the study of our own media if they did not trace the development of these technologies.

But physical ubiquity is only one reason why studies such as this one are important: because the success of these technologies depends on their ability and the ability of their users to navigate the cultural and physiological landscape of human perception, the study of technologies of illusion can shed light on their audiences—that is, on human society as a whole. Since the heyday of large-scale conjuring in the late nineteenth century, scientists have realized the value of illusion in examining human perception; from psychologist Alfred Binet’s 1894 work in collaboration

with leading magicians\textsuperscript{34} to twenty-first-century neuroscientists’ more sophisticated experiments,\textsuperscript{35} technologies of illusion have become tools allowing researchers to shed light on the workings of the brain and mind. On a broader scale, illusions and representation work only by drawing upon a network of meanings to draw an audience’s attention to salient features and to engage audience members in the collaborative process of representation. This network of meanings is dynamic and changes according to culture and context.\textsuperscript{36} By examining the ways in which technologies of illusion navigate and manipulate these networks in order to function, researchers gain a better knowledge not only of the process of representing and the property of verisimilitude themselves, but also of the social forces that shape them.

The study of historical technologies of illusion is also crucial for its own sake as a window on the past. Foucault shows how different guidelines for thinking about order in the world shaped different generations’ epistemology in the human sciences;\textsuperscript{37} similarly, technologies of illusion can shed light on the rules of thought of societies past. By observing the interactions of audiences with technologies of illusion and their presenters, one can better comprehend those audiences’ concepts of science and realism and their tacit understandings of different cultural categories.

Finally, studying technologies of illusion is crucial to understanding all types of technology because the former embody the principle at the heart of human technological development: imagine something, and then make it real.\textsuperscript{38} Although the above differentiates between mechanism and effect as a useful way of thinking specifically about technologies constructed by magicians and special-effects innovators, the distinction is a fruitful concept to apply to the study of all technologies. Every technology has a mechanical aspect that makes it “work,” whether that aspect is physical or conceptual; every technology has an effect on the external world. The causal relationship between these two aspects is often taken for granted by historians of technology. By

\textsuperscript{34} Sofie Lachapelle, “From the Stage to the Laboratory: Magicians, Scientists, and the Psychology of Illusion,” \textit{Journal of the History of the Behavioural Sciences} 44, no. 4 (Fall 2008): 319.
\textsuperscript{36} Mangan, \textit{Performing Dark Arts...}, xii.
forcing historians to re-examine their assumptions about the interaction between mechanism and effect, the study of technologies of illusion encourage scholars to develop a fuller picture of technological development.

1.4 Methodological challenges

Because the history of technologies of illusions is so important, and because it can be approached from so many different perspectives, it is equally important to outline the methodology used in researching this dissertation. First it is necessary to address the major methodological concern associated with researching technologies of illusion: in many cases, inventors and users of technologies of illusion deliberately hide the mechanisms of their technologies, often constructing elaborate falsehoods around the stories of their development and presentation. The ability to distinguish between these falsehoods and the truths they camouflage is often cultivated through experience—a professional magician becomes familiar with strategies of audience manipulation and basic mechanical apparatuses, and this familiarity allows her to spot when an historical magician is using the same techniques. There is also an ideological tension in the magic community between revealing the secrets behind illusions and preserving them. Although a lucrative part of the conjuring industry involves the sharing and selling of behind-the-scenes information and how-to manuals, illusionists have developed a standard of secrecy to prevent non-magicians from learning trade secrets. As will be shown in the chapters that follow, it is not necessarily the case that magicians’ livelihood depends on the exclusivity of their knowledge; what is important is that magicians are seen to guard their secrets jealously and thus cultivate the air of mystery and wonder that their audiences pay to see. Worse, third-party eyewitness accounts of historical illusions do not necessarily help pierce the veils of mystery magicians set in place. Historians of technologies of illusions must be wary of accepting these accounts at face value: audience members at conjuring shows often rely on one another when recalling pertinent information, or they may unknowingly accept the deceptive suggestions of the

39 Mangan, Performing Dark Arts..., 148.
Magicians often have vested interest in encouraging seemingly small false impressions, as even the slightest detail can hint at an illusion’s true mechanism.

Similar problems plague the study of traditional narrative theatre, where the presenters of technologies of illusion did not consider themselves to be conjurors and were not therefore bound by the code of the magic community; they nevertheless both deliberately and accidentally obscured the facts of the technologies they used. Some nineteenth-century theatregoers criticized actor-managers for making the aesthetic and literary value of their productions secondary to spectacle. These attitudes both affected audience members’ perception of the effects they observed and influenced theatre professionals’ descriptions of special effects in interviews and advertisements. To many artists, special effects were an ancillary concern, private solutions to internal technical problems that did not warrant recording. Even those with the best intentions could stumble over the ephemeral nature of theatre performance: writing months or even years after the original performances, their memories of crucial events were blurred by age, and some accounts of effects have been passed down only through dubious oral histories. For their part, audiences sometimes take for granted the representational and conventional aspects of technologies of illusion when describing their use in the context of a narrative; an eyewitness who writes that a character exited pursued by a bear might be describing what she knows the action on the stage represented, but a modern reader cannot be certain how this representation was accomplished—a real bear? An automaton? An actor wearing a bear mask? Description of events by a narrator? In other cases, because the intent of the performers is to deceive the audience, audience members are unaware that they are perpetuating falsehoods. For example, in some Victorian plays calling for identical twin characters, body doubles were occasionally used to give the impression that the same actor played both characters. An audience member ignorant of this practice might incorrectly suggest the characters were played by actual twin

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44 For instance, in *The Corsican Brothers*, a body double was used to enable the ghostly brother to appear to haunt the living brother after the climactic duel scene (Percy Fitzgerald, *The World Behind the Scenes* (London: Chatto and Windus, 1881), 47).
actors. Only slightly more reliable are the stage directions in the printed copies of scripts. Often
the extent of the spectacle in Victorian theatre was at the discretion of the actor-manager of the
company, not the playwright, and most nineteenth-century English play scripts give only bare
indications of the effects desired, either in the explicit stage directions intended for the reader of
the play or the directions implied within the dialogue. In the rare cases in which stage
directions are detailed, the existence of a direction gives no indication of whether it was actually
followed in performance or, if it were, how it was carried out.

Even within the context of scientific demonstrations, where the explicit intention of the
performers is to clarify the workings of the effect, records can be vague. Because effects were
used to elicit audience interest in drier topics or as illustrations of rather than evidence for
universal laws, the exact technical details were sometimes ignored in favour of the general
principle. A lecturer using items plunged into glass containers full of sand to illustrate friction,
for example, might clearly explain the concept in lecture and even include in later books or
pamphlets instructions on how to accomplish the same demonstration at home. However, such
accounts often leave out details of interest to the historian of technologies of illusion, such as the
development of the particular equipment used in the demonstration or the complementary
technologies of the stage required to make the illusion effective. In addition, because scientific
lecturers often spoke for commercial gain, some sacrificed what they perceived to be the
educational aspect of their shows to evoke wonder in their audiences. Less scrupulous lecturers
also noted that the drive to figure out “how it is done” can lead to more repeat visitors than that
to re-hear a good lecture. To be sure, technologies of illusion intended for scientific
demonstrations were patented more often than those intended for other uses, making their
blueprints publicly available. However, as with many technologies of this kind, whose creators
perceive their popularity as dependent on their novelty, the researcher frequently finds that
apparently clear instructions leave out important details, either because construction experience
has been tacitly assumed or because the object of the patent holder is to protect his or her
innovation, not to share it, and with such a goal in mind, only the key design features have been
recorded.

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45 See Butterworth, *Theatre of Fire*…, xxii-xxiii for more on this useful distinction.
All three contexts in which Victorian technologies of illusion were used present the problem of availability of surviving materials. As noted above, users who did not consider themselves foremost to be conveyors of illusion tended to regard the technologies they used to accomplish these illusions as secondary to the primary goal of their work, whether that was theatrical art or popular scientific education. Although this perspective is slowly changing, it is still reflected in contemporary research, and unfortunately many physical artifacts have been lost or tied up in complicated storage situations. At the time of this writing, a wired glove and boot used in the electric sword duel illusion presented by Sir Henry Irving in his 1885 production of *Faust* are in limbo between the collections of the museum acquiring them and that of the museum giving them up and are inaccessible to research; any physical evidence from the Royal Polytechnic Institution was evidently not considered to be of high enough historical value to prevent it from being auctioned off at the dissolution of that organization in 1882.47 Furthermore, what little material does exist is not always available to laypersons for detailed examination. Although the magic community has a strong sense of its own history and has preserved many images, manuscripts, and artifacts belonging to conjurors of the past, many of these are currently in private collections, available only to other magicians.48

Despite these constraints, I have been able to amass a significant amount of information, and the variety of sources I have used mitigates the deficits in reliability of each particular source. First, I have used textual sources, including surviving correspondence, published books and pamphlets, periodical articles, diaries, and scripts. Where possible, I have sought the accounts of eyewitnesses and of practitioners writing close in time to the performance or construction in question. Based on my knowledge of the inherent problems of these sources, I have done my best to evaluate the trustworthiness of each eyewitness in light of what seems plausible given the state of conjuring, theatre, and popular science and given the social conventions of the period, and I have noted contradictions between accounts where they occur. More importantly, I have also considered what can be learned from even the most untrustworthy of eyewitness accounts:

48 It should be said that the magicians with whom I have been in contact regarding research for this dissertation, including the representatives of the Magic Circle, London, have been nothing but helpful and welcoming, often offering “secret” information without being asked. However, I have been unable to access some archives and collections simply because the owners can be contacted only through a network of personal acquaintances in the magic community.
whether true or false, each account contains what its originator felt to be the most significant or memorable points of the performance.\(^{49}\) I have supplemented this analysis with examination of illustrations, diagrams, and patents and with examination of performance ephemera (including playbills, posters, programmes, and advertisements) contained in archives. I have also been privileged to examine available artifacts, in particular the surviving parts of the automaton Psycho, donated to the Museum of London by the Maskelyne family and one of the swords used in Irving’s electric duel, kindly put at my disposal by the Magic Circle museum in London.

It has also been my privilege to extend the scope of my research to reconstructions of key historical apparatus. While I acknowledge that the new resources available in the present day, the necessity of making assumptions to cover gaps in the source material, the current socio-cultural environment, and other discrepancies between the historical implementations of technologies of illusion and any reconstructions today means that these projects cannot provide objective information about the subjects of my research, I nevertheless maintain that they are useful. The tacit knowledge gained from interacting with a piece of equipment similar to those used by the historical agents—so long as the limitations of reconstruction are kept in mind—inform rather than dictates interpretations of primary-source images and texts and reminds the researcher of the complexities of performance that can sometimes be overlooked by those who record visual sketches or verbal impressions. In this dissertation, I will draw on my experience adapting, building, and using a modified disappearing cabinet, which worked on the same principle as did that used by J. N. Maskelyne and as did the Proteus cabinet of scientific lecturer Professor John Henry Pepper. This illusion was designed for the May 2011 production of *Ismene* by Toronto’s Socratic Theatre Collective. I am also fortunate to have had the support and assistance of the University of Toronto’s Centre for Drama, Theatre and Performance Studies and the Institute for the History and Philosophy of Science and Technology in reconstructing a version of the illusion popularly known as Pepper’s Ghost in January 2012.

Not being a magician myself, I am aware that I lack the in-depth knowledge of conjuring practice that often assists those attempting to unearth the mechanism behind an effect. However, the scope of this dissertation extends beyond simply exposing the “trick,” and my background in

\(^{49}\) Butterworth, *Theatre of Fire*…, xx.
both history of theatre and history of technology allows me to take a fresh approach not used by historians of magic. While I have not completely eliminated the inherent difficulties of this study, I have nevertheless minimized their impact as much as possible. By pursuing a variety of source types and by cross-referencing the information gained from each, I have been able to conduct an informed historical analysis. Although there are some sources I have not been able to consult due to exclusivity or inaccessibility, I am confident that I build my argument on a solid knowledge base.

However, my layperson status highlights another methodological difficulty. Scholars of technologies of illusion find themselves in an ethical quandary: it is generally accepted that historians cannot harm the dead through their work, no matter how unflattering their conclusions. Nonetheless, technologies of illusions are a unique case in that they still hold the power to amaze through the centuries. Trivially, some are still used today in almost identical forms, but more importantly, awe is not restricted to one time or place. Reading of a ghostly skeleton suddenly appearing onstage to walk through a living actor or a wooden figure that appears to play cards with human intelligence can prompt wonder even when the actual inventors and artifacts are long since turned to dust. The historian must ask himself or herself whether it is right to ruin this wonder by revealing the mechanism behind the trick. On one hand, the knowledge of this mechanism enhances arguments about the performance of the illusion and satisfies academic curiosity, and, as will be shown, revealing the mechanism does not equate to negating an audience’s pleasure in the illusion. On the other, especially when the illusion is experienced not in person but through words on a page, it is easy for disclosure to trigger disappointment, and revealing the secrets of technologies of illusion deliberately undoes what this dissertation will argue was painstaking and complex work on the parts of their creators and presenters. To compromise, I include information on the mechanism of each illusion only where it is necessary for the argument, and I do so in the terms and at the level of certainty publicly available in the performer’s own time. Illusions tend to have a long lifespan, and the would-be investigator can find descriptions of their mechanisms through only a cursory investigation—for instance, a quick Google search is enough to uncover the method behind the effect described in the opening paragraphs. In some places where readers might wonder about the mechanisms of illusions mentioned in passing, the included references will allow them to satisfy their curiosity at their own discretion.
Finally, while there are many valuable approaches to historical research, I will conform most closely to the historiographic stance sometimes described as microhistory. This refers both to the scope of the study—I will focus on three individual cases situated specifically in location and time rather than population- or era-spanning trends—and to the types of sources sought, the use made of those sources, and the intended scope of the conclusions drawn from those sources. While it is true that there is not a strict definition of the methodology of microhistory, it is also true that there are many studies within the history of performance that can be identified as microhistorical, and these possess a few key attributes shared by this dissertation. Although I rely on a few canonical secondary sources throughout the dissertation, for the most part I draw my conclusions from close readings of primary sources such as the artifacts, ephemera, and texts described above. My goal is neither to use these sources to draw broad conclusions that lose sight of the specific cases under consideration nor to avoid abstraction entirely; instead, I hope to achieve a balance between the twin goals of drawing general conclusions and not straying too far from the evidence at hand. In my interpretation of this evidence, I assume that it is on the level of representation rather than that of material construction that items, events, and activities have meaning and therefore can be considered to be significant historical subjects, and that each such subject embodies a multiplicity of potential representations that must be considered in a pluralistic fashion. Because I am aware that this pluralism exists and hence that from my own subjective viewpoint, laden as it is with certain theoretical assumptions of which I may not be aware, I may accidentally misinterpret or omit pertinent information, I include where I can the narrative of the process of research—as in this section—in addition to the historical narrative I wish to convey, so that the information of the reader can mitigate these shortcomings. I also bring these theoretical stances to bear on my reconstructions of historical performances and my construal of these reconstructions: as indicated above, I am aware that there are certain types of information these activities cannot provide, but I nevertheless maintain that so long as one is

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52 Ibid., 96.
53 Ibid., 103.
55 Ibid., 106.
open about their inadequacies and explicit about the ways in which one draws conclusions from them, they are useful sources of historical information.

1.5 The case studies

From this standpoint and with these resources, I will examine three case studies to argue for my thesis. Each case study focuses on an historical figure who exemplifies a particular segment of the performers who used technologies of illusion, and each examines the technology of illusion that either was most popularly associated with him in his own time (as for Maskelyne and Pepper) or that was one aspect of a spectacle popularly associated with him in his own time (as for Irving, whose activities as the actor-manager of the Lyceum were so diverse and so well received that it would be impossible to identify a single performance for which he is best known). Together, analyses of these three cases will demonstrate that historians need to look beyond mechanism to explain the popularity and effectiveness of technologies of illusion.

1.5.1 John Henry Pepper and the patent ghost illusion

The originator of the first case study, John Henry Pepper (1821-1899), exemplifies the nineteenth-century popular science educator. After studying with the chemist John Thomas Cooper, he became a lecturer for the Granger School of Medicine at the age of nineteen. In 1847, he gave his first lecture at the Royal Polytechnic Institution, the institution with which he would become associated for much of his career and at which an express motion in the minutes of the directors’ meeting bestowed upon him the title “professor.” The Royal Polytechnic can be seen as a forerunner of today’s science museums; it was a permanent collection of educational but engaging displays of technological and industrial advances, and visitors could also attend in

popular lectures or sign up for night courses to further their learning. Pepper soon became known as an energetic lecturer and assumed the post of honorary director of the institute four years after his initial appointment. He remained in this position for twenty years, during which time he presented many lectures and authored several books aimed at propagating scientific knowledge among young readers in an amusing but clear fashion. Pepper’s lectures were popular enough that he was able to first supplement and then make his income by touring. He visited schools to speak to students, and after his term at the Polytechnic, he brought the spectacular demonstrations for which he had become famous around the world, touring the United States, Canada, and Australia. Pepper’s career was not only flourishing but characteristic of the successful scientific lecturer.

Although Pepper presented several technologies of illusion over his lifetime, the best known and most enduring was the one that bears his name: Pepper’s Ghost. The effect was first displayed at the Royal Polytechnic just before Christmas of 1862, where it became extremely popular. After its initial appearance, theatres vied for the right to produce their own “patent ghosts,” and the illusion appeared in everything from lectures on optics to scenes in dramas written especially to showcase its potential. Although the ghost craze died out in the years that followed, touring companies exhibiting the illusion still played at fairgrounds and smaller theatres through the turn

59 “Programme,” Royal Polytechnic Institution Limited, August 23, 1861. See other programmes available through the Royal Polytechnic Institution archive (University of Westminster, London) for additional details.
60 “Polytechnic Institution,” The Times, October 16, 1861, 1.
62 Pepper, Cyclopaedic Science Simplified, [vii].
63 Weeden, Education of the Eye…, 86.
65 Pepper, The True History of the Ghost; and All About Metempsychosis, 3.
66 Ibid., 13, 19.
of the century,\textsuperscript{68} and though the popularity of the ghost has waned significantly, it is still used as a spectacular effect in locations as diverse as Australia’s National Sports Museum\textsuperscript{69} and the Haunted Mansion attraction at various Disney theme parks.\textsuperscript{70} In fact, during the final stages of the writing of this dissertation, a “holographic” image of deceased rapper Tupac Shakur produced in much the same way as the original Polytechnic ghost was making headlines.\textsuperscript{71} The initial popularity and lasting fame of the illusion make it an ideal candidate for this study.

Chapter two will therefore examine the circumstances of the display of the patent ghost illusion at the Royal Polytechnic, its propagation through the public imagination, and its interaction with the overall atmosphere of that facility. It will argue that the context of performance, both narrative and socio-cultural, played a key part in the success of the illusion, and that differences in audience response were due to personal experience and expectations that caused individual audience members to interact differently with these contexts. Chapter three will explore the development of the Ghost and the circumstances surrounding its display at the Royal Polytechnic. It will also investigate the extended dispute between Pepper and Henry Dircks, the civil engineer who suggested the concept of the ghost illusion in 1858, proposed the concept to Pepper in 1862, and claimed that Pepper and the Polytechnic robbed him of his rightful credit for the invention. Based on the conclusions of chapter two, chapter three will both expand the previous chapter’s contention and argue that historians must understand the Pepper’s Ghost technology as a combination of principle, physical apparatus, and technique. Together, these chapters will demonstrate that although the mechanism is necessary to the working of the ghost, it is not sufficient to produce the desired effect in the minds of the audience.

1.5.2 J. N. Maskelyne and Psycho

The creator of the second case study, the magician J. N. (John Nevil) Maskelyne (1839-1917), is an ideal figure to represent the Victorian magic community because his influence extended

\textsuperscript{68} Ibid., 22.
\textsuperscript{70} Secord, “Quick and Magical Shaper of Science,” 1468.
through his own time and remains strong today. Throughout his career, Maskelyne became well known for hiring younger conjurors to join his show, establishing their careers. He founded the Magic Circle, the professional union of British magicians that is still a core organization in the magic community today. His fame among fellow conjurors was so strong that he set the benchmark of quality for his conjuring colleagues: some went to elaborate lengths to learn the secrets behind his illusions, and others, like American magician Harry Kellar, even made a career out of adapting both his apparatus and routines to their acts. Maskelyne enjoyed the esteem of the public as well as that of his peers. He never declined the opportunity to stand out in the public eye, accepting and issuing open challenges, instigating and fighting court cases, and weighing in on popular issues of the day such as the existence of spirits, dishonest professional gamblers, and Theosophy. The public rewarded his efforts with attention: at the height of his career, he was a figure recognizable enough to earn a “Days With Celebrities” full page of caricatures in Moonshine magazine. Maskelyne and Cooke’s daily show at the Egyptian Hall was sufficiently popular to warrant an off-hand mention in children’s novels as a common reason for the inhabitants of suburban nurseries to visit central London, alongside better-remembered institutions like Madame Tussaud’s and the Zoölogical Gardens. But the

74 Steinmeyer, Hiding the Elephant..., 165.
75 See, for instance, the conjuring espionage and dishonesty surrounding the dissemination of Maskelyne’s levitation illusion in John Booth, “The Egyptian Hall in London: Center of A Magical Universe,” Genii 43 (February 1979): 126.
77 See, for example, “Maxim Versus Maskelyne: A Complete Explanation of the Tricks of the Davenport Brothers and Their Imitators--the Cleverest Performance Ever Attributed to Supernatural Powers. Reprinted from The Strand Magazine” (Pamphlet, 1910).
82 See Appendix, fig. 1.
best testament to Maskelyne’s fame is the simple fact that he and his company performed continually in London and on tour from their first lease on the Egyptian Hall in 1873 through Maskelyne’s death in 1917, a period of over forty years in a city with literally hundreds of other attractions competing for his audience’s money and attention and a high rate of turnover among entertainers. In tribute to his lasting contribution to the magic community, the Magic Circle’s award for services to British magic bears his name. J. N. Maskelyne not only embodied the magic community of his era but continued to inspire those who followed in his footsteps long after his death.

Although the list of technologies of illusion that Maskelyne originated and used in performance is long, one stands out from the rest: Psycho, a purported automaton exhibited by him at the Egyptian Hall, London beginning in 1875. For over four thousand consecutive performance, Psycho played cards with audience members and imitated various other human actions. In its own time, Psycho was mystifying, and to this day, despite the fact that the automaton is available for examination at the Museum of London, no one can say with complete certainty how it worked. Psycho is a particularly illuminating example for this dissertation because it and its creator straddled the line between legitimate technological ingenuity and deliberate deception. Maskelyne promoted Psycho as advanced technology, but exhibited it as a magic trick; the automaton would not have functioned without its mechanism, but the mechanism on its own would not have achieved the success it did. An analysis of Psycho’s history and the social, technological, and theatrical contexts within which Maskelyne presented it will show that a proper understanding of its story must incorporate some account of its performative aspects as well as its physical construction.

Chapter four will demonstrate Psycho’s popularity through a description of Maskelyne’s presentation of Psycho. It will investigate Psycho’s reception among its London audiences and the environment in which it was presented at the Egyptian Hall. Chapter five will build on this examination with an analysis of the factors that allowed Maskelyne to present Psycho effectively, including the mechanical base of the automaton but extending to Maskelyne’s

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84 See George Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904 (Middlesex: Published by the Author, 1967).
deliberate construction of meaning and manipulations of the conceptual frameworks in which his audiences viewed Psycho.

1.5.3 Sir Henry Irving and the electric duel in *Faust*

Of the three historical figures who feature in this dissertation, Sir Henry Irving, who represents the Victorian theatrical profession, is likely the most widely remembered. Credited with revolutionizing the public perception of the theatre from cheap entertainment to respectable art, Irving captured not only the hearts of his own countrymen and countrywomen but also those of nations the world over. Under his management, the Lyceum theatre became a fashionable haunt for the upper class where one might find Prime Ministers watching the play from backstage. He was the first actor to be made a knight for his services to his profession and to accept numerous honours, including lecturing at Oxford University and speaking at the Royal Academy Banquet. When he died in 1905, the nation mourned; twelve hundred people attended his funeral—and this was out of a full five hundred thousand who had applied to do so. Irving was buried in Westminster Abbey, an unprecedented honour for an actor-manager. His popularity is such that even today, over one hundred years since his death, the Irving Society thrives with members from various walks of life. To expound exhaustively on the contributions and celebrity of Sir Henry Irving would require far more room than is available in this introduction.

Unlike those of Pepper and Maskelyne, Irving’s career suggests no single most prominent technology of illusion to study. In his long tenure as the manager of the Lyceum, Irving produced dozens of plays with elaborate staging and technical requirements; he was well known for

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90 Ibid., 2.
creating spectacular images with the stage. Irving’s attention to detail in scenic art, his facility in directing large groups of supernumeraries, his command of colour and composition in costume, set, and staging, and his ability to coax astounding effects from careful manipulation of the gas lights were all admired. To make the choice more difficult, many of his productions used new stage technologies, and many of his performances, such as Mathias in *The Bells*, the eponymous lead in *Hamlet*, and Shylock in *The Merchant of Venice*, were considered to be major contributions to the theatrical canon. Even if one could identify a single play from Irving’s vast repertoire that epitomized his work, to choose a single technology of illusion from that play would be an equally daunting task. Irving’s holistic sense of the stage meant that the technologies he used interacted with one another to create the overall stage picture he had in mind, rather than working in isolation to contribute different aspects of the effect. All technologies of illusion are enmeshed in networks of technology to some extent, but because Irving’s focus was the narrative in which the effects were embedded rather than the effects themselves, his integration of various technologies was to a greater degree than found in other performances. Merely narrowing the focus of this study to the technologies used in a single play is of no use; the net is still cast too broadly.

With these limitations in mind, I chose the electric duel in Irving’s 1885 production of *Faust* as most suitable for this research. Although one might hesitate to argue that *Faust* was objectively the most enduring or characteristic of Irving’s productions, it was at least as popular as any other contender. Over five hundred performances of the production were given. Although the show offered its audiences a smorgasbord of exciting effects, the Lyceum staff produced most of these by combining many standard technologies of illusion, such as lighting and set construction, making these effects difficult for the researcher to dissect. Because the production’s electric

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98 Ibid., 224.
sword duel between Faust and Valentine is easily linked to a unique physical mechanism—in this case, wiring, battery, and metal plates—it makes the clearest case study.

That is not to say the myriad contributing technologies will be forgotten. First, chapter six will argue that, despite differences in epistemological context that raise legitimate historiographic concerns, special effects used on the theatrical stage can be approached from the same theoretical standpoint as technologies of illusion used on the conjuror’s stage and in the scientific lecturer’s auditorium. This demonstrated, chapter seven will utilize the concepts introduced in the study of Pepper’s Ghost and Psycho to examine of the background and presentation of the electric duel. It will analyze the duel’s incorporation into the micro-narrative of the fictional story of Faust and the macro-narrative of Irving’s public persona. Together, the two chapters will show that the impact of the effect was not accomplished with the electrical apparatus alone.

1.6 Secondary themes

Although this study concentrates mainly on the inescapable interplay between physical mechanism and representational convention for the three case-study technologies of illusion, exploration of the subject exposes a number of secondary themes. These themes recur in the history of technologies of illusion and shed light on the development of both these and other technologies. The examination of technologies of illusion reveals the blurring of disciplinary boundaries between Victorian theatre, conjuring, and scientific education, and the investigation of technologies in which the mechanism is openly distinct from the effect raises questions of technological identity: is a technology’s identifying characteristic the mechanism that constitutes its physical apparatus or the effect it has when used? Or does some combination of the two qualities constitute that particular technology? Exploring technologies of illusion—and, specifically, exploring the case studies of Pepper’s Ghost, Psycho, and the electric duel—clarifies both these issues.

1.6.1 The blurring of disciplinary boundaries

This dissertation will argue for the ambiguity of the borders between Victorian theatre, magic, and popular science in part out of necessity: if the worlds of Pepper, Maskelyne, and Irving were incommensurable, it would be difficult to justify applying concepts learned from studying one to
investigation of the others. While there were certainly differences between the performances at the Lyceum and those at the Royal Polytechnic or the Egyptian Hall, a closer look at all three reveals similarities not only in the objectives of their owners but also in their actions and skills. As will become clear in the following chapters, sometimes the only difference between a conjuring trick and a theatrical spectacle or scientific demonstration is the context in which the effect is performed, and similarly, sometimes the only difference between a lecturer, a magician, and an actor is the choice of context in which each performs his or her act.

As the managers of major London entertainment venues, Pepper, Maskelyne, and Irving faced similar professional concerns. Irving’s Lyceum Theatre, Pepper’s Royal Polytechnic Institute, and Maskelyne’s Egyptian Hall were known as the foremost homes of theatre, popular science, and conjuring respectively in their own time. Despite the different stated goals of the three establishments, each man had roughly the same responsibilities. Each managed a company of underlings in a central London auditorium, conceiving and producing respectable entertainment for middle-class audiences. Each felt the pressure of maintaining novelty under the expectation of daily shows and faced the dilemma of how to balance tested-and-true repertoire with new spectacle. Each managed tours of his specialty. And whether he called it a theatre, an auditorium, or a lecture hall, each had the fundamental job of filling the empty seats in front of a stage.

On an individual level, each man cultivated a magnetic persona in order to present his ideas to his audience with authority. Pepper’s showmanship made him popular with his audiences; 100 Maskelyne’s energetic pursuit of confrontation and challenges won him the attention of the public; 101 and Irving’s cult of personality 102 gained him thousands of friends and followers. Although Pepper was the only one of the three formally educated in the sciences, each promoted an image of himself as an objective and rational man. Pepper, Maskelyne, and Irving all characterized themselves as men informed by careful observation and logical analysis, men who were able to piece together an accurate picture of the world and convey it for the benefit of their audiences. In doing so, all three men took stances opposition to what they perceived as the frauds

100 Secord, “Quick and Magical Shaper of Science,” 1648.
101 Dawes, The Great Illusionists, 163.
of their age and domain: pseudoscientific claims,\textsuperscript{103} dishonest mediums,\textsuperscript{104} and theatrical performances that sacrificed transcendent truth for tradition or mundane fact.\textsuperscript{105} Whether his object was the “true” character of Hamlet, what “actually” lurked in a drop of pond water, or the “real” story behind Spiritualist reports of ghosts, each man positioned himself as a clear thinker unburdened by biases of the past.

With the professional lives and personas of the three men so similar, it is not surprising that their professional activities and skills overlapped. This is not to suggest that the practitioners would have agreed they played similar social roles: Irving saw himself as a devotee of the theatre;\textsuperscript{106} Pepper’s goal was to bring scientific education to the masses;\textsuperscript{107} and Maskelyne strongly identified with the magic community.\textsuperscript{108} It would also be wrong to suggest that the men pursued each others’ arts with the same devotion with which they dedicated themselves to their own—Maskelyne and Pepper did not have the same reverence for Shakespeare as Irving; Irving did not share Pepper’s scientific knowledge. But the more one scrutinizes the lives of the three men, the more apparent it is that they shared an overlapping set of skills and interests. Although narrative theatre was Irving’s province, Pepper staged literary scenes from Dickens and Bulwer, and he is known to have assisted West End theatres with “scientific arrangements” and scenery.\textsuperscript{109} Maskelyne, for his part, not only incorporated original scenes and sketches in his performances but also staged a full-length play based on a novel by Lord Lytton, \textit{The Coming Race}.\textsuperscript{110} Irving and Pepper might have considered it dismissive to be labelled conjurors, but each nevertheless had skill with illusions. After his break with the Polytechnic in 1872,\textsuperscript{111} Pepper rented rooms at the Egyptian Hall to exhibit optical illusions created by him and apparatus designer Thomas

\begin{thebibliography}{99}
\bibitem{103} See, for instance, Pepper, \textit{The True History of the Ghost}…, 28.
\bibitem{104} See, for instance, John Nevil Maskelyne, \textit{Modern Spiritualism: A Short Account of Its Rise and Progress, With Some Exposures of So-Called Spirit Media} (London: Frederick Warne and Co., 1875).
\bibitem{107} Pepper, \textit{The Boy’s Playbook of Science}…, 1.
\bibitem{108} Maskelyne, “My Reminiscences,” 20.
\bibitem{109} Secord, “A Quick and Magical Shaper of Science,” 1648.
\bibitem{110} Maskelyne, \textit{White Magic: The Story of the Maskelynes}, 88.
\bibitem{111} Weeden, \textit{Education of the Eye}…, 86.
\end{thebibliography}
Tobin,\textsuperscript{112} who had had success creating the famous Sphinx illusion for conjuror Colonel Stodare some years earlier.\textsuperscript{113} Similarly, although most biographers of Irving consider the incident to be an amusing anecdote of little significance, Irving proved himself a capable conjuror during his artistic apprenticeship as an unknown touring actor. When he found himself performing in the same town as the Davenport brothers, a pair of Americans who claimed they utilised the assistance of the spirits of the dead in their act, he and his friends learned the brothers’ tricks and set up their own parody of the performance, duplicating the effects.\textsuperscript{114} In fact, Irving’s conjuring was so successful that his manager wanted him to perform it as a regular routine.\textsuperscript{115} Irving refused, steadfast in his pursuit of what he perceived as the higher calling of the so-called legitimate stage,\textsuperscript{116} but if not for this difference in goal, Irving might have followed in the footsteps of Maskelyne, who also got his start as a conjuror by imitating and debunking the Davenports.\textsuperscript{117} Indeed, Maskelyne himself reported that Irving was “something of a conjuror.”\textsuperscript{118} And while only Pepper was a professional educator, Maskelyne and Irving also took it upon themselves to bring truths to the masses. As will be argued in more detail in the following chapters, Maskelyne represented himself as a man of science dedicated to invention and disproving Spiritualism for the intellectual benefit of the public, and Irving’s stagecraft was intended in part to convey his overarching understanding of reality to his audiences. In all these respects, the divisions between magician, scientist, and actor are not as well defined as one might think.

\subsection*{1.6.2 The definition of technologies}

A second sub-theme of which the reader might take notice becomes apparent upon further investigation of the history of technologies themselves: the development of technologies of illusion sheds light on the question of what exactly constitutes the core of a particular

\begin{thebibliography}{9}
\bibitem{113} Christopher and Christopher, \textit{The Illustrated History of Magic}, 159.
\bibitem{114} Irving, \textit{Henry Irving: The Actor and His World}, 119-121.
\bibitem{115} Ibid., 121.
\bibitem{116} Ibid., 121; Craig, \textit{Henry Irving}, 105.
\bibitem{117} Maskelyne, “My Reminiscences,” 18-19.
\bibitem{118} Ibid., 20.
\end{thebibliography}
technology. Historians and philosophers of technology struggle with this quandary in their research: although most would agree, say, that an automobile is one technology and a horse-drawn carriage is another, the closer one investigates, the more difficult it becomes to rely on these intuitions. Is a steam-powered automobile a different technology from one that’s gasoline-powered? Is an internal combustion engine separate from an automobile as a whole? Do a myriad of minor variations make a Chrysler a different technology than a Toyota? These distinctions can matter when it comes to contests of originality, both historically in the context of accurate attribution and contemporarily in the context of patent legislation. The technologies in all three case studies raise questions of this nature. Each was the fruit of the contributions of several individuals, and although only one was the subject of a public priority dispute in its own time, none of the three is the clear-cut brainchild of a single inventor.

The nature of technologies of illusion highlights these controversies due to the interplay between mechanism and effect. Traditional views of invention tend to prioritize the former—one cannot patent the state of mind or perception of an audience member. And yet, because technologies of illusion purposely separate the mechanism from the effect it produces, one must ask: which is the key part of a technology? If a stage illusion can be created using two distinct methods, with no indication to the audience of any difference, is the illusion a single technology? Or are the two methods each separate technologies? These questions may seem academic, but they become relevant in the history of technologies of illusion: as will be explored in more detail in the body of this dissertation, Maskelyne once took a disagreement on a similar subject to court, and a controversy hinging on related matters forced Pepper to spend much of his life justifying his association with the patent ghost that bears his name. While the following case studies reveal the relationship between effect and mechanism for technologies of illusion, they will also illuminate these issues for all technologies.

Making an historical argument is much like performing a magic trick: if one wishes to make the desired impression on one’s audience, one must first prepare it with considerable groundwork. The hours spent practicing a conference trick with a deck of cards has its analogue in the months of research; the careful establishment of an atmosphere of normalcy, reminding the audiences of all the laws of physics that are about to be broken, is perhaps the equivalent of this introductory chapter. And although the conclusion of this dissertation will evoke considerably less surprise than the finale of a card trick, the hope is nevertheless that it intrigues in equal measure.
Chapter 2
The Polytechnic Ghost

The auditorium is crowded, and audience members jostle for space in the orchestra and the balcony. Some are schoolchildren, brought here by parents or teachers who hope to expand their charges’ education through a hands-on scientific demonstration of optical principles. Others are adults who have come to see the wonder for themselves. The density of the crowd makes the room stuffy, but as the stage lights bloom and the lecturer begins to introduce the effect, the din dulls to a murmur. Nobody wants to miss Pepper’s Ghost.

The above description could apply equally to John Henry Pepper’s original presentations of the illusion known as Pepper’s Ghost in London, England during the 1860s or the historical reconstruction built at the University of Toronto, Canada, in January 2012. The fundamental concept behind the effect is straightforward: unbeknownst to the audience members, there is a large sheet of plate glass between them and the performers on the visible stage. While some performers act out a scene behind the glass, others perform on a second stage that is hidden from the audience’s view. This second stage is positioned such that the hidden performers’ reflections in the glass are visible to the audience. Since the audience is unaware of the glass’s existence, and since the laws of optics dictate that the reflections of the hidden performers appear to be the same distance behind the glass as those performers are away from the glass, the audience members perceive the two groups of performers to occupy the same acting space behind the glass. However, because only the reflections of the hidden performers are visible, these performers can execute ghostly feats such as seeming to walk through solid objects and, with appropriate manipulation of light sources, disappear. The effect was proposed to Pepper by civil engineer Henry Dircks (whose important role in the development of the illusion will be further investigated in chapter three), and simple though it may be, it entertained visitors to Pepper’s lectures in 1862 as much as it intrigued students, faculty, and university guests almost one hundred and fifty years later. Though the mystery of the provenance of the ghost is easy to exorcise, the enthusiasm of haunted audiences past and present requires more complicated analysis.

In this chapter, my experiences author re-creating the twenty-first-century ghost will inform an exploration of the presentation and reception of the original. Ultimately, the reader will see how
Pepper depended on the conventions of narrative and context as well as the physical ghost apparatus to evoke the desired effect in his audiences. Many writers, ranging from the nineteenth-century developers of the ghost illusion to twenty-first-century scholars, frame the history of the ghost illusion to suggest a simplistic explanation for its popularity: the presenter shows a mysterious effect, the audience consumes it in passive ignorance. Once the audience members discover the secret behind the illusion, they lose interest. But because performance is not a unidirectional activity—because the act of representation depends as much on the willing contribution of the audience members as it does on the intended message of the performer—the standpoint of the audience cannot be ignored when examining how the Pepper’s Ghost effect worked. Different audience members approached the demonstration from different viewpoints and for different reasons. Some were indeed befuddled by the illusion; others knew or guessed how it was created. Further, audience members in both these groups enjoyed the effect independent of their ability to comprehend the mechanism responsible for it. More important than understanding or ignorance of the ghost apparatus were the expectations of the audience members, which informed their approach to the experience. Narrative context helped to shape these expectations, as did the reputation of its most famous presenter, Pepper, and audience members’ views of the Polytechnic, the venue with which it was most strongly associated. This interplay between the audience’s agency and the performance choices of those responsible for the ghost was as central to the success of the Pepper’s Ghost illusion as was the physical apparatus that provided the optical effect.

To demonstrate this centrality, this chapter will draw from two types of source. For the most part, it will rely on the accounts of nineteenth-century audience members who experienced some version of the Pepper’s Ghost illusion and on the accounts of performers who presented it, including Pepper himself. Pepper’s Ghost is unique among prominent technologies of illusion in that it began its long stage career at the Royal Polytechnic Institution, an organization dedicated to the proliferation of scientific knowledge among the public, and especially in that it originated from the work of a civil engineer and a dedicated public educator. These unique origins mean that its creators followed the more mainstream path of patenting their creation and pursuing legal recourse against encroachers, rather than relying on the secrecy and showmanship that have
traditionally been the illusionist’s protection against infringement.¹ For this reason, significantly more was written about the development of the ghost than about other technologies of illusion. The accounts of the ghost used in this chapter are taken mainly from texts published in the nineteenth century, such as commercial memoirs and periodicals, although in some cases, modern secondary sources have provided a helpful synthesis. To help interpret these accounts, the chapter also draws on my personal experience working on the above historical reconstruction of the ghost during January 2012. One must be careful when assigning epistemological weight to historical experiments of this nature; what succeeds in the present is no indication of what may have succeeded in the past, and to make assumptions about another time based on activities carried out centuries later is tenuous. However, the experience of working with a physical apparatus provides tacit knowledge that is unavailable any other way, and while it would be illegitimate to base historical claims on this type of knowledge, it is valuable in the illustration, expansion, and clarification of claims based on more traditional sources. Taken together, primary accounts and performance experiments provide unique insight on Pepper’s Ghost impossible through investigation of one or the other.

This last phrase elicits a point of clarification before the body of this chapter’s argument. Through these two chapters, the term “Pepper’s Ghost” will refer to the illusion that is the subject of this part of the study. As will become evident in chapter three, this nomenclature is not undisputed; one of the men associated with the development of the apparatus, Henry Dircks, spent much of his life campaigning to replace it. Moreover, as will be put forward in the following chapter, it is arguable that the multiple incarnations of the ghost illusion constituted different technologies that should not be subsumed under a single term, since even the slight variations in the apparatus changed what effects were possible and therefore influenced the presenters’ choices of how best to display the illusion. For now, this chapter will use the popular term “Pepper’s Ghost”—with the understanding that just as the illusion did not necessarily portray a ghost, it also was not necessarily the brainchild solely of Pepper—to denote the effect purposely created onstage that relied on as the key component of its apparatus an angled sheet of glass being used as a semi-reflective, semi-transmitting mirror.

2.1 The ghost in performance

2.1.1 “A Strange Story”: the ghost at the Polytechnic

Shortly before Christmas of 1862, Professor John Henry Pepper invited a private group to the smaller of the Royal Polytechnic Institution’s two theatres to attend “A Strange Story,” a scene adapted mainly from Edward Bulwer-Lytton’s novel of the same name. Among the select were scientific and literary friends of the presenter and, of course, members of the press (Pepper was as good at managing media coverage as he was at earning it). As the audience settled into their seats, they had only a vague idea what to expect—and so did Pepper. Thirty years later, he wrote that he had intended to conclude the evening with an explanation of the mechanism that created the key illusion in the scene, the effect now known as Pepper’s Ghost. Despite Pepper’s intentions, the reaction from his small audience was so extreme that he decided to let the illusion speak for itself and ended the presentation without revealing the mystery to his audience. Perhaps, an intuitive performer, he understood that he was likely to receive higher accolades and more visitors if he allowed the puzzle of how it was done to eat at his audience’s curiosity; his own account in The True History of the Ghost; and All About Metempsychosis (1890) implies that he remained silent in part because he had not yet patented the apparatus. Since it was now evident that presenting the illusion could be profitable, he wanted to prevent competition by registering a provision patent, an errand he undertook the very next day. Regardless, it’s clear that “A Strange Story” thoroughly astounded its little audience—an experienced lecturer like Pepper who was used to managing his own image and that of the Polytechnic would not have arranged a “sneak preview” had he not been certain of getting a favourable response. That he was nevertheless overwhelmed by his audience’s reaction shows that it must have surpassed even these high expectations. But what did his audience see that night that amazed them so? The

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2 Pepper, The True History of the Ghost..., 12.
3 Ibid., 3.
4 Ibid., 3.
5 Weeden, Education of the Eye..., 55
6 Pepper, The True History of the Ghost..., 3.
7 Ibid.
8 Ibid.
9 Ibid.
scene was short: a student working late in his rooms was frightened by a ghostly gleaming skeleton. From the pelvis down, it dissolved into a mist that appeared to ooze out of the floor. The student grabbed a nearby weapon—a sword or hatchet—and swung it at the skeleton, only to find his enemy had disappeared. The skeleton reappeared and disappeared a number of times, and then the scene was over.10

Pepper concedes the plot of “A Strange Story” was “simple,”11 and the ways in which it made use of the ghost apparatus were also relatively undemanding.12 For the illusion to work, the ghost performer and the haunted performer must occupy separate stages where they cannot see or hear one another, and this means Pepper’s Ghost scenes must be carefully rehearsed. The more complicated the interaction of two characters, the more precisely the two performers must synchronize their timing and choreograph their movements. Having the hardworking student sit on a chair and choosing a fight scene in which it would be appropriate to use the sweeping motions of a panicked attack would have relaxed these demands. Unlike human performers, furniture can be set onstage with fewer variations in position due to inconsistent posture or attitude. It is easier to develop a sequence of choreography based on the performers’ apparent relative positions to furniture than to each other. If the performer playing the ghost had a mark on his own hidden stage indicating the projected position of the chair on the visible stage, he would have found it much easier to guess the student’s projected position and adjust his own movement accordingly. The exaggerated motion of swinging a weapon ensured that the performer playing the student needed much less accuracy to appear to make contact with the ghost. Because the student character is reacting in fear, the performer’s blow did not need to seem to be aimed at a specific part of the ghost’s body to read as a genuine attempt at self-defense; in fact, the blow might not have needed to make contact with the ghost at all. This means the performer playing the student had a wider margin of error than would have been the case if Pepper had attempted to present a conflict requiring the semblance of more precise physical interaction, such as a fist fight or sword duel. In this sense, “A Strange Story” was a prototype performance, showing only the most basic capabilities of the technology.

10 Ibid., 29.
11 Ibid., 29.
12 Although the practical suggestions of the following paragraph logically follow from the restrictions of the situation, they are also based on the author’s personal experience with the reconstructed illusion.
Pepper continued to build on this scenario—an 1866 *Penny Illustrated Paper* cover image seems to show a scene similar to that described as the original production of “A Strange Story” but he also lost no time in showing audiences what diverse and creative effects the ghost apparatus was able to produce. “A Strange Story” was only a few minutes long, but through the next decade, Pepper put together more elaborate and exciting scenarios. The three scenes in the first full ghost programme for the Christmas season of 1863 included an adaptation of Charles Dickens’s story “The Haunted Man” and a more comic scene entitled “Cupid and the Love-Letter,” in which the boy Cupid taunted a peasant girl by withholding a love letter. The latter is notable in that it ended with Cupid giving the letter to the girl, who then showed it to the audience. This is an effect more complex than those in the prototype scene with the student: because the performers playing Cupid and the girl did not occupy the same space and could not see each other, they must have choreographed their actions carefully in order to make it seem as though both performers could interact tangibly with the letter. This must have required two prop love letters—one held by the boy playing Cupid and one by the actress playing the girl, and the timing of the performers would have needed to be practiced so that the audience never saw both letters at once. But perhaps the most intriguing of the 1863 Christmas ghost scenes was the middle vignette, a comic scene set in an artist’s studio in which, it was advertised, the ghost drank a glass of water, and the living character was “enveloped by the Spectre.” The latter suggests the deliberate superimposition of the reflected image of the ghost on the onstage performer, a delicate procedure both in that it would require careful positioning of both performers and in that part of the mystery of the ghost depended upon the audience not perceiving the plane of the glass in which the ghost performer was reflected. When this plane went unnoticed, the audience member’s brains would have interpreted the image of the ghost to be an equal distance behind the glass as the real ghost performer was in front of it. An unskilful

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13 See Appendix, fig. 2.
15 Ibid. It is clear from Pepper’s phrasing that he was aware that this effect was both new and a selling point, as he otherwise unnecessarily stresses the actions of the girl after she has received the letter.
16 It is unclear exactly how this effect was accomplished, but much depends on how Cupid gave the letter to the girl. If Cupid put the letter near the girl and let her pick it up, the effect could easily have been done with identical sets and judicious lighting; if the letter passed from hand to hand, sleight of hand may have been involved to allow the girl to introduce her letter.
17 “Polytechnic,” *The Times* 24740 (December 12, 1863): 1; see “Professor Pepper’s Ghost,” *The Caledonian Mercury* 23095 (July 14, 1863) for a more detailed description.
superimposition could reveal the fact that the reflected image of the ghost was actually in front of the real onstage performer (that is, the image was in reality in the plane of the glass) and compromise the illusion. To avoid this, the colours of both performers’ costumes, their exact positioning, and the relative light levels of each area of the stage would have had to be coordinated. Meanwhile, the ghost’s publicized drink of water would have required similarly complicated preparation. The fact that this action warranted its own mention in advertisements suggests it was not accomplished in the trivial way—that is, by having the ghost appear with a glass of water in hand which he or she then drank. Instead, the emphasis implies that the glass of water was a prop that appeared to be in the same physical space as the onstage performer but with which the image of the ghost appeared to interact. This could suggest either that the glass was a carefully lit reflection that the onstage performer had to pretend was part of the set or that some secondary trickery was used to drain the water from the glass as the ghost performer mimed drinking. Either method implies painstaking rehearsal. With the 1863 Christmas scenes, Pepper and the Polytechnic staff began to further explore the capabilities of the ghost technology.

Pepper claims this trio of sketches ran unchanged for the next fifteen months, but it is clear that he and the Polytechnic staff spent at least some of this time dreaming up even more new effects for the ghost. Later ghostly scenes became more elaborate and had more involved plots. Some were inspired by literature: in its run of ghosts, the Polytechnic included Scrooge’s encounter with the ghost of Marley from Dickens’s *A Christmas Carol* and the ghost of the murdered king from Shakespeare’s *Hamlet*.

Other scenes portrayed such subjects as the ghost of Napoleon I at Elba; the ghost of the Polytechnic’s diving bell (perhaps combining two of the institution’s best-loved attractions); and the trials of a soon-to-be knight standing vigil over his armour. Pepper provides the surprisingly lengthy script of this last in *Cyclopaedic Science Simplified* (1869), ostensibly so that young audience members might recreate its delights in the privacy of their homes, but the complexity of the apparatus makes this seem so impractical that one suspects the author was more strongly motivated by the desire to promote the wonders on display at the
Polytechnic. In any case, he helpfully marks with an asterisk the sections in which a ghostly character appears. The dramaturgy has come a long way since “A Strange Story”: all the characters have names, care is taken to establish the setting and the exposition, and, most interesting of all, the protagonist has conversations with the spirits who appear to him.\(^22\) If the script described an ordinary scene, the reader would take for granted that the dialogue took place between the characters, but because the Pepper’s Ghost apparatus separates the onstage performers from their audience with a sound-muffling barrier of glass, it is unclear whether the recorded exchanges took place between the performers on the Polytechnic stage or was part of the narration by a lecturer like Pepper. On one hand, Pepper had previously organized illusions that depended on clever acoustic arrangements, like an onstage harp that seemed to play itself.\(^23\) He would have been able to handle the auditory dimensions of a ghost scene with real dialogue. It is also possible that the glass did not cover the entire stage, and it is likely that some scenes used multiple, smaller panes of glass instead: one 1863 image of a Polytechnic ghost scene shows a large pillar in the centre of the stage whose inclusion is puzzling unless one assumes its presence hides the edge of a pane of glass,\(^24\) and in an anecdote about the ghost, Pepper recalls placing an audience member’s hand on “one of the huge glass plates.”\(^25\) This would have made it easier to accommodate ordinary spoken dialogue—one would simply have the speaking performers stand between panes. On the other hand, a narrated story would have been simpler and would have given the actors audio cues to help them synchronize their movements. It also would have fit another paradigm established by the Polytechnic in their famous displays of magic-lantern dissolving images. Polytechnic audiences were used to spectacular visual displays accompanied by an authoritative account of what they were seeing, such as narrated slideshows of images of a trip down the Nile\(^26\) or lectures on the projected and magnified contents of a drop of tap water.\(^27\) For earlier ghost scenes like “The Haunted Man”, Pepper did read a text as the performers illustrated his words.\(^28\) Did he continue to do so as he developed new scenes? Or did he find a way to circumvent the bothersome acoustic limitations of the device? The evidence

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\(^{22}\) Pepper, *Cyclopaedic Science Simplified*, 24-7.

\(^{23}\) Pepper, *The Boy’s Playbook of Science...*, frontispiece illustration; Weeden, *Education of the Eye...*, 55.

\(^{24}\) See Appendix, fig. 4.

\(^{25}\) Pepper, *The True History of the Ghost...*, 35; emphasis added.

\(^{26}\) Lightman, *Victorian Popularizers of Science...*, 200-201.

\(^{27}\) Weeden, *Education of the Eye...*, 16.

\(^{28}\) “Multiple Arts and Popular Culture Items,” *The Standard*, 3.
does not support a definite conclusion, but in either case, it is clear that the ghost apparatus was a versatile one that allowed Pepper to develop new effects (and new ways to showcase old effects), continuing to surprise his audiences.

Indeed, audience response to the variations on the illusion was both positive and overwhelming, as the demand for the ghost was seemingly insatiable. Simple though the initial offerings were, by Pepper’s estimate they attracted enough visitors to boost the Polytechnic’s profits by thousands of pounds.29 Less than four months after its introduction, in order to accommodate growing audience numbers, the ghost show moved from its original home in the small theatre to the larger optical theatre that ordinarily housed the Polytechnic’s famous dissolving views30—a theatre originally nearly 120 feet long by 40 feet wide with a shuttered skylight for complete darkness.31 Considering that the ghost apparatus contained a large sheet of glass and other unwieldy items that had to be adjusted to the particular stage on which they were displayed—likely necessitating the re-learning of all the established choreography for the new space—the move suggests strong economic pressure to accommodate the crowds. But even this change was insufficient: Pepper was still forced to add additional afternoon shows and schedule special Saturday-morning performances. For the latter, he raised the price of admission by 250% (from one shilling to two shillings sixpence),32 confirming the suggestion of The Times that the new scheduling reflected higher-than-expected interest from the upper classes, who did not wish to attend the less exclusive public performances.33 This interpretation is borne out by the fact that around the same time, the Prince and Princess of Wales attended a private ghost show and even watched their entourage experiment with the apparatus.34 There could be no doubt that Pepper’s Ghost was a hit.

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30 Ibid., 12.
34 Pepper, *The True History of the Ghost...*, 17.
2.1.2  *Faith, Hope, and Charity*: the ghost outside the Polytechnic

In fact, the ghost was so popular that the illusion quickly moved to more traditional theatre environments. Pepper proved to have been wise to make arrangements for a patent when he had early indications of the illusion’s success, because legal control was granted to him and his associates only just in time to prevent several music halls from marketing the illusion as part of their performances.\(^{35}\) As it was, by April 1863, only four months after the ghost had made its first appearance, it featured at the Britannia theatre in Hoxton,\(^{36}\) the selling point of a play titled *The Widow and Orphans,*--*Faith, Hope, and Charity*,\(^{37}\) which had been written to take advantage of the illusion.\(^{38}\) That June, the Adelphi produced what appears to be play of similar pedigree, *The Haunted Man and the Ghosts’ Bargain*.\(^{39}\) July saw it feature at the Théâtre du Châtelet, Paris, and by August 6\(^{th}\), it appeared at Wallack’s Theatre in New York City, possibly in competition with another ghost show running at the same time.\(^{40}\) In August and September, the demand was so great that that the illusion toured to the Free Trade Hall, Manchester for three weeks where it played to “crowded audiences”\(^{41}\) and also appeared at the Merchants’ Hall, Glasgow and the Crystal Palace.\(^{42}\) In November and December, the manager of the notable London theatre Drury Lane planned to use the ghost in a production of Lord Byron’s choral tragedy *Manfred*.\(^{43}\) The ghost also appeared at numerous smaller venues,\(^{44}\) including some music halls, whose proprietors grudgingly purchased licenses for the apparatus.\(^{45}\) By April 1864, *Harper’s Weekly* could write of the ghosts that “have figured so largely in all the European and

\(^{35}\) Pepper, *The True History of the Ghost*..., 31-4.  
\(^{36}\) Henry Dircks, *The Ghost! As produced in the spectre drama, popularly illustrating the marvellous optical illusions obtained by the apparatus called the Dircksian phantasmagoria: being a full account of its history, construction, and various adaptations* (London: E. and F. N. Spon., 1863), 24.  
\(^{39}\) Ibid.; Pepper remembers this as having occurred at the Haymarket theatre (Pepper, *The True History of the Ghost*..., 30), but it appears that Dircks has the right of it: Benjamin Webster, the man to whom Pepper remembers having licensed the rights, did manage both theatres but was at the Adelphi at the time the ghost became popular (“The late Mr. B. Webster,” *Illustrated London News* 81, no. 2255 (July 22, 1882): 89).  
\(^{41}\) Ibid., 25.  
\(^{42}\) Ibid., 25.  
\(^{43}\) Ibid., 25.  
\(^{44}\) Ibid., 25.  
\(^{45}\) Pepper, *The True History of the Ghost*..., 30.
American theatres.  

Although the craze died down after the first heady year, the ghost continued to draw audiences to the Polytechnic for the next decade, and “ghost shows” consisting of collections of tableaux and dramatic excerpts lasting in total from fifteen to twenty minutes continued to tour fairgrounds and other smaller venues profitably until the rise of cinema at the turn of the century.

If the rapid spread of the ghost illusion is not sufficient testament to its popularity, reviewers and audience members were also quick to commit their wonder to words. The Times’s review of December 27, 1862 marvels at “what is called "a strange lecture," by Professor Pepper” and reports in amazement that one can hardly tell the ghosts from the real actors until the former walk through something solid. The reviewer for the Illustrated London News concurs, asserting that the phantoms look real and yet can pass through other bodies. He recommends the illusion to all theatre managers. His colleague in the Penny Illustrated Paper agrees, suggesting the illusion might be useful for such iconic theatrical scenes as Macbeth’s encounter with Banquo’s ghost. Yet another reviewer reports that the two-hour lecture of the touring production was so entertaining that it seemed to pass in no time. Those who did not find themselves enamoured of the illusion nevertheless conceded that they were the minority. A less enthusiastic writer notes in the September 1863 issue of Once a Week that after Pepper’s initial presentation, “all the world ran mad, and the process of producing this ghost became a valuable source of profit for public exhibition,” providing evidence of the ghost’s popularity, if not exactly support for it. One month later, Punch agreed, reporting: “There is a ghost at the Adelphi, a ghost at the Alhambra; there are three distinct ghosts at the Crystal Palace, the Loving Ghost, the Military Ghost, and the Nautical Ghost […] In addition to all these ghosts, there are divers ghosts at sundry Music Halls. The air is thick with phantoms; ghosts swarm like gnats.” Whether or not they counted

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46 “Ghosts on the Stage,” Harper’s Weekly, April 2, 1864, 221.
47 Speaight, “Professor Pepper’s Ghost,” 19.
48 Ibid., 22.
49 “Royal Polytechnic Institution,” The Times, December 27, 1862, 4.
50 Ibid.
52 “Recreations,” Penny Illustrated Paper 70 (February 7, 1863): 84.
55 “Ghosts Without Spirit,” Punch, or the London Charivari, October 10, 1863, 145.
themselves among the spellbound, reviewers had to admit that Pepper’s Ghost had captured the imaginations of the public.

The theatrical and music-hall ghosts also received their dues: *The Widow and Orphans* at the Britannia in particular generated a large amount of press. Some reviewers praised the play but admitted the main attraction was the “‘Pepper’s ghost’ from the Polytechnic.”56 The *Penny Illustrated Paper* reviewer recommended the show to anyone looking for entertainment, promoting the ghost as a “most clever and wonderfully striking bit of stage effect.”57 One Britannia theatregoer, whose language marks him as being from a higher social stratum, observed the throngs of working-class audience members of various ages from infant to senior citizen,58 suggesting that the production attracted an unusual cross-section of society. The same writer noted that the ghost was the main attraction, although the rest of the entertainment on offer was suitable.59 Even outside the Polytechnic, the ghost illusion had the power to draw crowds and media attention.

### 2.2 Explaining the popularity of the ghost

The popularity of Pepper’s Ghost does not prompt the same academic curiosity as some older stage illusions for the simple reason that its attraction seems intuitive: many today still find it a fascinating spectacle. Nevertheless, it is a phenomenon that requires an explanation. As one annoyed commentator points out, the principle behind the ghost is relatively straightforward, and natural examples of the phenomenon can be seen every day.60 The writer in question cites images in the mist on London streets61 and reflections of traffic in storefront windows,62 which are instances of the same optical law upon which the ghost apparatus is based. When one looks through a glass window from a lit space into a dark one, one sees one’s own reflection. One’s image appears to be standing the same distance behind the window as one is standing in front of

59 Sala, “Breakfast in Bed...,” 509.
61 Ibid.
62 Ibid., 362.
the window. If another person were to approach the window from the opposite side, one’s image could interact with him or her in much the same way as the images of the Pepper’s Ghost performers interact with the performers on the visible stage. Yet somehow, despite the ubiquity of the illusion, Pepper’s Ghost won the hearts and minds of many members of a diverse audience that spanned class and age. How did a simple reflection appeal so broadly and so vividly? Equally important, why did certain audience members remain unimpressed by the illusion at the height of its fame? It is tempting to propose a solution that relies on the traditional view of illusions: illusions are puzzles that amuse audience members until they can reason out the mechanism behind it. Those who thoroughly understood the apparatus behind the ghost were unmoved; those for whom it remained an enigma were enthralled. While this explanatory story is appealing, it is flawed.

The allure of Pepper’s Ghost relied not on merely dazzling the audience’s vision through spectacle or its intellect through mystery; instead, the illusion triggered such positive responses in people by virtue of its meaning. Pepper and the Polytechnic used various strategies to place the ghost in a context in which it had significance beyond mere display. First, by presenting the ghost as an optical illusion of serious scientific import, Pepper was able to give it a gravity it otherwise would have lacked, making it and its visual accuracy of interest to the more scientific-minded by presenting it as an embodied optical principle. Second and just as important was Pepper’s use of narrative. By inserting the ghost into the context of established narratives, like adapted literary works, familiar fictions, and the cultural narrative of Spiritualist vs. anti-Spiritualist, Pepper made sure his audiences perceived the illusion not just as a charming use of reflection but as a manifestation of well established concepts of spirits, visions, and phantoms. Moreover, Pepper drew upon the building blocks of narrative to encourage his audience to think of the illusion in particular ways. Details such as the exact choreography of the performers and the relationship between sound and the visual influenced his audiences to make assumptions based on the vocabulary of storytelling that allowed him to integrate the ghost into his chosen macro-narratives more smoothly. While the riddle of how the illusion was created certainly played foremost in the minds of many reviewers, the most baffling spirit could not have had the impact of Pepper’s Ghost without the careful contextual localisation, both intentional and environmental, of that illusion.
This conclusion is borne out by the fact that the ghost mania does not seem to have faded once the knowledge of the mechanism behind the ghost became widespread. The apparatus was never a secret: Henry Dircks shopped his model ghost to several different major theatres before Pepper saw its potential for the Polytechnic. The apparatus was sufficiently familiar for six music hall owners to be prepared to sue for its unrestricted use a few months after the Polytechnic’s success, and the fact that Pepper and Dircks took out a patent on the apparatus for the illusion meant that its mechanism was publicly accessible knowledge. (In fact, the judge of the music-hall litigation decided that the plaintiffs had copied their description of the device from the very patents they were challenging.) Although many reviews praise the illusion as a devious puzzle, the extent to which it was intended to be impenetrable appears to be mostly hyperbole: other reviewers make open reference to its mechanism. In addition, within a year of its debut, its co-inventor Dircks released a tell-all book, and even had he not done so, in his years of attempting to promote his invention, he left a paper trail of articles outlining the production of the illusion that any industrious researcher could have followed. The so-called “secret” of the ghost was so widespread that by May 1863, half an audience of working-class theatre attendees—who surely had neither the time nor the resources to conduct lengthy research or to make multiple visits to the various sites at which the illusion was presented—is described as spending the show explaining the principle behind the effect to the other half. Although knowledge of the mechanism of the ghost seems to have afforded audience members who possessed it the additional pleasure of feeling superior to their fellows, it does not seem to have prevented their enjoyment of the illusion. Rather, audience members who found the illusion disappointing seem to have held expectations based on the perceived purpose of the ghost lecture—and their interpretation of the environment in which it was presented—that remained unfulfilled.

63 Dircks, The Ghost!..., 5.
64 Pepper, The True History of the Ghost..., 30-31.
67 Dircks, The Ghost!....
69 “Public Amusements,” Reynolds’s Newspaper, 4.
This interpretation of historical audiences’ reactions is made more plausible by the behaviour of the twenty-first-century audience at the reconstruction of the illusion: knowledge of the mechanism appeared to encourage audience members’ enthusiasm, not dampen it, and although every audience member was certainly aware that less cumbersome and more verisimilar effects were possible through modern technologies such as projection and animation, the ghost lost little of its charm. In fact, one might suggest that understanding the mechanism behind the ghost increased the audience’s interest—for instance, audience members who had the skills to create similar visual effects using computer software, such as superimposing one person’s head on another person’s body, jumped at the chance to re-create those same effects onstage using the ghost. Perhaps this can in part be attributed to the advertisement of the re-construction as an educational experience; when audience members expected to learn about the history and apparatus of the ghost as well as experience its spectacular effects, they did not feel the illusion was “ruined” once its mechanism had been revealed. As will be shown, in some ways, the context in which the ghost was presented in the 1860s was similar.

2.3 The Royal Polytechnic Institution: the ghost in context

To understand what an audience member seeing Pepper’s Ghost perceived, it is essential to review the history of the institution where it originated. The Royal Polytechnic Institution was a unique constituent of the London entertainment landscape from its foundation in 1838 to its dissolution in 1881.70 Established by scientific-minded men and modelled on the earlier Adelaide Gallery, the Polytechnic Institution71 was incorporated on August 9, 1839. Its charter states that its founders had “erected a Hall, or Building, for exhibiting the process of various Manufacturers--a Gallery for Models--a Theatre for Lectures--a Chemical Laboratory--and other Rooms and Apartments...”72 These were to be made available for public viewing at “reasonable fees”.73

71 The establishment did not become the “Royal” Polytechnic Institution until obtaining the patronage of Prince Albert on December 9, 1840 (Weeden, Education of the Eye…, 36).
73 Ibid.
The stated object of the Polytechnic was to educate those who might otherwise not have access to or interest in scientific models and lectures, but in practice, its mission was somewhat murkier. Although Polytechnic staff never lost sight of their lofty goal, they could not escape the reality of needing to attract visitors and make a profit. Their most well known exhibits demonstrate a deliberate juxtaposition of the spectacular with the didactic. For instance, in the Great Hall of the Polytechnic, there was a small but deep tank in which a man wearing a diving suit could be seen regularly performing small stunts underwater, such as tapping his helmet with coins brought up from the bottom of the tank. This tank was also used for demonstrations of a real diving bell, in which braver visitors could descend upon payment of an additional shilling. Other exhibitions tailored to attract crowds included a glass blower who provided demonstrations, a live electric eel, a giant induction coil, dissolving and animated views projected via magic lantern, and a miniature canal system complete with toy boats and buildings. These permanent exhibitions illustrate the constant negotiation between spectacle and schooling at the Polytechnic; while it cannot be questioned that visitors would gain new scientific and technological knowledge from their interaction with these exhibits, it seems doubtful that the Polytechnic inculcated its guests with the kind of knowledge its founders had at least partially in mind to the degree those men would have found ideal. Whether the phenomenological knowledge of what it is like to be inside a diving bell is more or less scientific than the propositional knowledge of how diving bells keep their inhabitants alive is not the object of this study, and it is true that emotional engagement does not equate to lack of learning imparted. The point is that, at least from the perspective that equates scientific knowledge with propositional facts—a perspective popular both in the

75 “Haunted Hoxton,” All the Year Round 218 (June 27, 1863): 421; “Playing With Lightning,” All the Year Round New Series 26 (May 29, 1869): 617.
77 “A Wonderful Shillingsworth,” Punch, or the London Charivari, December 16, 1865, 236.
81 “Playing With Lightning,” 617.
nineteenth century and today—the Polytechnic struggled to balance its commercial goals with its educational goals.

It is also important to note that this struggle was by no means uniform across the lifespan or departments of the Polytechnic—in fact, at any given time, the interplay between spectacular appeal and instructive worth was in flux across the institution. Some of its programs were more obviously didactic: for example, the Polytechnic offered evening and weekend classes for the benefit of working-class labourers in various branches of the sciences but also in other subjects like languages, literature, and even elocution. It also advertised its “Laboratory and Department of Experimental Science” open mornings and evenings to pupils interested in the study of chemistry. Other offerings, by contrast, seem to stretch the imaginations of those who would find in them what is traditionally termed educational value. For instance, a man going by the name Hugo Proskauer ran a conjuring stall in the Great Hall, and it seems that a daily “musical promenade” was offered to afternoon visitors. The perceived proportion of informative content to engaging presentation varied even within entertainments of the same type. Some Polytechnic lecturers, like Pepper and his colleague George Buckland, appear to have been well liked and well received; the listings of their lectures nearly always mention spectacular experiments or thrilling scenes from history. Another factor that makes it difficult to pinpoint visitors’ perceived ratio of spectacle to schooling at the Polytechnic is the variability of the institution’s programme. As an entertainment venue competing with literally hundreds of other alternatives in the Greater London area, the Polytechnic constantly sought new attractions to woo fickle visitors. The exhibits on display, the length of time they had been on display, and the memory of past attractions all might have coloured a visitor’s understanding of the type of venue he or she was attending. These depended on the particular date the visitor went to the Polytechnic, and, of

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82 “Programme,” Royal Polytechnic Institution Limited, August 23, 1861.
83 “Programme,” Royal Polytechnic Institution Limited, January 1874, 12.
84 Ibid., 13.
86 “Programme,” Royal Polytechnic Institution Limited, August 23, 1861.
87 Ibid.; “Programme,” Royal Polytechnic Institution Limited, Christmas 1861.
88 See Altick, The Shows of London, for a description of the various alternate entertainments available.
course, on what he or she was lucky enough to see. The Polytechnic by no means presented a single united image to its guests.

The time of year also made a difference to visitors’ perceptions. During the Christmas seasons of its peak period in the 1860s, perhaps to compete with the various other holiday entertainments available to Londoners, the Polytechnic seems to have erred on the side of wonder over education. A Christmas advertisement from the Polytechnic’s early life in 1843-1844 delivers a relatively tame list of enticements such as the tried-and-true dissolving views and popular lectures;\(^89\) in contrast, the 1860s saw the Polytechnic, under Pepper’s directorship, go all out for the holidays. As an undated archival article puts it: “[during the Christmas season, the Polytechnic] condescends to place upon its programme things that would attract persons who are not consumed by an overpowering thirst for useful knowledge.”\(^90\) One Christmas programme from 1861 suggests the range of new treats arranged to entice children and their parents during the holiday season, not the least of which being a 34-foot Christmas tree from which children could receive free gifts of “Beautiful Ornaments, Toys, Pocket Knives, Scissors, Cannons, &c.”\(^91\)

The list of special lectures for the month seems to lean more heavily than usual toward the side of entertainment: serious-minded visitors could attend a first lecture on “First Steps in Science for Young Philosophers” or hear Professor Pepper lecture on such dramatic topics as stellar chemistry and rifled guns, both illustrated with experiments and diagrams.\(^92\) Visitors could also view instructive images such as dissolving views of dockyards or stereoscopic photographs of the United States.\(^93\) However, the majority of the offerings seem to present somewhat less in the way of overt self-improvement. It is difficult to see, for instance, how the management might have considered multiple magic shows (including a second sight act), bell ringers, and performing birds\(^94\) to be instrumental in the development of young minds. The crown jewel of the Polytechnic Christmas celebrations was the yearly pantomime. Like its mainstream theatrical counterparts, the Polytechnic pantomime was a dramatic adaptation of a fairy-tale story with spectacle and music. The Polytechnic used as many of its technological resources as possible to

\(^89\) [Royal Polytechnic advertisement], [unknown], 1844.
\(^90\) “Royal Polytechnic,” [unknown], [undated].
\(^91\) “Programme,” Royal Polytechnic Institution Limited, Christmas 1861.
\(^92\) Ibid.
\(^93\) Ibid.
\(^94\) Ibid.
amaze its audience. To give an example, the 1861 production entitled *Harlequin and Mother Goose; Or, The Golden Egg* advertised itself as using “The whole optical resources of the establishment”—presumably considerable, as two of the Polytechnic lecture-hall mainstays, the magic lantern and the projecting Oxy-Hydrogen microscope were by this time in use. Not only this, but for the performance, the Polytechnic had also hired one Mr. Childe’s Phantasmagoria, as well as a number of popular singers. This level of scientific spectacle became traditional in the Polytechnic’s Christmas pantomimes, which continued to attract the public through the 1860s. During the Christmas season, Polytechnic visitors had good reason to expect a differently proportioned mixture of educational and entertainment material, with an emphasis on the latter.

Even younger visitors were aware of this tension between goals at the Polytechnic, and although each perceived the balance differently, personal accounts suggest that the experiences of those who enjoyed the attractions of the Polytechnic were influenced by their perception of how well the available entertainments matched their expectations. In the early decades of the Polytechnic’s life, many seem to have had a less sceptical view of the institution’s ability to meet its stated aims; the author of an archival article that appears to be from the 1850s emphasises the respectable crowds and the complex ideas they could learn through the simple presentations of the lecturers. The Polytechnic has obviously made a favourable impression: despite the author’s encounter with showy exhibits such as the electric eel, he or she decides, "*No one thing exhibited here has but some useful end in view.*" As the 1860s progressed and the Polytechnic adapted its exhibitions to public taste, reviewers began to focus on the fun to be had rather than the lessons to be learned. A writer for *The Standard* in May 1863 refers to it as “*a highly popular place of amusement,*” hardly a ringing endorsement for its educational value. It is also important to note the age of the source. An adult visitor who perceived the Polytechnic as a place where the children under his or her care could sneakily be persuaded to pursue the improving entertainment

95 Ibid.
96 Ibid.
97 Ibid.
98 Weeden, *Education of the Eye…*, 71. Weeden suggests that these pantomimes were a key factor in the Polytechnic’s popularity during this decade.
100 “Multiple Arts and Popular Culture Items,” *The Standard*, 3.
preferred for them by their elders might classify the Polytechnic as amusing because the
alternatives to which he or she compared it were not competing amusements but more traditional
educational activities. In contrast, an 1869 essay in *All the Year Round* recalls a boyhood visit to
the Polytechnic being spoiled by the constant suspicion that one was meant to be learning
something from the experience.\(^{101}\) The writer remembers how his interest in a few moments of
pyrotechnic experiments was overwhelmed by the following hour of dull exposition,\(^{102}\) bemoans
the unfulfilled promises of exciting attractions that turned out to be boring on further
inspection,\(^{103}\) and wistfully recollects his favourite activities: hiding in the galleries to get away
from the adults\(^{104}\) and horseplay with friends in the darkened lecture hall.\(^{105}\) A present-day visit
does not improve his impression—he notices that some of the disappointing exhibits he
experienced as a child have been renamed and re-foisted on a new generation\(^{106}\) but he
acknowledges that his new adult interest in the educational aspects of the Polytechnic\(^{107}\) have
resulted in a much more enjoyable experience. He concludes that the institution will still
probably bore children\(^{108}\) but amuse adults while also laying “the foundation of real and solid
scientific progress.”\(^{109}\) It is evident from these accounts that a visitor’s interest in the educational
and entertainment aspects of the Polytechnic depended to some extent on the balance they
expected.

Perhaps an 1865 *Punch* article gives the clearest indication that the public’s expectations of the
Polytechnic affected its impression of the institution as much as did the Polytechnic’s choices in
exhibits and advertising. The author, a veteran visitor, describes his outing to the Polytechnic in
the company of a “young friend” who has never been to the institution before. Although the
author focuses on the inaudibility of the lecturers; the noisy, chaotic atmosphere (including a
small boy who shoots a popgun in the crowded auditorium); and the very un-scientific

\(^{101}\) “Playing With Lightning,” 617.
\(^{102}\) Ibid., 617.
\(^{103}\) Ibid., 617.
\(^{104}\) Ibid., 618.
\(^{105}\) Ibid., 617.
\(^{106}\) Ibid., 617.
\(^{107}\) Ibid., 618.
\(^{108}\) Ibid., 617.
\(^{109}\) Ibid., 620.
commercial bent of the stall owners hawking refreshments and souvenirs,\textsuperscript{110} he admits that the audience must have enjoyed something about the experience, because they applaud the lecturer.\textsuperscript{111} While he himself was obviously disappointed by the experience, his younger companion asks to stay longer though the machines and demonstrations are closed for the night, and, upon learning that the Polytechnic programme changes daily, wants to save his money to become a regular visitor.\textsuperscript{112} Both individuals described obviously experienced the same exhibits in very different ways, the enjoyment of each shaped by what he expected from the Polytechnic. The author professes cynicism, likely drawing on his earlier memories of the Polytechnic and comparing the actual experience to the distilled emotional responses he recalls. Perhaps he feels more acutely the negative aspects of the visit since he has the added stress of introducing his companion to the institution, and it could be that his cynicism is magnified by tacit contrast of the loud, profit-driven Polytechnic with the implied properties of ideal science: respectable, proper, noble. Contrariwise, his young friend does not seem to be troubled by any of the above concerns. The child takes joy in the visit as a whole, thrilled by each new activity; by the end of the day, he has a list of lectures to see and scientific toys to purchase upon a return visit.\textsuperscript{113} Moreover, his unfamiliarity with some effects presented contributes to his sense of wonder—while the author sardonically describes a scientific illusion he and his companion witness as “putting a feeble old person [...] into a closet, where he got behind a looking-glass, and pretended to disappear,”\textsuperscript{114} his young friend announces his intention to return and watch again to discover how the effect was accomplished.\textsuperscript{115} What the one dismisses as a tired old trick, the other perceives as an intellectual challenge. Obviously, the experience of each at the Polytechnic depended as much on what they contributed to it as on what it contributed to them.

Indeed, during the final years of the Polytechnic’s life when its popularity waned, drawing attention to the gulf between the institution’s intentions and the reality of its offerings became a popular pastime for humour writers, but the exact targets of these lampoons differed depending on the author. Some sources emphasized the commercial focus of an institution they imply is

\textsuperscript{110}“A Wonderful Shillingsworth!” 236.
\textsuperscript{111}Ibid., 237.
\textsuperscript{112}Ibid., 237.
\textsuperscript{113}Ibid., 237.
\textsuperscript{114}Ibid., 236. The illusion in question is probably Pepper and Tobin’s Proteus cabinet.
\textsuperscript{115}Ibid., 237.
supposed to be a bastion of unbiased science, bringing humour through the juxtaposition of
supposedly educational diving bells and chess-playing automata with young ladies hawking
magic tops and a souvenir toy known as Polytechnic cement.\textsuperscript{116} Others manage to criticize the
Polytechnic for being both too unscientific to be educational and too dull to be entertaining. An
1880 \textit{Punch} article lampoons the new Polytechnic board of directors for announcing that their
institution had devoted too much attention to \textit{“comic entertainments“} at the expense of scientific
advancement and resolving to change these circumstances. The author notes that the directors’
idea of doing this involves charging more money for the programme, filling it with dense,
unappealing text, and continuing to offer the same spectacle as ever. His final point of contention
is that the directors have not even betrayed their resolution well; the illusion they offer is so
transparent its conclusion fails to surprise him, and he feels its mechanism is clearly visible to
the audience.\textsuperscript{117} Even those supporting the Polytechnic had to take into account the effect of its
growing unfortunate reputation. The writer of an unattributed archival article dated April 18,
1876 defends the Polytechnic, arguing that it really does turn its visitors’ minds to scientific
inquiry, but he admits that idle minds do approach their visit \textit{“expecting to see something
approaching the hocus pocus tricks of a prestidigitateur.”}\textsuperscript{118} Although this author argues that the
Polytechnic’s exhibits were enough to overwhelm the expectations its visitors brought with
them, most agreed that the Polytechnic’s realisation of its principles during its final decade was
problematic. Even as the Polytechnic found itself losing public support, the expectations of its
audience continued to interact with its directors’ management choices to shape their experience
of the institution.

The sometimes conflicting, sometimes harmonious goals of the Polytechnic provided a space in
which the relationship between entertainment and education was continually redefined, and
although the nature of this space changed over the lifespan of the Polytechnic, awareness of this
ideological negotiation shaped audience members’ perception of the ghost. For some, as we have
seen, knowledge that the exhibits of the Polytechnic were \textit{“supposed to be”} educational changed
their perception of their entertainment value: an attraction like the ghost might not provoke such
intense interest when compared with spectacular theatrical special effects or the shows of

\textsuperscript{116} ‘O. P. Q. Philander Smiff,’ \textit{“Smiff at the Polytechnic,” The Figaro}, February 20, 1874, 3.
\textsuperscript{117} “Round About Town: At the Polytechnic,” \textit{Punch, or the London Charivari}, September 25, 1880, 133.
\textsuperscript{118} “Polytechnic,” [unknown], April 18, 1876.
professional conjurors, but when judged by the standards of educational fare, it was enthralling. Similarly, the ghost lecture might not be as informative as more serious popular science offerings, but when compared to other entertainment, it was legitimately self-improving. Expectations might even have informed the perceived secrecy of the mechanism: audiences expect professional magicians to lie to them and to have devious ways of accomplishing ordinary tasks, but they hardly expect the same from scientific lecturers, no matter how mystifying the scene. The unique and shifting atmosphere of the Polytechnic provided a space in which many were conceptually open to experience the best possible aspects of the ghost, and, although the disappointments of others predisposed them to experience the worst, ultimately, the association of the ghost with the versatile Polytechnic was partly responsible for its positive reputation.

2.4 John Henry Pepper: the ghost’s godfather

The history of the Royal Polytechnic Institution gives part of the context in which audience members first experienced Pepper’s Ghost, but another crucial aspect of that context was the presenter himself. John Henry Pepper was inextricably associated with the Royal Polytechnic Institution for much of his (and its) career, but his own reputation was distinct from that constructed for the Polytechnic. Pepper’s public persona, that of a man of science who drew upon the many exciting applications and ramifications of his subject to share his enthusiasm for it with others, also shaped his audiences’ perceptions of Pepper’s Ghost.

Pepper’s credentials as a man of science lent him authority in matters of knowledge and value. Born in 1821, the son of a civil engineer, Pepper nurtured a burgeoning interest in chemistry that led him to become the pupil of the chemist John Thomas Cooper. By the age of nineteen, he was an assistant chemical lecturer at the Granger School of Medicine; by twenty-two, he was elected a Fellow of the Chemical Society of London; and by twenty-six, he gave his first lecture at the Polytechnic, where he was appointed at first chemical analyst and lecturer and then honorary director. Pepper’s roots in chemistry were important to him, particularly as he was

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119 Weeden, Education of the Eye..., 51; “Royal Polytechnic Institution,” [unknown], [undated].
120 Seccombe, “Pepper, John Henry,” 632.
concerned throughout his career with preserving his image as a man of science accepted by his intellectual peers. That his background remained important to him can be seen in the fact that in the preface to his 1860 book *The Boy’s Playbook of Science*, published when he had been a popular lecturer for over a decade, he credits his motivation in instructing young people in scientific experiments to the fun he and his friends had as students at King’s College, spending half-holidays shattering lab equipment as they dedicated their time to chemistry.\(^{122}\) That his self-image as a chemist was perhaps more important to him than his chemical activities can be seen in the fact that he wrote only one chemical paper, an 1852 treatise on a new way to detect the poison strychnine, which was never published.\(^{123}\) His popular scientific writing was considerably more prolific, and in each of his books, he makes sure to situate himself within the scientific community. He repeatedly sets himself up as an example for his young readers to emulate, hoping they will repeat his experiments\(^{124}\) or mimic his educational visits to English mines\(^{125}\)—and since he is educating them in scientific pursuits, he implies that he is a good model of a member of the scientific community. In *Cyclopaedic Science Simplified* (1869), Pepper demonstrates his familiarity with key scientific papers, explaining to the reader in the introduction that he will quote the original words of famous scientists as much as he can without sacrificing brevity or simplicity.\(^{126}\) He also includes in his stories anecdotes demonstrating his personal familiarity with important scientific figures, such as his likely fictional\(^{127}\) account explaining the mechanism of the ghost illusion to Faraday\(^{128}\) or his boast of winning a legal priority battle regarding the ghost by obtaining affidavits from such notable figures as Brewster and Wheatstone.\(^ {129}\) Pepper was also concerned with making clear to his audiences that his popular title, “Professor,” was not his own choice but instead conferred upon him by an express minute of the board of directors of the Polytechnic.\(^ {130}\) The distinction was an important part of his persona: many mountebanks, illusionists, and quacks awarded themselves titles like “Doctor”

\(^{122}\) Pepper, *The Boy’s Playbook of Science*..., 2.
\(^{123}\) Weeden, *Education of the Eye*..., 51.
\(^{124}\) Pepper, *The Boy’s Playbook of Science*..., 1-2.
\(^{125}\) Pepper, *The Playbook of Metals*..., 1.
\(^{126}\) Pepper, *Cyclopaedic Science Simplified*, v-vi.
\(^{127}\) Weeden, *Education of the Eye*..., 53.
\(^{128}\) Pepper, *The True History of the Ghost*..., 35.
\(^{129}\) Ibid., 34.
\(^{130}\) Ibid., 2.
and “Professor” to increase their credibility.\textsuperscript{131} Pepper’s insistence on the external origins of his own title distinguishes it from self-bestowed honours such as these: his authority was real, and his scientific status made it possible.

None of this is to suggest that Pepper’s work either lacked scientific legitimacy or was undertaken purely for self-aggrandizing motives: Pepper’s background in chemistry and interest in science was genuine, and as has been argued in recent works of science and technology studies, inspiration, experimentation, and elucidation are no less valid goals than the generation of knowledge and theories.\textsuperscript{132} Regardless, there are always aspects of one’s personality one chooses to promote and others one chooses to downplay. An individual’s choice of which aspects to advertise and which to suppress gives insight on his or her motives. In this case, it is clear that Pepper’s scientific background was an important facet of his self-image, a facet that he emphasized to others.

As a man of science, Pepper was able to impart that subject’s assumed objective, rational authority not only in matters of fact but also in matters of value. While his perceived status within the scientific community cultivated his audiences’ trust in the truth of what he said, it also encouraged their agreement in his assessment of what belonged in the realm of science. Simply by introducing a topic or activity onstage, Pepper implied that it was sufficiently “scientific” to be taken seriously—after all, if he, a man of science, thought it was appropriate to bring up in a scientific venue, surely the audience should accept his judgement. In this manner, Pepper was able in some respects to manipulate the criteria of what belonged on the Polytechnic stage. This epistemological privilege followed him to other venues: when Pepper left the Polytechnic and leased the Egyptian Hall in early 1872, despite presenting varieties of popular illusions that had also been presented by conjurors (like the Sphinx, the Proteus cabinet, the Delphic Oracle, and the Decapitated Head),\textsuperscript{133} he was still identified as the “\textit{chief scientific magician};”\textsuperscript{134} the reviewer stressed Pepper and Tobin’s contributions to scientific journals;\textsuperscript{135} and the reader is assured that the demonstrations on display could only be rendered “\textit{by the most careful}
adjustment of delicate and complex scientific machinery.” 136 That Pepper continued to foster this scientific persona even when presenting conjuring tricks is evident from the reported tenor of his and Tobin’s Egyptian Hall performances. A reporter present for a sneak preview describes how, despite Pepper’s characterization of his performance as “an entertainment, not a lecture,”137 the ex-Polytechnic professor nevertheless insisted that his goal was still to “make science agreeable by making its principles familiar”138 and gave a history of Newton’s theory of light undulation between a musical concert and a conjuring presentation.139 Although there were certainly external restrictions on the topics upon which he could confer scientific legitimacy, these rules did not so much confine Pepper as influence his presentation.

There was another way in which Pepper assumed the voice of scientific authority, a way directly pertinent to the spectre associations of the ghost illusion: by positioning himself and the illusion in opposition to Spiritualists. During Pepper’s tenure at the Polytechnic, Spiritualism was on the rise. Prompted by the need to reconcile the bogeyman of materialism with the utility of scientific progress,140 Spiritualism had two main tenets: that there was life after death, and that certain living people, known as mediums, could communicate with the deceased.141 Spiritualist performers who claimed to perform astounding feats by supernatural means drew full houses in Britain and abroad. One of the most famous of these acts was that of the Davenport brothers, a pair of American showmen who allowed members of the audience to bind them and shut them in a wooden cabinet. Once the cabinet was closed, audience members would immediately hear musical instruments playing, but when they opened the cabinet to see, the Davenports were securely bound as before.142 Other mediums, like Daniel Dunglas Home and Florence Cook, entertained smaller parties with private séances, which reached the peak of their popularity in the 1860s.143 Although some members of the scientific community supported the Spiritualists,144

136 “The Egyptian Hall,” The Morning Post, April 1, 1872, 6.
137 Ibid.
138 Ibid.
139 Ibid.
141 Ibid., 90.
142 “Maxim vs. Maskelyne...,” 5-10.
143 Lyons, Species, Serpents, Spirits, and Skulls..., 92.
144 Such as William Crookes, inventor of the Crookes tube. See Maskelyne, Modern Spiritualism..., 171.
performers like the Davenports, Home, and Cook, whose feats appeared to many to be conjuring tricks and not spiritual manifestations, were a popular target for ridicule. Anti-Spiritualists used these performers’ acts as proof that their opponents had failed to observe the world in the objective, unbiased way outlined by the scientific method—they had allowed charlatans to fool them with simple tricks. Those who defended science against Spiritualism constructed a clear dichotomy with rational-thinking men of science on one side and fraudulent swindlers fooling credulous dupes on the other. By attacking the latter, Pepper automatically allied himself with the former. And this he did: part of his debut act at the Egyptian Hall included a demonstration of how to create common Spiritualist séance effects, a lecture that the reviewer approvingly described as “well calculated to open the eyes of those who believe in spiritualist delusions.”

In his popular *The Boy’s Playbook of Science*, he dedicated a section to denouncing charlatans who use optical principles to create a “magic mirror” and deceive a public ignorant of scientific laws. But Pepper’s most sustained attack on the Spiritualists was connected with the ghost illusion.

It is clear from both accounts of eyewitnesses and from Pepper’s own writing on the subject that he presented the ghost illusion as evidence against the claims of Spiritualists. Advertisements for the show at the Polytechnic stress its superiority to mediums and Spiritualists. Pepper boasts that the patent ghost he presented at the Polytechnic is “well-behaved, steady, regular, and respectable,” in contrast to the unreliable phantoms of the Spiritualists that appear only in darkened rooms—not only are Spiritualists dishonest in their methods, but even their conjuring does not measure up to the scientific variety. With unmistakeable pride, he describes how his denial of the existence of ghosts prompted “the whole tribe of persons who made money directly or indirectly out of what they called spirit mediums, &c” to heckle him during his lecture and threaten violence to such an extent that he required Polytechnic employees to walk him home at night for fear of attack. While this reaction is no doubt exaggerated, Pepper does

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146 Pepper, *The Boy’s Playbook of Science...*, 276-277.
147 “Polytechnic,” *The Times*, January 16, 1863, 1.
149 Ibid., 22.
150 Ibid., 28.
151 Ibid., 28.
appear to have discredited many common practices of Spiritualist mediums in his lecture. He and the Polytechnic must have at least denounced the effect known as spirit rapping, in which participants sitting at a table hear loud knocks with no apparent source, since he quotes in full a combative letter he received from an audience member after one performance, and it seems likely that more debunking would have followed. In any case, whether his audiences were moved to defend Spiritualism or to mock it, their responses show that Pepper successfully conveyed his anti-Spiritualist message. A Nottinghamshire reviewer reports that the touring ghost show opened two hours of scientific experiments with a physiological explanation of supposed supernatural experiences, such as hallucinations, and although it is unclear whether the presenter was actually Pepper himself, the performance was obviously modelled on his lecture at the Polytechnic and demonstrates the strong association between the ghost and debunking. *The Times*’s review for Pepper’s 1862 lecture muses openly on why the Spiritualists failed to take advantage of the invention before Pepper. “Our Special Sightseer,” a *Fun* magazine columnist, announces that Pepper proves that ghosts do not exist. Even *Punch* magazine got in the act: if the ghosts of Spiritualism were real, they demanded, then why hadn’t they shown themselves in order to teach Pepper a lesson? After all, in his crowded theatre, there must be at least one medium. In an ironic twist, the association of Pepper’s Ghost with Spiritualism was so strong that an 1886 magicians’ textbook lists the illusion in the Spiritualism section. By using the ghost illusion as an attack on Spiritualist mediums, Pepper presented it in a context in which the only two possible categories of presentation were legitimate and illegitimate science. He placed the ghost within the former. By attaching the ghost to his respectable scientific background and situating it within the exciting public narrative of scientific anti-Spiritualism vs. unscientific Spiritualist, Pepper gave the illusion meaning far beyond the simple embodiment of an optical principle. Audiences who enjoyed the thrill of mediums but not their ideology espousing the existence of the supernatural were able to enjoy the ghost as part of the march of

153 “Professor Pepper’s Ghost,” *Nottinghamshire Guardian*, 3.
154 “Royal Polytechnic Institution,” *The Times*, December 27, 1862, 4.
155 ‘Our Special Sightseer,’ ‘Monday Out,’ *Fun*, December 3, 1870, 223.
156 “Ghosts Without Spirit,” 145.
scientific progress; audiences who had no interest in optics were still able to tie the ghost into a wider conflict that held cultural resonance.

And yet, despite his genuine scientific pedigree, Pepper brought another element into the mix: he was widely perceived as a showman as well as a scientist. In fact, it is perhaps because he was so strongly connected with science that the public perceived his showmanship so clearly. If he had been a conjuror, whose performances are evaluated by tacit comparison with other entertainers, he might not have made such an impact. Modern magicians appraising his work in the context of magical history do not elevate his presentational skills to the level of his conjuring contemporaries. For example, Steinmeyer writes of the Proteus illusion presented by Pepper some years after the ghost, “It could have been a miracle in the hands of a magician, rather than being demonstrated by a lecturer [i.e. Pepper].”\(^\text{158}\) The implication is that as a scientific lecturer, Pepper was unable to construct the same atmosphere of wonder and excitement as a “true” magician. Regardless, that Pepper’s showmanship can be considered a major influence on his audiences is evident from an examination of public responses to his character. While other personalities in the form of attendants, other lecturers, the board of directors, and demonstrators obviously influenced the public’s perception of the Polytechnic in one way or another, Pepper’s forceful persona dominated the public imagination.

Even before the presentation of the ghost illusion, Pepper showed a keen instinct for finding what intrigued and amused the public. Not only were his lectures lively and well attended, but he was able to notice and elaborate on topics that had seized the popular interest. For instance, when “gem mania” struck London during the Great Exhibition at the Crystal Palace in 1851,\(^\text{159}\) Pepper capitalized on what might otherwise have been disastrous competition for the Polytechnic by developing a series of lectures on gems and securing the loan of several hundred thousand pounds’ worth of diamonds, rubies, and other precious stones.\(^\text{160}\) He used the opportunity to educate the public about the process of mining and grinding the stones as well as their chemical composition—as a spectacular experiment, he inserted a heated piece of coal and a heated diamond into bottles of oxygen, producing milky-white carbonic acid and demonstrating their

\(^{158}\) Steinmeyer, *Hiding the Elephant…*, 82.

\(^{159}\) “THE GREAT EXHIBITION,” *Illustrated London News* 18, no. 495 (June 21, 1851): 484.

carbonic composition.\textsuperscript{161} These lectures, advertised as further explanations of the “\textit{most interesting deposits}”,\textsuperscript{162} at the notoriously overwhelming\textsuperscript{163} Great Exhibition were reportedly “\textit{well attended}.”\textsuperscript{164} Pepper’s interest in engaging the public with performance is supported by his brief involvement with West End drama—he is listed as having provided the “scientific arrangements” and scenery for an 1856 play titled \textit{The Diamond Maker; or, the Alchymist’s Daughter}.\textsuperscript{165} While this unique incident is not sufficient to show Pepper’s dedication or experience with the stage (especially as evidence of how Pepper’s theatrical contributions were received is not available), taken with the rest of Pepper’s career, including his direction and organization of the spectacular Polytechnic Christmas pantomimes, it does demonstrate an attitude that cannot be taken for granted in scientific circles: the acceptance of public performance as a legitimate way to bring science to the masses. Pepper did not approach the stage as a necessary evil of spreading scientific knowledge; he embraced it as a useful and even desirable tool.

Whether one chooses to call this approach showmanship or pragmatism, its significance at the Polytechnic was more than just stylistic. As others have pointed out, the Polytechnic’s mandate of hands-on science education made it a locus for epistemological debate. Weeden describes how the institution had an ideological commitment to the visibility of knowledge as a catalyst in knowledge acquisition;\textsuperscript{166} by educating visitors in ways of seeing scientifically, the Polytechnic paved the way for a lifetime of learning. Teaching visitors new ideas through sight, as opposed to text or lecture, was a more direct route to understanding that would lay the groundwork for rational scientific observation.\textsuperscript{167} Seeing was not only believing, but believing for the right reasons: it provided the most direct route for an individual to take in his or her environment.

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\begin{enumerate}
\item \textsuperscript{161} “ROYAL POLYTECHNIC INSTITUTION,” \textit{Illustrated London News}, 588.
\item \textsuperscript{162} “THE GREAT EXHIBITION and the ROYAL POLYTECHNIC INSTITUTION,” \textit{Illustrated London News} 18, no. 495 (June 21, 1851): 580.
\item \textsuperscript{164} “ROYAL POLYTECHNIC INSTITUTION,” \textit{Illustrated London News}, 588.
\item \textsuperscript{165} Secord, “A Quick and Magical Shaper of Science,” 1648.
\item \textsuperscript{166} Weeden, \textit{Education of the Eye…}, 7.
\item \textsuperscript{167} Ibid.
\end{enumerate}
In this context, Pepper’s approval of the stage is noteworthy. The theatre is noted primarily for deconstructing the relationship between sight and reality. The nineteenth century saw British theatre move toward pictorial realism. Managers who saw the stage as a picture framed by its proscenium took pride in accurate representation of historical locations and costumes correct to the minutest detail, and audiences thrilled to see special effects that resembled the extreme events they represented—fires, melting ice floes—as they never had before. Yet the very fact that these developments were so widely acknowledged, praised, and advertised shows that they depended on the understanding of the fraud at the heart of theatre. If one’s success in holding the mirror up to nature could be measured by the isomorphic nature of the reflection (that is, the success in one-to-one mapping of features in the reality to features in the representation and vice versa), knowledge that the representation is just an image is key to its evaluation. One does not talk of how well an object resembles itself; to assess the degree to which something resembles reality, one must first be aware that it is not reality. Pepper’s willingness to showcase science onstage—to equate the image of science with its reality—shows his real commitment to the superiority of vision as a direct route to scientific knowledge. Morus distinguishes between scientific presenters who consider their effect to demonstrate scientific truths and those who consider the effect to be a scientific truth in and of itself. It is arguable that Pepper, whose lectures were nearly always advertised with the descriptor “illustrated,” belonged to the latter camp. By pursuing the stage, the domain of visual representation, as a valid space for scientific enlightenment, Pepper demonstrated his commitment to the effects he designed and presented as scientific truths he was making accessible to his audience through sight. While his audiences may not have explicitly considered this while enjoying his performances, the underlying epistemological significance of his attitude fostered an unconscious understanding of the illusion.

169 Ibid., 458.
2.5 The ghost and narrative

Finally, whatever its ideological implications, Pepper’s showmanship led him to embed the ghost illusion in macro- and micro-narratives that lent emotional and intuitive resonance to the visual embodiment of scientific principles he felt himself to be presenting. Foremost is his choice to use the apparatus to present onstage ghosts and spirits. While this was the suggestion of Dircks and other inventors who suggested effects based on similar principles, Pepper need not have accepted it. The apparatus could have lent itself to dozens of other equally physics-defying effects—for instance, the University of Toronto twenty-first-century reconstruction was able, with little adjustment, to facilitate appearances, disappearances, and the slow transformation of one object or person into another. It is also not unthinkable that the apparatus could have been used to create the effect of a performer flying without wires, surviving a real inferno, or spending long amounts of time underwater. The image of the ghost is not distinguishable from that of the onstage performer until its interaction with an onstage object or performer shows the difference between the two. The apparatus could also conceivably have been used to represent a more solid being with mystical powers. Why not a witch or wizard, for example? Why not recreate Biblical miracles or apparent incredible feats of strength and endurance? By accepting the suggestion to present the apparatus as a creator of ghosts, Pepper not only tied the illusion to the contemporary Spiritualism debates but also connected his presentation with deep-seated cultural myths. Most people understood ghosts and spirits to be ethereal and non-material. This tacitly defined the illusion as a creator of images, not of solid realities—a feat of which its actual mechanism was technically capable. Although the Pepper’s Ghost apparatus is perfectly capable of producing apparent solid bodies doing uncanny things, the choice to demonstrate it in ghostly narratives takes advantage of its audience’s cultural knowledge to define the parameters of the illusion and showcase a supposedly inherent dichotomy of appearance versus reality. In addition, although ghost stories have the same basic principle of a character returning from the dead, the actual physical capabilities of fictional ghosts vary wildly. What might be perceived as mistakes or inability to control certain aspects of production with sufficient accuracy could instead become an acceptable property of ghosts—for example, if there were discrepancies between the

172 “Twenty-Eighth Meeting of the British Association for the Advancement of Science,” 456; Dircks, “On an Apparatus for Exhibiting Optical Illusions Illustrating Spectral Phenomena.”
appearance of the ghost character and the onstage character due to real-life lighting contrast, instead of wondering at the difference as one might if both characters were supposed to be solid, material human beings, the audience could choose to perceive the differences to be inherent to the nature of ghostliness. By controlling the type of story in which the ghost illusion was embedded, Pepper helped the audience enhance the illusion by imposing their own understanding of ghostly conventions on the presentation.

Presenting the effect as a ghost also helped Pepper give the spectacle meaning that could intrigue his audience, and he further emphasized the significance of the ghost by setting it in familiar ghost stories and situations. An illusion cannot become successful by spectacle alone. For spectacle to register as spectacle, an audience’s attention must be directed to its salient points, and wonder can be enhanced through the engagement of emotional sympathy. Pepper made sure his ghosts would resonate with his audiences by staging famous stories, such as those of Bulwer Lytton and Dickens; familiar tropes, such as the squire whose virtue is tested while on vigil; and scenes with inherent conflict, such as the comic struggles of Cupid and his female victim. Each of these scenarios begins with an ordinary protagonist—the student, the squire, the girl—whose motivations are quickly made clear to the audience. The audience follows the simple emotional journey of this character as he or she encounters the ghostly spirit that is ostensibly the key attraction of the sketch. One of the most important elements of evoking an audience’s emotion in response to onstage antics is the reaction of other characters onstage. For example, many stage fighting instructors remind their students that the most important part of convincing one’s audience to accept a pretend blow as real is not the actual swing of the attacking performer’s fist but the passion in his or her expression and the body language of pain on the part of his or her pretended victim. Without convincing emotions to guide an audience’s sympathies, the fraudulent punch has to do much more work in order to be effective. Similarly, placing a character onstage whose reactions to the ghost can channel audience attention and emotional engagement enhances the effect of the illusion by encouraging the audience to accept the illusion as a ghost.

The importance of this tactic was clear during the twenty-first-century reconstruction. For demonstration purposes, the experimenters arranged a short comic scene entitled “Faust’s First
Conjuration,” in which the titular character accidentally conjured up a disobedient spirit who appeared and disappeared, punched and kicked him, and eventually made him disappear.\(^{173}\) During the performance of this scene, minor discrepancies between the movement of the two performers—blows not landing exactly on their target, timing slightly off—did not interfere with an audience’s enjoyment of the scene. What did affect the audience was ambiguity of motivation and inappropriate emotional reaction. For example, if the spirit’s fist did not appear to make contact with Faust’s nose, as long as the actor playing Faust reacted as if he actually had been hit, the audience did not have trouble accepting the dramatic moment. But if the actor playing Faust did not appear to be making eye contact with the spirit, the willingness of the audience to believe the two figures shared the same space dissipated. Similarly, no matter how spectacular the scene, if the speaker did not lay the groundwork of the narrative—explaining that Faust was a would-be wizard trying to call up a spirit to serve him—an audience unfamiliar with the story quickly lost its ability to make sense of the proceedings and with it its willingness to pay attention. Pepper’s choice to integrate the ghost in well known narratives avoided these pitfalls using a similar strategy.

As well as using macro-narratives like the ones described above to set off the ghost illusion to its best advantage, Pepper also used micro-narratives: incidents or beats motivated by the overarching plot that serve the dual purpose of developing that plot while at the same time guiding the audience toward certain conclusions. Professional conjurors often use these beats to encourage their audiences to make an erroneous assumption. For example, one common learner’s trick involves making a saltshaker disappear by first embedding the illusion in the narrative of a novice magician trying to make a coin disappear. The performer places the coin on the table, the saltshaker on the coin, and a paper serviette over the saltshaker. The performer then hits the covered saltshaker and removes it, pretending to expect the coin to have disappeared. While lamenting over this turn of events, the performer secretly allows the saltshaker to drop into her lap while retaining hold of the shaped serviette. In this micro-narrative, the movement of the hand holding the covered saltshaker is motivated by the desire to see if the coin has disappeared. A willing audience member accepts this movement is natural and is surprised when, upon trying

\(^{173}\) See Appendix, fig. 5.
again to make the coin disappear, the performer smashes the serviette to the table and reveals that the saltshaker is gone.\textsuperscript{174}

Although historians do not know exactly what micro-narrative events Pepper and his staff used during each scene to motivate the movements of the characters in ways that benefited the performers, Pepper’s account shows he was both aware of these details and used them to persuade his audience to collaborate with him for the illusion. For example, Pepper describes building the ghost apparatus in such a way that its most cumbersome parts could be retracted\textsuperscript{175} (presumably with minimal sound) because he understood that once audience members were aware of the glass reflector, it was more difficult for them to perceive the ghostly images as being behind the glass rather than on it. He suggests having a performer, in the course of some other motivated action, cross the line where this glass (when extended) meets the stage in order to make it more difficult for the audience to believe that the glass is there.\textsuperscript{176} Similarly, he advises presenters to hide the side edges of the glass with pieces of scenery like trees and columns that seemingly contribute to the story.\textsuperscript{177} In other illusions he presented later in his life, Pepper used similar strategies: historians of magic point out his choice to demonstrate his and Tobin’s Proteus cabinet with the assistance an ordinary Polytechnic programme boy.\textsuperscript{178} By emphasizing the ordinariness of the person who disappeared, Pepper and Tobin placed the focus on the extraordinary cabinet. Another of Pepper and Tobin’s illusions, a mirror-based optical trick known as Metempsychosis, required musical accompaniment in order to disguise the telltale rumbling sound of the moving mechanism necessary to accomplish the effect.\textsuperscript{179} In both cases, the micro-narrative allowed Pepper to include these details in an innocuous fashion: of course it would be natural for the Polytechnic to use one of its own boys in one of its illusions, and any audience would accept the presence of music to heighten the dramatic effect. By taking advantage of micro-narrative, Pepper was able to give consistent meaning to aspects of the production that would otherwise have been conspicuous.

\begin{flushleft}
\textsuperscript{175} Pepper, \textit{The True History of the Ghost...}, 10-11.
\textsuperscript{176} Ibid., 11.
\textsuperscript{177} Ibid., 11.
\textsuperscript{178} Steinmeyer, \textit{Hiding the Elephant...}, 78-79.
\textsuperscript{179} Pepper, \textit{The True History of the Ghost...}, 42.
\end{flushleft}
2.6 Conclusion

The public reaction to Pepper’s Ghost was evidently more complicated than it would appear from an initial overview. While the visual spectacle of the illusion contributed to its success, the assignment of meaning through narrative and scientific connections and the setting of expectations through the atmosphere of the institution in which it was produced and the public personality responsible for its production also played important roles in obtaining and working with the attention and interest of the audiences who came to see it.
Chapter 3
J. H. Pepper and Henry Dircks

The glass is easily smudged. Although the performers and the crew of this reconstruction of Pepper’s Ghost are careful to wipe it down before and after each rehearsal, new smears and splodges seem to appear as if by magic. Keeping the glass spotless is important: a single mark might draw the audience’s attention to the plane of reflection, spoiling the effect. Special cleaning solutions and tricks like wiping down the glass with newsprint are effective only for a little while.

“Of course,” points out a member of the production team, “with the real ghost, they might not have had Windex.”

The complex interaction of “hard” technologies like glass and lights and “soft” technologies like publicity techniques and narrative context makes it difficult to pinpoint an exact definition of the technology popularly known as Pepper’s Ghost. Although intuitively it seems easy to identify what it means for a technology to present the “real” ghost, in reality it is much more difficult. Is an image reflected in any semi-transmitting, semi-reflective surface a Pepper’s Ghost? As chapter two demonstrated, while the underlying optical principle of the apparatus is something each Pepper’s Ghost shares, its application is not sufficient to ensure an effective ghost illusion. Is there a specific component—such as the sheet of plate glass—that is necessary for a proper Pepper’s Ghost? Again, although the glass is necessary for the success of the ghost, it is not sufficient. Yet surely the ghost is not identical with its effect, since so much of this takes place in the minds of its audiences. More importantly, new technologies such as computer-animated projections allow theatrical practitioners to create the ghost effect using apparatuses that do not resemble Pepper’s at all. One could in principle differentiate between these ghosts and “true” Pepper’s Ghosts, but in practice, this discrimination would be just as murky as attempts to define the ghost based on physical apparatus. Besides, doing so violates the traditional sense of how technologies can be identified: as was remarked during Pepper’s legal battle to overthrow challenges to patenting the ghost, the patent system is not set up to protect “the shadowy result called the Ghost, but an apparatus for 'Exhibiting Dramatic and other Performances,' and
without this apparatus no ghost could be rendered visible to an audience.”

The other solution, awarding the status of “real” Pepper’s Ghost only to the historical apparatuses used at the Polytechnic, is equally problematic. As seen in the previous chapter, the ghost mechanism at the Polytechnic (and in other venues) varied over time, changing as innovators came up with improvements and new effects. Delineating the features of the “real” Pepper’s Ghost is a thorny puzzle.

For this reason, in place of asking whether particular historical or contemporary apparatuses qualify as the “real” Pepper’s Ghost, researchers should instead apply the consequences of viewing illusions as the products of both physical technologies and representational convention. By adopting the understanding of the ghost and other technologies of illusion as the result of networks of apparatus, techniques, and socio-cultural context, researchers can reject the notion of a “real” Pepper’s Ghost and instead see the effect as the product of a complex technological system where adjustments in one area can compensate for changes in another. Using these ideas, historians can engage with contemporary reconstructions of historical illusions in fruitful ways. More to the point, they can tackle questions of priority of innovation and relative contribution in a productive framework that accounts for the way technologies of illusion were actually used. Throughout its lifetime, Pepper’s Ghost was plagued by patent disputes, licensing arguments, and a decades-long feud between the two men most closely associated with its invention, Pepper and his collaborator, Henry Dircks. Dircks and Pepper had contradictory opinions on what constituted a technology of illusion; for the former, the main concept underlying the mechanism was the most important part, while for the latter, all aspects contributing to presentation were equally critical. Although neither can be said to have invented Pepper’s Ghost, without either man, the illusion would not have been possible. Within the framework outlined above, this chapter argues that neither Pepper nor Dircks invented the “real” Pepper’s Ghost. Rather, both men contributed crucial parts of the technological web in which the effect was embedded, and their inability to agree on what constituted appropriate credit for the creation of the effect stemmed not from misinformation or misunderstanding of the effect but from different standpoints on the nature of invention.

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1 Pepper, *The True History of the Ghost*..., 33.
This chapter supports this contention in two phases. In the first, the University of Toronto reconstruction of the ghost is used as an example to illustrate the many possible minor variations in the physical apparatus and their relationship with the illusion’s effect on the audience. This aspect of evaluation of different mechanisms for producing Pepper’s Ghost informs the second, longer phase: investigation and analysis of Dircks’s and Pepper’s roles in creating the ghost effect. Together, the evidence from both explorations demonstrates that, despite major philosophical disagreement on what constituted a technology, Dircks and Pepper both played crucial roles in the development of the physical and the representational aspects of this illusion.

3.1 The reconstruction

The reconstruction of Pepper’s Ghost was well documented, and it is possible to give a detailed description. The most conspicuous element of the project was the glass, its frame, and its masking. The apparatus used a 7’ by 9’ sheet of plate glass ¼” thick held vertically by wooden supports. These supports were painted black and masked by black curtains. The glass stood at a forty-five-degree angle to the centre line of the stage and extended fully from stage left to stage right, giving a playable area of about 6’4” in width. The depth of the stage was approximately twice this, but due to the glass separating the upstage and downstage areas and the danger that the audience would see the reflections of performers who strayed downstage of the glass, practically speaking, the playable area was a right-angle triangle whose perpendicular sides were about 6’ long. The entire apparatus rested on a stage floor painted in a grid of dark lines one foot apart at forty-five degrees to the centre line. One of these lines masked the seam where the glass met the floor. Between these lines, the floor was painted with a random pattern of reds and blues, designed to mask any unwanted reflection of the floor in the glass. Although it was unfeasible to lower a border to mask the top edge of the glass in a similar fashion, the miniature stage was enclosed in black curtains and framed with hard vertical legs to mask the side supports of the glass. Behind the stage left curtain, downstage of the invisible line that would result were one to extend a line coincident with the downstage corner of the glass and parallel to the lip of the stage, was the area in which the performer playing the ghost could act out the scene.

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2 See Appendix, figs. 6-10.
Because Pepper’s Ghost is an optical effect, the illumination of the reconstruction was given careful consideration. The entire stage on both sides of the glass was lit with ten electric Mini Ellipse lighting units each fitted with an EVR (500W) tungsten halogen lamp and hung above the stage on the lighting grid. These instruments, used in their thirty-degree configuration for the narrowest and brightest beam possible and used without colour media, were aimed so that their beams were roughly parallel with the angle of the glass. Two additional identical lamps were mounted about 5’ off the ground on stands in the upstage left area behind the scenes. One was directed at the performer playing the ghost—that is, if there had been no curtain hiding it, the light would have shone out into the audience. The other was aimed at the centre of the visible scene upstage of the glass. Both these lamps were able to tilt and pivot, and both stands on which they were mounted could be rolled to adjust their position. All lamps were connected to a manual light board operated by a technician sitting at the back of the audience area: this means that the intensity of each lamp was controlled by an individual slider that could be set in positions from 0 to 10, and that the operator could set the board to recognize two states of lighting to achieve an even cross-fade. The audience area was lit with three Fresnel units each fitted with a BTL (500W) tungsten halogen lamp. In many respects, these lighting technologies were able to achieve a much wider range of more precise effects than those that would have been available at the Royal Polytechnic in the nineteenth century.

The overall structure of the apparatus was based on that of a touring Ghost Show company from the 1890s, but as should be obvious from the above description, the reconstruction differed from even this device in significant ways. Contemporary researchers cannot escape the technological context of the twenty-first century. Some key components of the apparatus were historically inaccurate: the glass, for example, was laminated for safety reasons, and it was much easier to make subtle adjustments to the output of the ellipsoids than it would have been to make similar adjustments to gaslights, limelights, or nineteenth-century electric lamps. Other technologies changed the way the production team built the reconstruction: for instance, the Polytechnic staff did not have access to electric drills to assist with building the frame of the glass, and they could not transport it strapped to cars powered by internal combustion engines. Some twenty-first-century technologies did not directly affect the construction of the apparatus but nevertheless had

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an impact on the project. To use a conspicuous example, Pepper and the Polytechnic staff were unable to capture their performances using video cameras. Contrariwise, the ubiquitous mobile phone use of the twenty-first-century production team enabled it to photograph the project at any time, creating an atmosphere of heightened awareness. Modern technologies also affected the production process in subtler ways: for instance, in addition to their photographic capabilities, mobile phones allowed the production team to organize rehearsals and meetings in ways unavailable to the Polytechnic staff. Even if the production team had been able to use only technologies available in the nineteenth century for the duration of the project, it and its audiences would have been unable to eliminate the assumptions internalized from the contemporary technological landscape. In an age of computer screens, television sets, and computerized special effects, observers today place visual illusions in a cultural context drastically different than any available to the Victorians. This internalized understanding of technology may be so ingrained that it is impossible for a twenty-first-century observer to itemize the ways in which contemporary tacit understandings of technology affected the production team’s construction and presentation choices. Although care was taken to make the reconstruction as accurate as possible, there were still countless ways in which it differed from the historical original.

These differences were not restricted to the physical apparatus or the use of contemporary technologies either; just as representational strategies played an important role in the success of the nineteenth-century ghost, they shaped the perception of the twenty-first-century reconstruction. Although both illusions were presented in educational contexts, the educational context of the Polytechnic Institution, aimed at younger patrons and their parents, was different from the educational context of the University of Toronto, a venue presumed to be for adults, though schoolchildren did visit the project. Visitors to the Polytechnic knew it aimed to make a profit; visitors to the demonstration of the reconstruction on January 27, 2012 were able to enter for free. The university theatre could seat just a few dozen, and the audience knew that the advertised production would be its only chance to see the illusion; the Polytechnic lecture theatre housed many more guests, and the Polytechnic ghost haunted it for years. Visitors to the university demonstration knew they would be able to ask questions and experiment with the apparatus as equals; Polytechnic visitors knew they were expected to defer to Pepper’s authority. The list of differences in context between the Polytechnic lectures and the university
demonstration is extensive, and that is even without considering the cultural differences that are impossible to catalogue. What was the twenty-first-century audience’s understanding of ghosts? Of science? Of spectacle? All these aspects informing the audience’s reception of the ghost illusion have likely changed since the nineteenth century in ways that are beyond the compass of this dissertation. If the physical technologies of the twenty-first century affected the accuracy of the ghost reconstruction, so did the variations in presentation and in cultural context.

It is evident from even a cursory comparison of the original Pepper’s Ghost and its reconstruction that it would be impossible to catalogue the many minute ways, tangible and intangible, in which the contemporary and historical effects diverged from each other. And yet, the twenty-first-century audience was still moved by the illusion. Audience members young and old still enjoyed the spectacle of a spirit tormenting young Faust; they still gave an audible gasp at the sight of one presenter appearing to turn into another. The historical ghost and its reconstruction shared popularity; the reconstruction production team was forced to enact an immediate second demonstration to accommodate an overflowing audience and performed to two packed houses. Just as the original ghost attracted audiences young and old from across the class spectrum, the reconstruction drew visitors from across departmental and academic boundaries: faculty from other campuses, eighth-grade classes from local schools, and even an engineering student who happened to be passing by on the street. Whether the apparatus resembled in every respect the historical Pepper’s Ghost is immaterial: the important thing was that it was able to represent the same effect as the original to the audience. In this respect—of course, not forgetting to account for the technological differences when attempting to apply lessons learned from the experiment to historical problems—the reconstruction was successful in reproducing Pepper’s Ghost.

This understanding of the reconstruction shows that there is a useful distinction to be made between physical resemblance of a technology of illusion and representation of the effect it produced, and it is important to keep this distinction in mind as one evaluates the conflicting claims of Dircks and Pepper. While the physical apparatus contributes in some way to the audience’s perception of the effect—for instance, surely the reconstruction’s audience would not have reacted in such a positive fashion had they not trusted that the production team had done its best to recreate the Polytechnic ghost apparatus rather than rely on modern theatrical equipment such as projection—the historian untangling Dircks and Pepper’s dispute must be aware that it is
ancillary to the representational effect. Just as an examination of the University of Toronto ghost illusion exposes a more complicated relationship between an historical technology of illusion and its reconstruction than the intuitive dichotomy of identity and difference, delving into the seemingly simple story of the ghost illusion’s history reveals a more complex understanding of its development than the traditional narrative of invention.

3.2 Henry Dircks

Henry Dircks, a civil engineer born in 1806, felt no one properly recognized his part in bringing the ghost to life, and a glance at the material written on the illusion from its inception to the present day makes it difficult to disagree. Most modern sources, especially those of the theatrical and magical communities, refer to the illusion simply as “Pepper’s Ghost.” Likewise, nineteenth-century reviewers dub it “Mr. Pepper’s ghost,” “Pepper’s Ghost,” and “Professor Pepper’s Ghost.” While both official advertisements and journalistic reviews dutifully acknowledge his role in the ghost’s invention, the general public seems to have forgotten his contributions—an error, according to Dircks, encouraged by the lack of gratitude shown to him

4 As do “Pepper’s Ghost,” MagicPedia, last modified January 14, 2009, http://geniimagazine.com/magicpedia/Pepper%27s_Ghost; Speaight, “Professor Pepper’s Ghost”; Jim Steinmeyer, Hiding the Elephant..., 32; Steinmeyer, “The Supernatural and Spirit Worlds,” in Magic: 1400s-1950s, edited by Noel Daniel (Köln: TASCHE, 2009), 264; Ray Johnson, “Tricks, Traps and Transformations: Illusion in Victorian Spectacular Theatre,” Early Popular Visual Culture 5, no. 2 (July 2007): 158; David Price, Magic: A Pictorial History of Conjurers in the Theater (Toronto: Cornwall Books, 1985), 119; and Helen Groth, “Reading Victorian Illusions: Dickens’s "Haunted Man" and Dr. Pepper’s “Ghost,”” Victorian Studies 50, no.1 (Autumn 2007). The point is not that the authors are necessarily unaware of Dircks’s historical role but that regardless, they use the inaccurate terminology because it is still the most familiar and least confusing to their readers.


7 As in the titles of the articles “Professor Pepper’s Ghost,” The Caledonian Mercury and “Professor Pepper’s Ghost,” Notinghamshire Guardian.


by Pepper and the Polytechnic. Poor Dircks even found himself arguing with *The Times* and the *Illustrated London News* when each erroneously credited the 1862 ghost to an apparatus called the photodrome invented by a Mr. Thomas Rose. Although the latter at least printed a correction after the mistake was pointed out to them—by Rose—Dircks never received the public acknowledgement he believed to be his due.

### 3.2.1 Dircks’s contributions

That Dircks deserved at least some credit is indisputable. Considering his invention to deserve recognition in the scientific community, Dircks first presented his version of the ghost to the twenty-eighth meeting of the British Association for the Advancement of Science in 1858. In October of the same year, he published an article in *Mechanics’ Magazine* giving further details of his invention. Aware of the commercial possibilities of his invention, Dircks promoted the apparatus with articles and ads in various periodicals and personally approached the Crystal Palace and the Royal Polytechnic Institution, both of which declined his initial offer. After some work on other projects, Dircks returned to his spectral invention in early 1862, this time having models produced with the vague idea of marketing them as toys. He showed one model to Pepper, who saw a way the illusion could be modified to suit the Polytechnic stage without necessitating major renovations and proceeded to pursue a patent for the newly collaborative technology. Dircks’s hard work was crucial to the eventual development and success of the ghost, and Pepper would not have developed the successful technology if he had not had Dircks’s design upon which to build.

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13 “Twenty-Eighth Meeting of the British Association for the Advancement of Science,” 456.
16 Ibid., 5.
17 Ibid., 5.
18 Ibid., 5, 7.
20 Ibid., 4-7.
The apparatus invented by Dircks was not the same as the apparatus eventually used by Pepper at the Polytechnic and by other managers at various theatres once the illusion became popular. Dircks proposed an illusion based on a room divided in half by a vertical sheet of plate glass.\(^{21}\) The audience was to be seated on top of one half of the room, looking down through the glass into the other—although, of course, they were not to know the glass existed. This would give audience members a forty-five-degree-angle sightline\(^{22}\) into the visible half, where performers could enact the actions of the “living” characters. The half of the room underneath the audience would be the ghost stage. Here, a hidden performer would move in the sunlight allowed to stream in through a skylight. This would cause his or her reflection to be visible on the glass, and the audience would perceive ghost performer’s figure to be among the “living” performers and the scenery on the ordinary stage.\(^{23}\)

Dircks also first put the ghost in a number of contexts that persisted in the final production. It was Dircks who first presented the illusion as scientific, announcing it through the ordinary venues for scientific discovery, such as the BAAS meeting and engineering periodicals, and marketing it foremost to institutions associated with the popularization of science. He also originated the anti-Spiritualist characterization of the illusion: his 1858 articles open with a discussion, inspired by the works of David Brewster, of how illusions such as his own support the arguments of those who deny the existence of ghosts and the supernatural.\(^{24}\) It was he who first focussed on the invention’s ability to present “spectral phenomena”\(^{25}\) rather than suggesting other possible supernatural effects, and it was even he who suggested presenting it in a narrative context. In his illustrations of the mechanism, the figures drawn to represent performers are clearly presenting a story to their audience. In one diagram, the gentleman playing the ghost wears a costume resembling that of a seventeenth-century swordsman.\(^{26}\) In another, a mother and child visit with a ghostly gentleman in front of a set that includes the front door and façade of a house.\(^{27}\) Both scenes call to mind typical dramatic scenarios of the nineteenth-century stage—the

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\(^{21}\) Dircks, *The Ghost!*..., 46-7; see Appendix, fig. 11.
\(^{23}\) Dircks, *The Ghost!*..., 55.
\(^{25}\) Ibid., 322.
\(^{26}\) Dircks, *The Ghost!*..., 46; see Appendix, fig. 11.
\(^{27}\) Dircks, *The Ghost!*..., 55; see Appendix, fig. 12.
wronged duellist seeking justice from beyond the grave,\textsuperscript{28} and the melodramatic staple of the widowed mother in need of a benefactor. As well as ghost-story narrations, Dircks describes other effects that his apparatus might make possible, effects that Pepper integrated into the Polytechnic production a whole year after the illusion’s introduction: one might place identical objects or persons equidistant from the glass on either side. This could allow both the ghost character and the living character to appear to interact with set pieces.\textsuperscript{29} Or one might control the intensity of the ghost image by raising and lowering the light level\textsuperscript{30} and placing the ghost before a white background in order to reflect the performer’s shadow as well as the performer to lend the image a more solid appearance.\textsuperscript{31} Dircks may have stressed his mechanical contribution to the ghost illusion, but he also originated some of the representational strategies and uses of the apparatus that played a part in its success.

3.2.2 The flaws in Dircks’s design

Unfortunately, although Dircks was a creative and talented innovator, he had little experience with the practical side of performance. Many of his suggestions, both technological and theatrical, have an intuitive appeal but fail to take into account the needs of live performance. For instance, while the dramatic scenarios he proposes would certainly appeal to an audience, he does not consider how to cope with the fact that the performers on the visible stage would not be able to make themselves heard through the glass (or, at best, would find their voices to have a telltale muffled quality). Because his design does not include a way for the glass to be moved, only silent ghost scenes could be staged in the space. His suggestion of a white background so the ghost’s shadow might be reflected seems to have been based on experiments with a model in dim natural light—in theatrical lighting, the background would surely be reflected along with the shadow, and, in fact, the best way to achieve such an effect would be to create an exact mirror image of the background of the visible stage on the hidden stage. His insistence of the effectiveness of the apparatus for creating spectral phenomena is an effective point, but he does

\textsuperscript{28} See, for example, Dion Boucicault’s popular 1852 drama \textit{The Corsican Brothers}, in which a young man avenges the death of his dead duellist twin.

\textsuperscript{29} Dircks, “On an Apparatus for Exhibiting Optical Illusions Illustrating Spectral Phenomena,” 322.

\textsuperscript{30} Ibid., 322.

\textsuperscript{31} Ibid., 322-323.
not seem to grasp exactly why such a use would appeal to potential audiences. As a man of science, he places too much faith in the interest of the public in seeing a new natural phenomenon simply because it is new. His emphasis on the illusion’s potential to free audiences from their former spectral delusions\(^{32}\) suggests that he does not distinguish between the public’s desire for the truth and the public’s desire for meaning. Although his plan for the apparatus is roughly the same as the one Pepper would eventually adopt, a lack of experience with performance leaves Dircks unaware of how to tailor his ideas for effective presentation to the public.

Similar problems plague the physical design of the illusion. This is not to say Dircks took no one’s practical needs into account; his design simplifies the construction of the apparatus, as his fixed, vertical pane of glass would likely have been easier to secure than the eventual suspended, angled glass Pepper used, and it also caters to the needs of the ghost performers, who would have been able not only to move naturally in an upright position but also to see their own reflections as they performed and adjust their movements accordingly. However, the design of Victorian theatres could not easily cope with the necessities of Dircks’s apparatus. Typically, the auditorium of a Victorian theatre was on a level with the proscenium-arch stage. Semicircular or horseshoe-shaped\(^{33}\) rows of balconies and galleries ran around the outer walls, often in layers one atop the other. There was usually plenty of room below the stage and above it, but to build the stages and raked, raised seating specified in Dircks’s plan, the entire theatre would need to be reconstructed.\(^{34}\) To modern eyes, this proposition is obviously financially unsound; although the Victorian dramatic theatre placed an emphasis on visual spectacle, no reasonable actor-manager could be expected to swallow an outlay of around ten to twenty thousand pounds\(^{35}\) for an untried attraction. Dircks seems completely unaware that his original design would entail these unfeasible renovations.

It may be that Dircks did not consider his invention to be what today might be called a special effect, an exciting spectacle that could be integrated into various productions mounted at the


\(^{34}\) Steinmeyer, *Hiding the Elephant...*, 26.

\(^{35}\) This figure is taken from the approximate cost of completely renovating the Polytechnic’s larger theatre ten years previous to Dircks’s invention (Weeden, *Education of the Eye...*, 43), and is therefore likely a low estimate.
theatre, where the draw was the whole of the story rather than a particular illusion. Instead, he perhaps modelled his understanding of where his invention fit in the world of entertainment on what Altick calls exhibitions, entertainments whose appeal is what the items or persons on display are, as opposed to what they do. Dircks was fifteen years older than Pepper and likely had better memories of the peak popularity of the London exhibitions, when attractions like panoramas, dioramas, mechanical theatre sets, and automata were popular. Many of these exhibitions did require specially built spaces to be effective, and their popularity was such that Dircks may have considered their overhead costs to be financially justifiable.

Regardless, Dircks’s design also suggests that he had little concept of the appeal of mystery to his audiences. Although, as discussed in the previous chapter, knowing how the ghost was created did not affect audiences’ interest in the effect, there is a difference between knowing how an illusion has been created and knowing that one is supposed to know how an illusion has been created. Actual secrecy is not necessary for an illusion to evoke wonder; an air of secrecy often is. The requirement of a theatre with unusual seating arrangements shows a lack of insight into the perspective of the audience.

To elaborate, it is necessary to turn to an analogy in conjuring. Many otherwise baffling conjuring tricks depend on a seemingly ordinary but in reality altered piece of equipment. For instance, a common beginners’ trick involves a ball sitting in a stand somewhat like an egg-cup. The stand also has a cap that just covers the ball. The conjuror takes the ball out, replaces the cap, and immediately removes it to reveal a new ball in the supposedly empty cup. The trick is accomplished through the use of a secret second cap. This second cap is made in the shape of a ball resting in the cup, although it is a single, solid, flat piece that nests in the larger cap. When a conjuror uses this apparatus, the success of the trick depends in part upon the audience making the assumption that both balls are normal and that the cap, like the cap of containers they have encountered in day-to-day life, is one simple piece. If the audience members are given reason to

37 Ibid., 128-162, 198-208.
38 Ibid., 163-172.
39 Ibid., 214.
40 Ibid., 352-362.
41 See Appendix, fig. 13.
suspect that the ball, cup, and cap are specially made pieces of conjuring equipment, they are less
likely to be impressed. They will assume (correctly) that what they originally took to be a
baffling negation of the laws of physics is merely a case of not knowing the exact construction of
the prop being used—even if they are not entirely sure what construction differences could
account for their observations.

Similarly, introducing an audience to the ghost illusion in a theatre whose construction obviously
differs significantly from the standard theatres of the time—especially if it were known that the
theatre in question had been renovated specifically for the purpose of showing the illusion—
would change the audience’s perception of the effect. Consider the encounter from the
perspective of an audience member. Presenting the illusion in an environment conspicuously
constructed for that purpose is the large-scale equivalent of introducing a card trick with “I
bought this deck from a magic shop”—it opens the audience members’ minds to otherwise
unconsidered possibilities (“Maybe the cards are marked. Maybe all the cards are the ace of
spades.”) and changes the standards by which the audience evaluates the experience (“Is this still
impressive when I know there’s something strange about the deck?”) Even if building a special
theatre had been financially realistic, the requirement demonstrates that Dircks failed to consider
the holistic audience experience.

3.3 Pepper’s improvements

For many reasons, then, it is evident that Pepper’s contributions were instrumental in the success
of the illusion, and the eventual design used at the Polytechnic was quite different from Dircks’s
model. Rather than using the vertical pane of glass in Dircks’s design, Pepper suspended the top
of the pane from the ceiling so that the glass hung toward the audience at an angle of
approximately twenty degrees from the vertical, tilted toward the audience,42 with its bottom
edge resting on the stage. Later versions may have been tilted as deeply as forty-five degrees and

42 Pepper does not give the exact angle at which the glass was hung, and Steinmeyer suggests this is deliberate
obfuscation to prevent imitation (Steinmeyer, Hiding the Elephant..., 37). Sources that suggest twenty degrees
include Pepper, Cyclopaedic Science Simplified, 30; David, Secrets of Wise Men, Chemists, and Great Physicians,
101; and Garenne, The Art of Modern Conjuring for Wizards of All Ages, 191. See Appendix, fig. 14.
taken advantage of a mirror to allow the ghost performer to face the audience.\textsuperscript{43} This avoided alterations to the structure of the theatre. Instead of a double stage, the ghost performer was now relegated to a recess between the front row of the audience and the lip of the stage,\textsuperscript{44} in the area we would now call the orchestra pit. This performer would lie back on a platform angled to match the incline of the glass so that his or her image would appear to the audience to be standing upright.\textsuperscript{45} Instead of relying on natural light spill for the ghost’s reflection, a technician would light the ghost with an extremely bright artificial light, such as limelight or electric light.\textsuperscript{46}

As well as these conceptual changes, Pepper originated practical details, including the design of the framing for the glass,\textsuperscript{47} important both to avoid torsion and prevent it from shattering\textsuperscript{48} and because the new design allowed the glass to be removed when the illusion was not taking place.\textsuperscript{49} Pepper’s input transformed Dircks’s theoretical design into a technology that could work in the Polytechnic theatre.

Pepper’s altered design had flaws not present in Dircks’s original formulation. The ghost performer’s role became much more difficult: not only did she have to emulate ordinary upright positions while supine, she had to do so under the intense heat and glare of a limelight. The awkward posture was sometimes apparent to the audience: one observer of the ghost play at the Britannia writes that the ghost of the widow appeared “a little foreshortened, a little out of the perpendicular, leaning forward as though accustomed to a cramped and confined space, and not daring to stand upright,”\textsuperscript{50} an overall state of affairs that Dircks mocks triumphantly as “spectres reclining in the air like ladders against the wall.”\textsuperscript{51} The experience sounds neither entirely convincing to the audience nor particularly comfortable for the performer. The arrangement also made it difficult for the ghost performer to interact with others in the scene. While Dircks’s

\textsuperscript{43} Pepper, \textit{Cyclopaedic Science Simplified}, 23. See Appendix, fig. 15.
\textsuperscript{44} Pepper, \textit{Cyclopaedic Science Simplified}, 23.
\textsuperscript{45} Pepper, \textit{The True History of the Ghost...}, 9-10.
\textsuperscript{46} Ibid., 9.
\textsuperscript{47} Dircks, “Pepper’s Ghost,” 265; Pepper, “Pepper’s Ghost,” 285.
\textsuperscript{48} Although we cannot assume that safety standards of the past would be of the same concern to historical actors as they are today (Butterworth, \textit{Theatre of Fire}, xii), since the Polytechnic had a lethal accident that damaged its reputation and force its temporary closure only a few years previous in 1858-1859 (Pepper, \textit{The True History of the Ghost...}, 2), it seems fair to infer that Pepper would have at least considered the possibility.
\textsuperscript{49} Pepper, \textit{The True History of the Ghost...}, 9.
\textsuperscript{50} “Haunted Hoxton,” 423.
\textsuperscript{51} Dircks, \textit{The Ghost!...}, 21.
design would have allowed the ghost performer to watch the onstage performers, the new design likely forced him or her to rely much more on choreography than on visual cues. The new intensity of the light would also have necessitated arrangements to avoid unwanted spill that could have revealed to the audience the location of the hidden light source. Although in some ways the quality of the audience experience and the difficulties faced by technical staff are intertwined—for instance, if one expects the audience experience to attract many paying customers, one is more willing to spend time and money facing technological challenges—it seems as though Pepper focussed on the best possible experience for the audience while Dircks focussed on solving mechanical problems as simply as possible.

3.4 The definition of “invention”

3.4.1 Dircks’s position

Dircks never questioned that Pepper’s adaptations had made the illusion suitable for the Polytechnic stage; rather, he attacked the idea that such suggestions qualified as “invention.” To understand Dircks’s position, it is necessary to delve into his background. Before his involvement with the ghost illusion, Dircks cultivated a reputation as an outspoken inventors’ advocate. An engineer himself, with numerous patents to his name, Dircks was known for supporting one party over another in controversial priority disputes, and in his later life, he enthusiastically threw himself into restoring the reputations of individuals he felt had been unduly ignored by posterity by writing histories of their achievements. Such efforts were not always well received; one review of his book on the inventions of the Marquis of Worcester, to whom Dircks felt tribute was due as the “first” inventor of the steam engine, points out that while Dircks makes the case that his subject paved the way for the technology in question, he both fails to provide sufficient evidence for his stronger thesis and ignores previous inventors who would by his own terms have equal claim to the credit he awards to the Marquis. Despite

55 Ibid., 180.
56 Ibid., 181.
external disagreement, Dircks’s life and work show that he had a strong commitment to the idea that technologies could and should be identified with a single, chronologically first inventor. 57

This point of view reflects a simplistic understanding of technology. Dircks understood technologies to be ideas made manifest. He compares the relationship of inventor to technology as analogous to that of artist to work of art, explicitly equating his part in the development of the ghost illusion to that of an artist or writer in the development of a painting or novel.58 the originator and developer of the key idea. He compares Pepper’s role to the role a frame-maker has in relation to a painting—that is, the provider of a subordinate craft, not an art. From this perspective, Pepper’s work was in the inferior realm of the physical, not the superior realm of the conceptual, and so Dircks attacks Pepper’s claim to have made a crucial technological contribution.59 To Dircks, the idea is as laughable as the thought that the person who develops a new kind of gun has an equal claim to invention as the person who develops a mount for that gun,60 and he makes clear which accomplishment is the more exceptional. Few people, he writes, are capable of generating original ideas.61 Dircks implies that the true role of inventive and literary genius is to introduce new thoughts into the world, and he devalues the talent required to develop these concepts into items of practical value, be they mechanisms that cope with the various real-world problems any technology faces or actual words on a page that other people can read. It is incomprehensible to him that anyone might argue otherwise; although he seems to agree that experienced tradespersons should be acknowledged if they shape the implementation of an idea by contributing the hands-on experience necessary to make it material, he finds it absurd to suggest that they equal or overshadow the originator of the idea.62 After all, were the collaborators to go their separate ways, the one who came up with the idea could still get a patent on his or her work; those who recommended certain types of material or construction techniques

57 Although it is beyond the scope of this dissertation to elaborate on Victorian notions of inventing and characterizations of inventors, for an in-depth exploration of this topic through the period under discussion and beyond, see Christine MacLeod, Heroes of Invention: Technology, Liberalism, and British Identity 1750-1914 (New York: Cambridge University Press, 2007).
58 Dircks, “Pepper’s Ghost,” 265.
59 Dircks’s attitude can be seen as a development of the classical distinction between episteme and techne, though full exploration of this comparison is beyond the scope of this dissertation.
60 Dircks, “Pepper’s Ghost,” 265.
61 Dircks, The Ghost!..., 3.
62 Ibid., 85.
could not. This attitude explains how Dircks could sincerely write that Pepper’s adjustments to
the ghost illusion did not deviate from his own original design. For him, the design and the
concept were synonymous, and because he could grasp neither the distinction between the two
nor the significance of Pepper’s changes, he felt himself akin to an author who finds his
manuscript bound in a new cover with another writer’s name in the byline.

Dircks’s position is particularly curious because he vaunts the originality of his idea for the
illusion while at the same time acknowledging the influence of other thinkers. In his 1858 paper
to the BAAS, he pointed out that David Brewster’s 1834 opus *Letters on Natural Magic* raises
the question of optical illusions being the cause of ghost sightings. Dircks claims to have been
inspired by Brewster’s treatment of the subject and his proposition that ghosts can be explained
by the phenomenon of reflection by concave specula. It is true that Brewster has little to say on
the subject of semi-transparent, semi-reflective mirrors, and it seems intuitive to agree that
Brewster’s idea is different from that of Dircks. But in what sense is the difference between the
ideas of Pepper and Dircks distinct from that between those of Dircks and Brewster?
Furthermore, as critics of both Dircks and Pepper were quick to point out, if the originator of the
concept of the ghost illusion deserves credit for its success, there are other candidates for
priority. One subscriber to *Mechanics’ Magazine*, a J. Alex Davies, writes of Dircks’s 1858
publication of his BAAS paper that there is “nothing whatever original about it.” Davies
continues, “Many children’s toys are on this principle, to say nothing of the innumerable tricks of
jugglers and other popular "professors" dependent on it.” Recall, Davies is writing five years
before Pepper and the Polytechnic adapted the illusion. While he unhelpfully does not supply
specific names of those he would have supplant Dircks, others did. In one embarrassing incident,
both Dircks and Pepper were forced to disavow priority on the European continent when the
French courts refused to grant them a patent on the ghost apparatus. The conjuror Robin was

63 Ibid., 85.
64 Dircks, “Pepper’s Ghost,” 265.
65 “Twenty-Eighth Meeting of the British Association for the Advancement of Science,” 456.
67 See Sir David Brewster, *Letters on Natural Magic, Addressed to Sir Walter Scott, Bart* (London: John Murray,
Albemarle Street, 1834), 86-87.
69 Ibid.
using a similar apparatus to present a phantasmagoria to his audiences, and when Pepper’s lawyers tried to prevent this show, they discovered that he and Dircks did not have priority of invention. Some years before, a French inventor had patented a peep-show toy on the same principle. A piece of glass was mounted at forty-five degrees inside a closed box. Children could see fixed figures when they looked through a hole to see inside the box, but when they put their hands in a second hole to grasp the figures, they found there was nothing there. According to French law, this was enough to discredit the claim of Pepper and Dircks. Curiously, Dircks did not have much to say on this matter; he spent far more time addressing the arguments of those like W. Bridges Adams, who claimed the concept of the ghost illusion was present in Porta’s Natural Magick, a 1658 English translation of a book published in Naples seventy years previous. Porta’s twelfth chapter, entitled “How we may see in a chamber things that are not,” describes a similar use of glass as a semi-reflective, semi-transmitting surface. Porta instructs the reader on how to create a peepshow using a room constructed to admit light through only one window, in which the glass is set. The spectator is to look into the room from the outside through the glass. Unbeknownst to the spectator, the glass will also reflect an image of an illustration or statue set above his or her head. These reflections “he will think to be in the middle of the house, as far from the glass inward, as they stand from it outwardly, and so clearly and certainly.” This certainly sounds similar to the ghost illusion. Dircks acknowledges Porta’s contribution and even goes so far as to grant him some credit. However, he explains, Porta does not “anticipate” his own illusion because his innovation was made on a different theoretical basis and with different technological assumptions. For instance, Porta has to specify the window should be made of glass—to Dircks, this demonstrates that Porta is operating in a technological context fundamentally different from his own.

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70 Pepper, The True History of the Ghost..., 24.
73 Dircks, The Ghost!..., 35.
74 Ibid., 36.
75 Ibid., 36.
For a technology of illusion and of display, context is key, and Dircks is right to suggest that Porta’s apparatus would hold a different meaning for audiences of Dircks’s own day. Although methods of producing plate glass had been in existence since at least the 1670s when they were developed in France, the rolling method that was able to produce larger and thinner sheets of glass than could any other technique at the time, had been patented only decades earlier by James Hartley in 1847. In addition, the Victorian zeitgeist favoured the aesthetics of glass: the famous 1851 Crystal Palace was constructed with large quantities of the material, and by the 1850s, store owners preferred single sheets of plate glass for their street-front windows. Therefore, unlike the potential audiences of Porta’s age, the audiences of the 1860s would have been accustomed to seeing images in glass in windows and other structures in their everyday lives. But since the technology to produce large plates of glass was still relatively new and seldom used in performance, their familiarity did not extend to seeing images created by the same principle in the different context of a theatrical stage. However, although Dircks implicitly touches upon this concept, he fails to take it to its logical limit: if being able to function in different contexts is a sufficient criterion of technological distinctiveness, why aren’t Pepper’s modifications—which render the illusion operational in the context of a standard theatre space—also indicative of originality? Dircks seems to consider the distinguishing feature between his and Porta’s designs to be the fact that one is set up for public, the other for private gaze, but there is no indication why this should be considered a difference more salient than the difference between using modified and standard stages. It is more tempting to attribute the differences between Porta’s and Dircks’s designs to technological rather than conceptual limitations; in Porta’s time, manufacturers lacked the ability to produce the large sheets of plate glass needed to produce a large-scale ghost illusion. This invention had occurred a relatively short time before Dircks’s proposal. The new technological capacity shaped the cultural context in which the ghost

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77 Ibid., 150-151.
79 Ibid., 134.
illusion was perceived—the degree to which a spectator is familiar with large sheets of glass naturally affects his or her predisposition to consider the presence of one onstage to explain an otherwise baffling illusion. In any case, Dircks does not give a robust account of what kinds of contextual differences should matter in assessing originality of invention and why.

In fact, Dircks’s opinions on this matter were sometimes counterproductively fluid, to his disadvantage. The origination of the source of light for the ghost performer was a point of contention between Dircks and Pepper. Dircks appears to believe that one of Pepper’s major claims to original contribution was the suggestion to use limelight and later electric light to illuminate the ghost performer. In his 1858 papers, Dircks’s primary concern is merely that the performer is illuminated, somehow, without consideration of intensity of the light or unwanted shadows or spill. However, the use of limelight or electric light was important enough that at least one of the patentees thought it necessary to mention both in the patent, and writing years later, Pepper mentions the use of electric light as one of the elements of originality that had been necessary to secure the patent. He certainly would have been more familiar with limelight and electrical light than Dircks, since the Polytechnic used limelight to project the images from its powerful oxyhydrogen microscope and offered numerous electrical experiments to delight its visitors. Pepper (or one of his admirers) seems to have made public claims that he was responsible for the suggestion to use these powerful forms of illumination, since Dircks goes out of his way to respond to them. He devotes an entire page of his 1863 book to establishing his credentials in the fields of electricity and chemistry and informing the reader that of course he’s seen limelight in public use before. Just because he does not mention it in his description of the ghost apparatus, he reminds his readers, does not mean it is a technology with which he is unfamiliar. Dircks seems to have realized sometime between his original design and the publication of his book that limelight or electric lights were indeed key to producing the ghost effect. He shifted positions from lack of concern over the type of lighting used to recognition that powerful lighting was necessary but refused to acknowledge there was anything innovative about

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83 See “Twenty-Eighth Meeting of the British Association for the Advancement of Science”; Dircks, "On an Apparatus for Exhibiting Optical Illusions Illustrating Spectral Phenomena.”
84 Rees and Wilmore, British Theatrical Patents..., 9.
85 Pepper, The True History of the Ghost..., 22.
its inclusion in the design. His treatment of the matter in his book suggests the reader should understand that he was concerned with the core concept of the apparatus rather than petty details such as the exact provenance of the light. Similarly, in an 1867 article, he is careful to refer to the lighting arrangements as the “usual” limelight.\(^8^7\) In the context of the article, in which his chief object is to minimize Pepper’s contributions to the success of the apparatus, this seems a deliberate barb aimed at discrediting his competitor.

Dircks’s seemingly inconsistent position is more understandable when viewed in the light of his tacit stance on the public status of science. For Dircks, once discovered, scientific knowledge ought to be accessible to everyone, and the only vestige of privacy it should retain is its link of popular gratitude to the person or persons who first discovered it. This can be seen in his strong advocacy for inventors’ rights under patent law—for several years prior to 1858, Dircks ran an ad in *The Times* promoting a free catalogue of patents and advice to inventors, listing himself as a patent agent.\(^8^8\) Whether or not his enterprise was effective, Dircks clearly believed that he was honour-bound to offer his advice for free. Similarly, in his original bargain with the Polytechnic, Dircks foreswore any right to the profits brought in by the ghost illusion; for someone who had spent years trying to interest others in his invention, this seems odd until the true object of his pursuit becomes clear. Dircks’s one request of Pepper was the mention of his own name in all advertising and lectures connected with the device.\(^8^9\) Equally odd as his ambivalence toward financial reward was Dircks’s lack of interest in preserving the secrecy of his mechanism. The history of magic shows that conjurors who invented new illusions, knowing the perceived novelty of their new act depended in part on a semblance of secrecy, were careful to show their inventions only to those whom they could trust. Although Dircks understood that the effectiveness of his illusion depended on the audience not being aware of the sheet of glass in place—otherwise, why go to such elaborate lengths to hide it?—he made no demands of Pepper and the Polytechnic in that regard. Perhaps, it might be argued, since he did not care about making a profit, he had little reason to be concerned about enduring public interest in the illusion, but this is not so: Dircks was proud of his creation and considered attention given to it to be attention due to him. He refers to the “scientific merit” he received on account of his 1858

\(^{87}\) Dircks, “Pepper’s Ghost,” 265.
\(^{88}\) See “Patents, several thousand,” *The Times*, January 13, 1858, 4.
presentation\textsuperscript{90} and requested as compensation from the Polytechnic “\textit{simply the connection of [his] name with [his] invention.}”\textsuperscript{91} Many inventors of illusions write mechanical explanations of their work after they see public interest has run its course, but Dircks published \textit{The Ghost! As produced in the spectre drama, popularly illustrating the marvellous optical illusions obtained by the apparatus called the Dircksian phantasmagoria: being a full account of its history, construction, and various adaptations} at the end of 1863, while the ghost was still quite popular. He remarks that he took this action against the wishes of Pepper and the Polytechnic.\textsuperscript{92} Whether they objected to his description of the ghost apparatus or his argumentative tone is uncertain (he includes a methodical list of all the occasions on which he feels he has been wronged and quotes all his letters from the Polytechnic with scathing commentary), but either way, even the showman Pepper, with his eye on maximizing public interest and profit, waited until 1869 to publish his instructions on how to produce a ghost illusion and did not devote a full volume to the ghost until 1890. It does not seem to have occurred to Dircks that one might wish to keep the ghost’s mechanism a secret—in fact, he devoted significant amounts of time to disseminating it, first in the pages of scientific journals (including \textit{The Engineer, The Mining Journal, Mechanics’ Magazine}, and the \textit{Athenaeum}).\textsuperscript{93} The clearest expression of Dircks’s belief in the openness of scientific knowledge is his letter dated December 31, 1872, written to \textit{The Times} in response to a previous correspondent’s letter regarding what seems to have been a statement by Dircks on Spiritualism. Dircks heaps scorn on Spiritualist mediums for shrouding their actions in mystery and refusing to admit the unbiased tests of critics. For Dircks, Spiritualist mediums are especially loathsome because they purposely keep their methods secret, which is exactly the opposite of what is prescribed by the scientific method. “\textit{I always have been},” he concludes, “\textit{so shall, no doubt, continue, a firm and bold denouncer of secrecy in science, and every kind of mysticism is my aversion.}”\textsuperscript{94} Dircks saw himself as a champion of science as it ought to be practiced: open to scrutiny, practiced like the fine arts for no other reason than for the glory of personal achievement.

\textsuperscript{90} Ibid., 9.
\textsuperscript{91} Ibid., 7.
\textsuperscript{92} Ibid., 10.
\textsuperscript{93} Dircks, Ibid., 4.
\textsuperscript{94} “Spiritualism and Science,” \textit{The Times} 27576 (January 2, 1873): 12.
With Dircks’s opinions on science in mind, it is easy to see how the seemingly minor actions of Pepper and the Polytechnic must have galled him. Although Pepper claims that he always remembered to inform his lecture audiences that Dircks was the co-inventor of the illusion, and although he protests that he would never steal honours belonging to someone else, Dircks’s catalogue of 1863 letters between himself and an unnamed Polytechnic staff member whom he strongly implies to be Pepper does seem to indicate negligence in giving Dircks equal billing, if not deliberate suppression of his contribution. Dircks complained early, often, and loudly about his perceived lack of credit, and while there are no corroborating records of Pepper claiming to have invented the ghost or implying that he had done so, the Polytechnic publicity did not make thanking Dircks a priority. Some early Polytechnic ads skirt the issue by mentioning not the ghost but merely Professor Pepper’s “Strange Lecture”; later advertisements that do mention Dircks’s name stress Pepper’s adaptations with the phrase “Professor Pepper’s adaptation of the original and most startling Ghost Illusion of Henry Dircks, Esq., C.E.” While this formulation acknowledges Dircks’s contribution, any twenty-first-century moviegoer familiar with advertising idioms like “Stephen Spielberg presents...” or “A George Lucas film...” will recognize which name carries the weight. Dircks bridled under what he perceived as the undue emphasis on how Pepper perfected the invention. These circumstances were no doubt particularly aggravating when the majority of journalists ignored Dircks’s name completely in their reviews. To add insult to injury, though at first Pepper’s letters to Dircks were sympathetic, as Dirks continued to complain, Pepper’s replies became more and more evasive. It does seem suspicious that on April 18, 1863, Pepper assured Dircks that “[Dircks’s] name as the inventor has been in our bills and programmes for months and months” and only three days later on April 21 wrote that he had “by a strange oversight, neglected to put [Dircks’s] name before the public.” Similarly, it stretches the bounds of credibility to believe that, as he claims, Pepper is beset by wilful theatre managers who, despite his best efforts to the contrary, keep forgetting to include Dircks’s name in their publicity—especially when the same problem occurs with the

95 Pepper, The True History of the Ghost..., 21.
96 Ibid., 21-2.
97 “Polytechnic,” The Times, January 16, 1863, 1.
98 “Polytechnic,” The Times, December 12, 1863, 1.
100 Quoted in Dircks, The Ghost!..., 74.
101 Quoted in Dircks, The Ghost!..., 74.
Dircks also seems justified in his claim that Pepper responds to him only when he and the Polytechnic want some help securing or enforcing a patent. Otherwise, despite the friendly tone of Pepper’s letters, it does appear that the famous lecturing professor did his best to avoid his “co-inventor” once it became clear that they would not reach an agreement on appropriate forms of credit. By the end of 1863, Dircks had responded by disassociating himself with the Polytechnic and refusing to attend to their requests. To give Pepper the benefit of the doubt, he does not seem to have intentionally done Dircks wrong; rather, his different perspective on the nature of the technology under dispute meant that he did not perceive the gravity of his crime in Dircks’s eyes.

3.4.2  Pepper’s position

While Dircks considered the core of the ghost effect to be his own concept of using plate glass to create an optical illusion for the public gaze, Pepper took a more practical and usage-specific attitude toward the issue, and this was at the root of their difference. As a patent agent, Dircks was aware that the law did not distinguish between the contributions of multiple inventors listed on a single patent; that is, each was considered to have rights to the entire technology as though he or she had been its individual inventor. To him, this was merely a sensible way to acknowledge the collaboration of each contributor without leaving the original inventor open to tyranny of the majority should he or she have needed to collaborate with a large number of tradespersons. Pepper, however, took this legal status at face value. For him, the technology in the patent was the end product that the Polytechnic had successfully implemented, not Dircks’s untested original design. He knew that without his own contributions, the spectacle that thrilled the Polytechnic audiences would have been impossible. To continue Dircks’s analogy, Pepper did not contradict Dircks’s suggestion that his adaptations amounted to the frame on a painting or the mount on a gun; instead, he acknowledged that in some cases, paintings without frames or

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103 Ibid., 75.
104 Ibid., 75.
105 Ibid., 80.
106 Ibid., 78-79. The source itself is also an act of dissociation.
107 Ibid., 84.
108 Ibid., 84.
guns without mounts cannot serve their intended functions. Writing over a decade after Dircks’s death, he maintained that Dircks’s original apparatus was “comparatively useless” and that “[Dircks] knew nothing of the use of my double stage.” In fact, Pepper asserts, the Solicitor General refused to give a patent to Dircks’s original design, consenting only after he was made aware of Pepper’s modifications in the form of using electric light and implementing a double stage (by which Pepper seems to mean the second audience-facing stage underneath the first where the ghost performer stood once the Polytechnic had rigged its version of the ghost that used a mirror to reflect the performer’s image onto the glass). While Dircks recollected the events differently, stating that it was his own evidence during the hearing with the music-hall owners that swayed the patent court’s opinion in his and Pepper’s favour, the truth of the matter is beside the point. That Pepper would make an argument like this one shows his underlying assumption: that the core of the technology is whatever is necessary to make the technology work within the environment in which it is to be used. He allows Dircks the honour of “inventing” the ghost illusion but insists that the apparatus had “two fathers,” and his own parental role was the refinement of the otherwise unusable idea—when it came to the ghost, Pepper claims to have “improved him considerably, fitting him for the intercourse of mundane society, and even educating him for the stage.” Pepper’s commitment to the practical implementation of technology shows itself throughout his writing. He dismisses the work of Robinson, a writer who published an illustration in 1831 of an apparatus similar to that of the ghost illusion, with, “The whole diagram betrays theory instead of practice,” implying the superiority of the latter to the former. He heaped scorn on his opponent’s lack of hands-on experience, alleging: “Mr. Dircks never attended a single rehearsal or experiment at the Polytechnic.” If for Dircks an invention was a creative product analogous to a book, for Pepper, the development of the ghost was akin to the creative birth of a collaborative art form like a play. Too tactful to say so outright, Pepper nevertheless implies that the proposal with which Dircks approached him was rough and unstageable. It was only under his own guidance.

110 Ibid., 22.
that the raw material could be transformed into something worth marketing. Without Pepper’s management, Dircks’s ghost would never have seen the light. Dircks is less than charitable in his interpretation of Pepper’s motivation, but it is not difficult to believe him when he complains of how Pepper introduced him to the Polytechnic’s board of directors: as though he were Pepper’s protégé, “a friend of his who had an invention which he thought might be useful.”\textsuperscript{115} Pepper seems to have taken the same view.

It is clear that Dircks never achieved satisfactory resolution to the injustice he felt had been done to him. At the end of 1871, less than two years before his death, Dircks was still writing to \textit{The Times} to complain about an earlier article that had referred to “Pepper’s Ghost” and insisting that all scientific journals acknowledged him as the inventor of the illusion.\textsuperscript{116} By this point, he claimed that the patent was not after all for the ghost illusion he had originated but merely for the necessary “\textit{carpenter's work in machinery}.”\textsuperscript{117} This he distinguished from the “\textit{invention itself},”\textsuperscript{118} which he insisted was totally his. That the argument was evidently ongoing and still a matter of the repute of Pepper and the Polytechnic in the minds of the public is clear from the fact that Pepper responded to Dircks, almost a decade after the ghost’s debut, with a concise paragraph directing readers of where they might find his and Dircks’s more detailed cases in past issues of \textit{Mechanics’ Magazine}.\textsuperscript{119}

\section*{3.5 So what is “Pepper’s Ghost”?}

Ultimately, the question of who “invented” Pepper’s Ghost is unanswerable for the simple reason that neither Pepper’s nor Dircks’s view of technology matched the reality of the illusion they popularized together. In fact, defining what comprises that illusion proves to be an intractable challenge. As demonstrated above, the actual apparatus underwent so many changes in conception and design that it is impossible to pinpoint a set of features the “true” ghost illusion possesses. Too much specificity excludes many of the variations of the ghost that historians have

\textsuperscript{115} Dircks, “Pepper’s Ghost,” 265. Emphasis in original.
\textsuperscript{116} “The “Ghost” at the Polytechnic,” \textit{The Times}, December 27, 1863, 4. The offending article was “Royal Polytechnic Institution,” \textit{The Times}, December 26, 1871, 9, which referred in passing to “Professor Pepper's well-known “Ghost.””
\textsuperscript{117} “The “Ghost” at the Polytechnic,” 4.
\textsuperscript{118} Ibid.
\textsuperscript{119} “The Ghost at the Polytechnic,” \textit{The Times}, December 30, 1871, 3.
good reason to want to study together. Too broad a definition includes such undesirables as peepshows, images seen in the dark through windows, and even modern teleprompters, which
work on the same principle. It might be tempting to point to features of the effect itself as
markers of the particular illusion—intangible ghosts onstage, for example. However, this is
neither how the historical actors in this narrative understood it nor how they behaved toward it in
their pursuit of patents and legal enforcement of licensing arrangements. The key aspect of the
ghost must be some mix of mechanism and effect, but, as we have seen in the previous chapter,
the interaction between these, their audience, and the environment in which they were presented
was constantly changing.

In the end, the best way to define the technology of illusion called Pepper’s Ghost is to be aware
that there is no single physical apparatus or predefined performance that embodies the illusion.
Instead, historians must do as do any other audience members and negotiate meaning from the
complex interplay of mechanism, narrative, and socio-cultural context both modern and
historical. Despite their protracted legal and personal arguments, neither Pepper nor Dircks ever
achieved an exact understanding of what they and the public meant by the ghost illusion; that did
not prevent either of them from being able to perform the illusion, nor did it prevent dozens of
reviewers, or thousands of audience members from collaborating with the performers to establish
the illusion. It therefore should not prevent present-day scholars from being able to engage with
the illusion. The crucial criterion for a twenty-first-century reconstruction of the illusion is
careful consideration of the historical aspects of the illusion and consciousness of the aspects of
the original that the production team has been unable or unwilling to recreate. As long as the
builders, performers, and audience members are comfortable with the historical link between the
model or reconstruction and the nineteenth-century ghost—as long as they can choose to find
relevant meaning in it, historical or otherwise—then insight can be found.

The most important insight, expanded upon in these two chapters, is the necessity of a shift from
thinking of individual mechanisms of illusion to networks of technologies of illusion. To take the
Dircksian perspective of identifying the ghost effect with the hidden sheet-glass reflector is to
ignore the large amount of work that must go into surrounding technologies to make the illusion
successful. For the reconstruction, for example, mounting the glass took only one day; painting
the floor, cleaning the glass, hanging the masking, and coordinating the lights took far longer.
Once the tangible technologies were in place, further time had to be spent developing the
intangible technologies—the styles of presentation, strategies for mentally engaging the audience, the narrative and physical comedy of the scene, tactics for sound management that could enable performers to be heard despite poor acoustics and hide unwanted noises of movement or exertion. Before any of these things could be done, the conventions of stagecraft, academic presentation, and popular entertainment had to be identified and understood so that they could be manipulated to achieve the desired effect. Finally, once the audience was in place, a new stage of work began: the audience and performers had to collaborate to create and sustain an environment in which it was acceptable to suspend one’s disbelief and enjoy the illusion without the threat of ridicule or forfeiting any epistemological ideals.

The educational environments in which the original Pepper’s Ghost and the University of Toronto reconstruction took place were in some ways ideal for the illustration of this viewpoint. Audiences approach illusions that they know are staged for their education, whether in matters historical or scientific, from a different critical stance than they approach those that appear to be staged for pure entertainment, and it is easier to assess the importance of various technological developments and the different contributions of historical figures when illusions are conducted in an environment that ostensibly deplores secrecy. However, the insights learned from Pepper’s Ghost are also applicable to technologies of illusion where this is not the case. Although technologies of illusion presented by professional magicians and as theatrical special effects within the context of a dramatic narrative differ in many ways from those presented as part of an educational experience, their similarities are stronger than their differences. In the next chapters, the lessons learned from Pepper’s Ghost will be applied to an illusion created and displayed in a very different forum: the conjuror J. N. Maskelyne’s card-playing automaton Psycho.
Chapter 4
Maskelyne and Psycho

It is June 2011, and the Great Tomsoni seems to have stepped onto the stage of the Winter Garden Theatre, Toronto, from the past. His tail coat and bright red sash suggest nineteenth-century continental Europe. Grave and silent, he bows to the audience and waves an imperious hand at his offstage assistant. She appears, a slouching Vegas showgirl with a low-cut dress and a blonde mullet wig. She hands her boss the requested prop with an obviously bored eye-roll and a loud smack of her chewing gum.

The Great Tomsoni is not amused, but his audience is already giggling.¹

The quality of a twenty-first-century conjuring performance like that of the Great Tomsoni is determined not by the dexterity required by the magician to accomplish the required sleight of hand or the gift of gab necessary to misdirect the audience’s attention. Instead, it depends on his or her presentation. The categories of fundamental conjuring effects are limited—it has been argued that there are only seven.² As Nevil Maskelyne and David Devant put it, “The difficulty of producing a new magical effect is about equivalent to that of inventing a new proposition in “Euclid.””³ There is a limit to how long can one entertain an audience by repeating the same apparent violations of physical law: an object seems to move from one physical location to another without an obvious cause. Another object seems to transform into something else. The deftness required for even the most complex of such tricks pales next to the adroitness of jugglers and physical feats of acrobats. Only fellow magicians appreciate other magicians’ technical prowess. Audiences take pleasure in great magicians’ acts not because their mechanical skills are overwhelming but because their dramaturgical skills transform the simplest sleight into something worthy of wonder.

¹ For more information on the Great Tomsoni & Company, aka John Thompson and Pamela Hayes, see the performers’ website at http://www.tomsoni.com.
³ Maskelyne and Devant, Our Magic, 67.
The professional conjurors featured in *Vodavil*, a magic show at Toronto’s 2011 Luminato Festival, performed many illusions that would not have been innovative in the nineteenth century; some of their performances incorporated simple sleights commonly explained in children’s how-to books.\(^4\) What set each apart from amateurs was the flawless stage persona he or she assumed. One kept his audience on their toes by adopting a confrontational style of address at break-neck speed; another presented the familiar mannerisms of an affable daytime-television host like Bob Barker; and, of course, as described above, the Great Tomsoni and his partner subverted the conventional view of magicians in their series of wordless comic sketches. These small dramas of personality were not merely pleasant supplements to the conjuring: they were integral parts of what made it interesting and astounding. A tame dove repeatedly produced from secret pockets hardly entertains for twenty minutes, but a stuffy character trying to maintain the dignity of his act while his dove simply will not stay put does. While arranging and performing the actual physical acts necessary to a magic trick is straightforward, the process of constructing meaning for each illusion is not. Magic stores sell shelves full of specialized conjuring technologies, ranging from handheld gimmicks to large-scale illusions, but the stereotype of a conjuring tyro is one who possesses all the toys but lacks the talent and experience necessary to amaze audiences with them. Like any conjuring tricks, technologies of illusion require more than technical skill to present effectively.

These chapters explore the case of one such technology: that of Psycho, a purported automaton exhibited by the illusionist J. N. Maskelyne at the Egyptian Hall, London beginning in 1875. For over four thousand consecutive performance, Psycho played cards with audience members and imitated various other human actions. In its own time, Psycho was mystifying, and to this day, despite the fact that the automaton is available for examination at the Museum of London, no one can say with complete certainty how it worked. Psycho is a particularly illuminating example because it and its creator straddled the line between legitimate technological ingenuity and deliberate deception. Maskelyne promoted Psycho as advanced technology, but exhibited it as a magic trick; the automaton would not have functioned without its mechanism, but the mechanism on its own would not have achieved the success it did. This chapter presents the

history of Psycho and its creators and gives an account of what it may have been like in performance. An analysis of Psycho’s history and the social, technological, and theatrical contexts within which Maskelyne presented it will show that a proper understanding of its story must incorporate some account of its performative aspects as well as its physical construction.

Both this chapter and the following one rely mainly on the reports of eyewitnesses to Psycho’s early performances, chiefly those of an unnamed reviewer in The Times; the card-game expert William Pole; E. C. Middleton, Jr., a sceptical gentleman who appears to have been a repeat guest at Maskelyne’s shows; and A. W. Dobbie, an Australian world traveller. This raises a difficulty mentioned in the introductory chapter: while eyewitnesses do not necessarily lie deliberately, it is nevertheless important to note that what they describe may reflect what they perceived to be the performers’ intentions rather than what actually occurred onstage. In addition, as Maskelyne himself wrote, non-conjurors often have great difficulty describing illusions properly—he illustrates the point with the story of Indian colonials who, based on the reports of their colleagues, arrived at his theatre expecting him to cut off his own head and make it float around the stage whilst singing “Here comes the bogey man.” Setting such obviously hyperbolic accounts aside, I have done my best to evaluate the trustworthiness of each eyewitness in light of what seems plausible given the state of conjuring and the social conventions of the period, and this dissertation notes contradictions between accounts where they occur. The chapters balance the eyewitness information with evidence from other sources, including surviving artifacts, archival photographs and programmes, and the historical discussions of the magical community. More importantly, they also consider what can be learned from even the most untrustworthy of eyewitness accounts: whether true or false, each account contains what its originator felt to be the most significant or memorable points of the performance. Taken on these terms together with the information gleaned from supplementary sources, these eyewitness accounts provide a sufficient basis for reasonable extrapolation.

5 Butterworth, Theatre of Fire..., xxi.
6 Maskelyne, The Fraud of Modern “Theosophy” Exposed, 26-7. See Christopher, Panorama of Magic, vii, for a more modern magician’s characterization of this problem with eyewitness testimony of magic performances.
7 Butterworth, Theatre of Fire..., xx.
4.1 J. N. Maskelyne and Company

Before examining Psycho itself, it is necessary to introduce the major figures who contributed to its story. The agricultural writer and inventor John Algernon Clarke was the first to entertain the possibility of manufacturing an automaton like Psycho, but he was unable to design a workable model on his own. So in 1873, he approached J. N. Maskelyne with his idea. Although the Maskelyne family produced many notable illusionists, the names of only three family members will appear repeatedly in these chapters: J. N. (John Nevil) Maskelyne (1839-1917), the founder of the Maskelyne conjuring dynasty and co-inventor, promoter, and exhibitor of Psycho; J. N.’s son, Nevil Maskelyne (1863-1924), who assisted in both the performance and creation of his father’s conjuring act and eventually took over his place in the family company; and Jasper Maskelyne (1902-1973), Nevil’s son and J. N.’s grandson, who, despite being forced out of the Maskelyne company by his siblings in 1932-1933, developed a successful conjuring career, and, more importantly, divulged what he claimed to be the history of his family in his book White Magic: The Story of the Maskelynes. To avoid confusion, I will refer only to J. N. Maskelyne as “Maskelyne” and identify all other Maskelynes by their given names. Maskelyne accepted Clarke’s idea immediately, and after much experimentation, they constructed a performance-ready version of Psycho, which Maskelyne exhibited for several years.

8 Steinmeyer, Hiding the Elephant..., 103.
9 Maskelyne, White Magic: The Story of the Maskelynes, 41.
10 Although Nevil eventually joined his father onstage in 1885 (Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 53), he does not seem to have participated in presenting Psycho. Harry Venson, who participated in the Psycho act as an audience member, reports that Nevil was the one who canvassed the for volunteers (Harry Venson, “Memoirs of Harry Venson (continued),” Magic Circular 55, no. 611 (December 1960): 52), but historians of magic and magicians John Gaughan and Jim Steinmeyer assert that there is no evidence anyone but J. N. ever presented Psycho (Gaughan and Steinmeyer, The Mystery of Psycho..., 51).
11 Christopher and Christopher, The Illustrated History of Magic, 179.
12 This account contains some inaccuracies and was likely ghostwritten (Edwin A. Dawes, “Jasper Maskelyne: The Last of the Magical Maskelynes,” in Maskelyne’s Book of Magic, by Jasper Maskelyne, edited by Arthur Groom (Mineola, New York: Dover Publications, 2009), x). However, it is still an important source of information.
13 Steinmeyer, Hiding the Elephant..., 103-104.
Maskelyne’s career was a complex one. He began performing as a young man by imitating and exposing the Spiritualist feats of the famous Davenport brothers. In 1873, he and his partner, George Alfred Cooke, leased the Egyptian Hall, London, where their conjuring act became a popular attraction for the next thirty years. In addition to their own illusions, their programme featured variety acts such as jugglers and musicians, and Maskelyne became well known for hiring younger conjurors to join his show, establishing their careers. In 1905, following Cooke’s death and the demolition of Egyptian Hall, Maskelyne moved his company to St. George’s Hall and entered into a partnership with David Devant, a skilled and personable illusionist whose career had begun with the Maskelynes on the Egyptian Hall stage. At this point, Maskelyne was “practically retire[d],” allowing Nevil Maskelyne and Devant to take much larger roles both onstage and off. However, he continued to perform until his death in 1917, after which his sons and grandsons took over the family trade.

As one of the most successful magicians of nineteenth-century Britain, Maskelyne left behind a substantial and varied legacy extending to the present day. For the purpose of establishing the context against which he presented Psycho, it is necessary to focus on the three hallmarks of his style that are not only important to the study of the historical trajectory of conjuring but also were key parts of the public persona he developed as a performer. Like those of the modern magicians mentioned in the opening paragraph of this chapter, the stage personality Maskelyne developed played at least as large a role in his work as did his facility with sleight of hand, misdirection, and other magicians’ skills. Although over the course of a career that spanned decades, Maskelyne developed diverse nuances to his persona, he cultivated three central aspects that provide a good blueprint of his strategy: a combative approach to challenges, an emphasis on scripted narrative, and a reliance on large-scale technologies of illusion.

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17 Goldston, “Magicians I Have Met (Continued),” 48.
18 Steinmeyer, Hiding the Elephant..., 181, 189
20 Christopher and Christopher, The Illustrated History of Magic, 177.
4.1.1 Maskelyne and public challenges

Maskelyne established his willingness to confront challengers from the very first moments of his career and framed this willingness in a positive light. In published recollections, the first conjuring-related experience he remembered was an exposure. Maskelyne reports receiving a mysterious item to repair during his time as a watchmaker’s apprentice.\(^{21}\) At first baffled, he quickly realized it was a device for secretly rapping on the table during a Spiritualist séance. He confronted the client, who neither hired him nor invited him to séances again.\(^{22}\) While Maskelyne may be unduly emphasizing this incident in hindsight, there can be no doubt that he launched his career by creating and responding to a Spiritualist challenge. When the Davenport brothers performed their cabinet act in his hometown,\(^{23}\) Maskelyne was not impressed. Believing he had discovered their methods, he announced to the crowd that he would recreate the chief feats of their act in a short time.\(^{24}\) Enlisting the help of Cooke, a friend who happened to sit beside him at rehearsals for the band in which they both played, Maskelyne succeeded in presenting the Davenports’ best tricks and continued to perform Davenport exposures for the next ten years.\(^{25}\) Note how Maskelyne both met and manufactured this challenge: although he frames the incident as winning a fight with the Spiritualist performers, their battle is one-sided. The Davenports themselves took no notice of Maskelyne and did not challenge his claims. Maskelyne deliberately constructed the entire drama. Throughout his career, Maskelyne continued to target Spiritualist mediums with exposures. Most often, these conflicts were similarly unilateral. With the collaboration of his company, Maskelyne performed humorous exposures of the most popular feats of the day, such as the materialization of ectoplasm in darkened rooms by mediums like Charles E. Williams\(^ {26}\) or the levitations conducted by mediums like Daniel Dunglas Home.\(^ {27}\) He even soldered two slates together and promised one hundred

\(^{22}\) Ibid.
\(^{23}\) See the first chapter of this dissertation, section 1.6.1 and chapter 2, section 2.4 for a brief introduction of the Davenport brothers.
\(^{24}\) Maskelyne, “My Reminiscences,” 19
\(^{25}\) “Maxim vs. Maskelyne...”. 11.
\(^{26}\) C[lark], “John Nevil Maskelyne: A Memoir,” 193-194.
\(^{27}\) Christopher and Christopher, The Illustrated History of Magic, 161.
pounds and bragging rights to any medium who could produce a spirit message on the inside of the slates—a standing challenge to his Spiritualist rivals.

It is easy for a combative performer to alienate his or her audience, but Maskelyne was careful to aim his challenges only at those of whom he could trust his audience to feel suspicious. No one enjoys losing money to a con artist who turns out to be using poorly done magic tricks. The self-assured conjuror skewered those he depicted as swindlers. Up until the end of his life, he continued to publish anti-fraud materials, including an anti-Spiritualist manifesto that methodically revealed the methods and chicanery of the most popular mediums of the day (1875); a book that exposed card sharks who preyed on wealthy naïfs (1894); and even a pamphlet that denounced a popular new religion and refuted the purported life story of its founder ([1913]). He also authored a number of articles on such topics as the implausibility of ghost sightings and the application of the natural sciences to conjuring. By setting up contexts in which he could confront mediums, Spiritualists, and other allegedly deceptive performers despite never having received explicit challenges from them, Maskelyne shaped the public perception of his character.

Maskelyne also accepted and issued real second-party challenges with gusto. Never one to shy from a battle of words, he responded to Spiritualist apologists and other opponents with confidence. When he and Cooke first moved to what was to become their London professional home, the Egyptian Hall, they shared the building with another conjuror, one Dr. Lynn, otherwise known as Hugh Simmons. Simmons, who performed in the auditorium on the ground floor while Maskelyne and Cooke’s show ran upstairs, opened one week before

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29 Maskelyne, *Modern Spiritualism*....
30 Maskelyne, *Sharps and Flats*....
31 Maskelyne, *The Fraud of Modern “Theosophy” Exposed*.
32 Maskelyne, “A Few Words About Ghosts.”
34 Booth, “The Egyptian Hall in London....,” 124.
Maskelyne to rave reviews, initiating a competition of one-upmanship culminating in the use of Maskelyne’s famous box escape and claims of priority on the same.\textsuperscript{35} Maskelyne responded by writing a letter of complaint, issuing a pamphlet entitled The History of the Mystery that rebutted Simmons’s case, and offering a reward of 500 pounds to anyone who provided evidence that Simmons had attempted the box escape before his tenure at the Egyptian Hall.\textsuperscript{36} The same box escape brought Maskelyne even more opportunity for self-assertion. Confident of his originality—and perhaps more confident of the extra revenue such publicity would bring—Maskelyne offered a monetary reward to anyone who could reproduce the illusion. When two young men, Stollery and Evans, claimed the prize, Maskelyne embarked on a lengthy legal battle to prove they had not met his requirements.\textsuperscript{37} Despite eventually losing the case, he did not give up; instead, he re-issued his challenge with new conditions—and wording that suggested his opponents had not played fairly:

“Some appear to believe that "a correct imitation" means any performance which to inexperienced persons may seem to resemble mine, however different it may be in reality. Thus, escaping from a simple trap box, such as may be purchased at any conjuring apparatus depot for a small sum, the secrets of which can be readily discovered, and which may easily be tied so that the performer cannot escape, is regarded as correctly imitating my box trick.”\textsuperscript{38}

Always ready for confrontation, Maskelyne found himself in court yet again to contest the refusal of a Spiritualist Archbishop to acknowledge that he had reproduced the Spiritualist illusions put to him in a wager.\textsuperscript{39} He also accepted the challenge of Sir Hiram Maxim on a similar topic in the pages of The Strand magazine in 1910. Maxim had written in response to Maskelyne’s published reminiscences and their disparagement of the Davenport brothers; Maskelyne responded with two lengthy articles, one in two parts, explaining in unprecedented detail the workings of several of the Davenports’ most impressive tricks.\textsuperscript{40} Both unilaterally and in response to explicit opposition, Maskelyne made it clear that he would stand up for his

\textsuperscript{35} Christopher and Christopher, The Illustrated History of Magic, 160.
\textsuperscript{36} Ibid., 161.
\textsuperscript{37} Ibid., 167; Steinmeyer, Hiding the Elephant..., 109; Dawes, The Great Illusionists, 163.
\textsuperscript{38} “The reward of £1,000 is now offered...” [unknown] [undated].
\textsuperscript{40} See “Maxim vs. Maskelyne.”
principles and his reputation. Audiences could rely on him to court conflict, not to back down from it.

4.1.2 Maskelyne and scripted narrative

Maskelyne’s second trademark was the use of scripted narrative as a setting for his illusions. This is perhaps related to his confrontational stance: the essence of story is conflict, and Maskelyne certainly knew how to manage that for best effect. While many magicians placed the illusions they performed in the context of a simple narrative—giving their trick puppets names and occupations, or employing audience members in miniature dramas of chosen cards and borrowed handkerchiefs—Maskelyne originated the form of conjuring show known as the magical playlet. In these sketches, Maskelyne interwove characters and plot with illusions and jokes. His most successful sketch, entitled “Will, the Witch, and the Watch,” was a farce that revolved around two separated lovers attempting to reunite as other characters imprisoned one another in the onstage portable lock-up. The story included a mischief-making witch and a dangerous ape. The plot allowed Maskelyne to take full advantage of the main apparatus, a jail cell that allowed performers to appear and disappear in front of the audience. Several people vanishing one by one in an enclosed space would hardly have held an audience’s attention, but watching the befuddled characters try to work out who had gone where was entertaining enough to attract spectators for years. They evidently enjoyed it: the Magic Circle archive houses a lengthy letter to Maskelyne from an audience member who claims to have attended the show over ten times and has obviously been sufficiently intrigued to work out a meticulously detailed explanation of the effects he has seen. When it came to balancing illusions with the needs of short, simple plotlines, Maskelyne was able to keep his audiences hooked.

43 Steinmeyer, Hiding the Elephant..., 102-103.
44 Ernest Evan Spicer, letter to J. N. Maskelyne, [18--].
Although “Will, the Witch, and the Watch” was his most famous sketch, with over eleven thousand performances in forty years,\(^{45}\) Maskelyne constantly added new narrative material to his performances. He included scenes about decapitation-happy quack doctors (1878),\(^{46}\) the amazing feats of a magical hermit (1879),\(^{47}\) and satirical portrayals of Spiritualists (1882).\(^{48}\) Unfortunately, his most ambitious narrative project was also his least successful: on 2 January 1901, he opened his new tenure at St. George’s Hall, Regent Street, with a full-length adaptation of Edward Bulwer-Lytton’s science fiction novel *The Coming Race*.\(^{49}\) Maskelyne had taken great care to shape the story to his needs. The new script had been co-written by his son, Nevil—obviously familiar with the needs of onstage conjuring—and David Christie Murray, a successful novelist, lecturer, and playwright.\(^{50}\) Together, they were expected to combine the necessary set-up for effective illusions with gripping storytelling and dialogue. The production featured professional performers,\(^{51}\) employed scene painters whose work had been used at Drury Lane,\(^{52}\) and had special effects of the high quality only a conjuror could dream up. Performers appeared to fly without wires\(^{53}\) and fought each other using wands of “vril,” the life-force.\(^{54}\) Unfortunately, the show was a flop. It opened too late to attract the Christmas crowds, and the run lasted only eight weeks.\(^{55}\) It closed at a loss. Maskelyne’s original sketches may have achieved the perfect balance between narrative and wonder, but he was unable to sustain this balance over the course of three acts. To many reviewers, he had strayed too far from the magical illusions he was known for and too close to the dramatic theatre in which he had little experience.\(^{56}\) Although the blame can be laid partly on the rush to open the show in a timely fashion, it is clear from the incident that audiences expected Maskelyne to be an illusionist first, a storyteller second. While Maskelyne’s comic sketches delighted when the focus was on

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\(^{45}\) Or so claims Christopher, *Panorama of Magic*, 149.
\(^{47}\) Ibid., 45.
\(^{48}\) Ibid., 49.
\(^{50}\) Programme from *The Coming Race*, [1901].
\(^{51}\) C[larke], “John Nevil Maskelyne: A Memoir,” 197; see also, Programme from *The Coming Race*.
\(^{52}\) Anne Davenport and John Salisse, *St. George’s Hall: Behind the Scenes at England’s Home of Mystery* (Pasadena, CA: Mike Caveney’s Magic Words, 2001), 33.
\(^{53}\) Steinmeyer, *Art & Artifice...*, 36.
\(^{54}\) C[larke], “John Nevil Maskelyne: A Memoir,” 197.
\(^{56}\) Davenport and Salisse, *St. George’s Hall...*, 39-41.
illusion, his narrative abilities quickly became stale when they were the focus, not the complement of the act. Audiences expected stories from Maskelyne, but they expected illusion first and foremost.

Another way in which Maskelyne utilised narrative convention in his conjuring act is through the use of music. Very little is written about this, but it is clear that Maskelyne accompanied his performances with music of some nature, whether that music was part of the illusion (as these chapters will describe from the two musician automata Labial and Fanfare); a demonstration of a separate piece of equipment (such as Maskelyne’s automatic orchestra, under the direction of Charles Mellon); or evocative background to another type of performance (such as perhaps accompanied the comic sketches or juggling performances such as Maskelyne’s plate spinning). One programme, probably from 1879, opens its listings with a grand piano overture played by Charles Mellon. It includes one piano solo between the presentation of automata and a sketch entitled “Elixir Vitae” and another musical interlude between that sketch and Maskelyne’s “Light and Dark Séance Extraordinary.” An undated photograph in the Magic Circle archives shows his theatre at the Egyptian Hall, revealing a keyboard instrument, a large drum, and wind chimes on a stage-left platform. Tellingly, Maskelyne was listed in the 1881 census as a “Musical Illusionist,” suggesting that regardless of the sparseness of sources that mention this aspect of his act, it played a large role in performance. This is consistent with the general experience of music incorporated into narrative; it was not uncommon for Victorian theatres to have their own orchestras, nor was it uncommon for the musicians who worked in these orchestras to be underpaid and overworked. Even in the twenty-first century, despite the ubiquitous presence of incidental music in narrative—for instance, music plays in the background of films, television shows, and video games—audiences tend to ignore it unless it is particularly well done or particularly grating. Although everyone knows it exists, it is seldom mentioned in reviews. Similarly, aside from particular well known melodies or theatre managers whose musical

58 “Maskelyne and Cooke's Entertainment,” The Times, December 28, 1885, 8.
59 Programme from “Maskelyne & Cooke, the Royal Illusionists,” [1879].
60 This census information comes from a copy of the form in the possession of the Magic Circle archives, London, UK.
arrangements far exceeded or fell short of the norm, incidental music outside of artistic forms that emphasized music (such as opera, music-hall routines, or choral pieces) were often overlooked. Nevertheless, Maskelyne’s use of music is an important aspect of his style as a magician who incorporated narrative into his work. Incidental music can contribute to a sense of story by manipulating audiences’ emotions. It can influence the audience’s decision to sympathize with a character, establish atmosphere to heighten audience involvement, and establish conventions of tone and scenario to facilitate the plot. Maskelyne’s status as a “Musical Illusionist” can be seen as an aspect of his reputation for incorporating storytelling and illusions.

4.1.3 Maskelyne and large-scale illusions

Finally, Maskelyne was known for large-scale, mechanical illusions. To clarify what is meant by this term, it is necessary to delve briefly into various types of conjuring. Roughly speaking, conjuring can be divided into close-up magic and stage magic. These two expressions refer to the distance the audience is expected to be from the illusion for the greatest effect. This must not be confused with the distance a conjuror must maintain from his or her audience to hide the mechanism of his or her trick; some stage magic can withstand close scrutiny from onstage volunteers. Rather, the distances mentioned refer to the scale of the illusion. A close-up trick is one that can be performed for a knot of spectators all able to see distinctly. Such tricks might include coin passes, card tricks, or other sleights with small household objects. These tricks can produce an astounding effect when performed up close for a small group of people but often fail to read for larger audiences who may not be able to see in sufficient detail. Contrariwise, a stage illusion is a trick of a scale that works best for large groups. It often requires equipment big enough or strange enough that performing one of these illusions for a small group of people is ineffective, either because they cannot get the full effect of the trick without being kept at a far enough distance to take in the whole performance or because the oddness of the apparatus draws attention to its nature as a prepared conjuring tool outside the context of a formal stage.

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environment. Although Maskelyne’s primary theatre was relatively small for its time, it was quite large enough to accommodate stage illusions rather than close-up effects.

There is a similar distinction to be made between mechanical illusions and non-mechanical illusions. Mechanical illusions rely on a specially made apparatus, while non-mechanical illusions rely on physical manipulations of everyday objects, psychological manipulation of audience members, or both. The distinction can be difficult: for instance, many publications of the magic community do not consider alterations done by hand by the individual performer, such as cutting a corner off a particular playing card, to be a specially made apparatus. In general, it is safe to say that mechanical illusions rely on apparatus that must manufactured by a company specializing in magicians’ apparatuses, and that they are built to showcase a single effect. While Maskelyne did not purchase equipment from the magicians’ manufacturers of his time, he did build similarly complicated devices in his own workshops.

Maskelyne made a career from acts centred on a number of mechanical devices. His first programme featured a special box from which he could escape despite the best efforts of the audience. In addition to Psycho and the other pseudo-automata to be discussed later in these chapters, later performances included the Maskelyne cabinet, a specially made person-sized cupboard into which performers could disappear, and the Will, the Witch, and the Watch jail cell, constructed on a similar principle. Maskelyne devised and constructed two mechanical levitations and an automatic orchestra. He continually worked hard to develop new apparatuses for his act. His grandson, Jasper, reports that he had one workshop attached to his theatre and another at home. Maskelyne himself maintained that he spent long hours in his workshop—the process of building Psycho, he claimed, took him two years of workshop labour, spending time every night beginning after his evening performance and ending only in the early

63 Steinmeyer, *Hiding the Elephant*…, 97-98.
64 Ibid., 101-102.
66 “Maskelyne and Cooke’s Entertainment,” 8; Steinmeyer, *Hiding the Elephant*…, 110.
morning hours. While up-and-coming magicians introduced new methods of performance to the magic community, Maskelyne stuck with his tried and tested style.

An audience’s experience of a conjuring trick is informed by how the conjuror presents it. Maskelyne’s openness to challenges, reliance on narrative, and preference for large-scale mechanical illusions all shaped the public perception of the kind of conjuror he was. This shaped audience’s preconceptions of what they would see on his stage. As will be evident, audiences came to Maskelyne and Cooke’s prepared to attend a certain kind of performance. These expectations influenced how they understood Psycho—after all, if the illusion had not fit into their notion of what was appropriate on Maskelyne’s stage, no matter how impressive or effective it was, they would not have accepted it as entertainment.

4.2 The Egyptian Hall

Before describing Psycho itself, there remains a final character to introduce: the Egyptian Hall itself. Maskelyne brought Psycho to a number of venues, his later theatrical home at St. George’s Hall, but the majority of Psycho’s performances took place at his original theatre in the Egyptian Hall. Understanding the history and atmosphere of the Egyptian Hall is crucial to understanding the history of Psycho. Historians of performance cannot treat exhibits or acts without consideration of their location in time and space; the setting of a performance influences the audience’s perception of that performance before a single word is spoken. To that end, a brief history of Egyptian Hall is necessary.

The Egyptian Hall, located in Piccadilly, was founded in 1812 by William Bullock. He opened the hall in order to showcase his Liverpool Museum collection. Originally intended as simply “the London Museum,” the edifice soon became known as the Egyptian Hall due to its eccentric architecture. The building stood out from its neighbours with three trapezoidal raised façades,

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68 Quoted in Davenport and Salisse, *St. George’s Hall...,* 92-3.
69 Some sources chastise Maskelyne for his inability to adapt to changing tastes; for instance, Steinmeyer points out how J. N. clashed with his second partner, Devant, over differing presentation styles (*Hiding the Elephant...,* 128).
each decorated with what the architect felt to be Egyptian design. 71 Bullock’s chief attraction was Napoleonic memorabilia. 72 After the auction of his collection, the hall became home at one time or another to a range of exhibits, including art shows, the collection of an Egyptologist, and exotic visitors such as a group of Laplanders; 73 “General” Tom Thumb, 74 and even Chang and Eng Bunker. 75 In 1846, Euphonia, a machine that could produce an artificial human voice, was displayed at the hall, 76 but the shift in the atmosphere of the hall from a place where one could go to see natural and historical wonders to a site for conjuring and illusion did not begin until 1865, when Colonel Stodare chose it as the venue for his most famous illusion, The Sphinx. 77 The Egyptian Hall boasted two theatres, and from Stodare’s debut, other magicians used both to set up shop. Tenants of the Egyptian Hall included Rubini, Alexander Hermann, and, as already mentioned, Professor John Henry Pepper, who performed scientific illusions there in 1872 with the help of his colleague Thomas Tobin. 78 In 1873, Maskelyne and his company leased the upstairs theatre of the Egyptian Hall. 79 They remained there for the following thirty-one years, until its demolition, and under their tenancy, the building became known as “England’s Home of Magic.” 80 For between one and five shillings, visitors to Maskelyne’s show could sit in comfort on front-row fauteuils, watch from the stalls, or take in the performance from the balcony. 81 Seating charts and photographs from the private collection of London’s Magic Circle suggest that the theatre was relatively small, able to accommodate approximately 200 to 250 visitors. Maskelyne had been established in the Egyptian Hall for about a year and half before Psycho made its first appearance.

71 See Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 3 for a photograph of the Egyptian Hall façade circa 1903.
73 Ibid., 273.
74 “The Egyptian Hall,” The Wizard, 90.
75 Ibid., 90.
77 “The Egyptian Hall,” The Wizard, 90.
Both the history and the design of the Egyptian Hall gave audiences a distinct impression. With its past as a venue for the exhibition of oddities, natural wonders (both human and inanimate), and historical items of dramatic interest, the Egyptian Hall was a perfect venue for a performer wishing to display an illusion that straddled the border between conjuring and technology. Audiences who based their anticipation on past Egyptian Hall offerings could easily fit such performances into their framework of expectation. Moreover, the building’s mix of so-called “Egyptian” architecture on the outside and standard Victorian theatre amenities on the inside provided audiences with an appropriately mixed message. While the former played upon audiences’ desire for the glamorous, drawing their attention, the latter assured them that they could approach the mystery from the security of their comfort zones. It helped Maskelyne to establish a reputation for respectable entertainment aimed at middle- and upper-class citizens—a demographic more likely to have the patience and leisure for slow-moving illusions and demonstrations. While it is certainly overstatement to say that the Egyptian Hall was either necessary or sufficient to Psycho’s success, its atmosphere is an important factor to consider when reconstructing the experience of Psycho’s audiences. The factor remaining to discuss is, of course, Psycho itself.

4.3 Psycho in performance

4.3.1 Psycho’s appearance

From its introduction on January 13, 1875, Psycho had a distinctively exotic air. In illustrations, the automaton sports a bushy moustache; flowing hair; a makeshift turban; a robe with an embroidered decorative flap extending over the front and shoulders; and slippers with pointed, curled toes. A *Punch* magazine parody gives Psycho dark skin. Various Victorian sources, including the Egyptian Hall programme, describe it as “Hindoo,” and one 1876 writer refers...

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82 See Appendix, fig. 16.
83 “Psycho à la Rus(s)e,” *Punch, or the London Charivari* 71 (October 14, 1878): 159.
84 Quoted in Gaughan and Steinmeyer, *The Mystery of Psycho…*, 35.
to its costume as “Oriental.” Maskelyne clearly gave much thought to Psycho’s appearance: its clothing was specially sewn first by his wife and later by his daughter, and he himself is reported to have hand-carved and fitted Psycho’s head, feet, hands, teeth, and hair, although there is also the possibility that he may have been assisted in Psycho’s construction by his more unassuming partner Cooke—Psycho was made mainly of wood, and of the two partners, Cooke, a cabinet-maker by trade, likely had the stronger woodworking skills. In either case, Maskelyne was surely responsible for Psycho’s overall design. He may have been influenced by Psycho’s famous predecessor, Baron von Kempelen’s similar-looking, chess-playing automaton Turk, and it is highly probably that he either knew of or had been to see Ajeeb, a copy of Kempelen’s automaton displayed at the Polytechnic from 1868 to 1877, roughly the same time Maskelyne and Cooke first arrived in London. Not only was the Middle East the established area of origin of game-playing figures by the late nineteenth century, but exoticism had become the fashion to the extent that many clockwork automata were constructed to resemble people of non-European nationalities. This trend arose in part from the European cultural need to reduce the image of the “other” to something understandable and controllable. Tying Psycho into this unsettling image of the other could have helped Maskelyne establish an atmosphere of inscrutability and mysticism by connecting the figure with contemporary British conventions of thought. For these reasons and others, Maskelyne designed Psycho to evoke an air of foreign mystery.

86 Thomas Frost, The Lives of the Conjurers (London: Tinsley Brothers, 8, Catherine Street, Strand, 1876)), 340.
91 Davenport and Salisse, St. George’s Hall, 42.
94 Gaughan and Steinmeyer, The Mystery of Psycho..., 15.
95 Gaughan and Steinmeyer, The Mystery of Psycho..., 15.
96 Christian Bailly, Automata: The Golden Age 1848-1914 (London: Sotheby’s Publications, 1987), 9; see this source for photographs of automata purporting to represent “Negroes,” “Orientals,” and “Turks”.
The elements of Psycho’s apparatus made a strong impression on those who saw it, but few seem able to give an accurate account of their sizes. Most modern and contemporary commentators, both magicians and laypersons, report that the automaton itself was about twenty-two inches high. Maskelyne himself approved this measurement, but since part of the controversy surrounding the illusion was whether Psycho was large enough to contain certain kinds of machinery or living creatures, the possibility of deliberate deception cannot be ruled out, and the one or two dissenters from the accepted figure raise reasonable doubt. For instance, Victorian card-game expert William Pole, who was permitted to examine Psycho closely, judges it to have been about two to three feet tall, which seems a strange overestimate if twenty-two inches is the correct measurement. All sources agree that Psycho sat cross-legged on a wooden box, whose dimensions are given variously as 22x18x15 inches and 18x18x24 inches. This box in turn rested “loosely” on a glass cylinder of about one foot in diameter on whose height sources differ widely: some insist it was one foot high, others two feet, and some between thirty inches and three feet. Even the proportions in illustrations differ considerably. Initially, the apparatus rested directly on the floor-cloth covering the stage. However, following

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100 W[illiam] P[ole], “Games At Cards Played By Machinery,” *MacMillan’s Magazine* 33 (January 1876): 241. Ibid.


103 “The Automaton Card Player,” *The Times*, January 22, 1875, 6; P[ole], “Games At Cards Played By Machinery,” 242.


109 See Appendix, figs. 16, 17, and 18. The glass cylinder in figure 16 appears to be much longer than that in figure 17, and that in figure 18 seems to be of a medium length.

accusations of secret connections between the cylinder and machinery under the stage.\footnote{111} Maskelyne stacked the cylinder on a circular wooden platform raised on three or four legs.\footnote{112} Pole claims these legs were nine inches long,\footnote{113} but modern magicians believe they could have been no more than two inches high so that the audience would not have been able to see the space between the platform and the stage,\footnote{114} and period illustrations seem to support this view.\footnote{115} Among all these parts, historians of magic point to the glass cylinder as being one of Psycho’s prominent features,\footnote{116} one that gripped the public’s imagination and featured in most imitations, as will be detailed below. In any case, consensus on the elements of the apparatus but disagreement on their dimensions reflects Maskelyne’s skill in directing the audience’s attention to the parts’ purported functions: for instance, audience members remembered the glass cylinder because they were told it provided electric insulation,\footnote{117} but forgot its dimensions, despite in some cases being on stage next to it, because its size did not change its effectiveness.

Aside from the box, cylinder, and platform, Psycho also possessed a number of props it used during its performance. The most significant of these was an arc-shaped wooden cardholder it carried on its lap, in which up to thirteen cards could be placed and held upright in numbered slots.\footnote{118} At the left end of the cardholder, two small boxes rested by Psycho’s hand; a drawing from the \textit{Illustrated London News} shows the top box with two windows, one closed and the other

\footnote{111} S. H. Sharpe, “What Happened to “Psycho”?” Part 2, \textit{Magic Circular} 82, no. 884 (March 1988): 63; E. C. Middleton, Junior, “PSYCHO,” in \textit{English Mechanic and World of Science. With which are incorporated “The Mechanic,” Scientific Opinion,” and “The British & Foreign Mechanics”} 25. Supplement to \textit{The ENGLISH MECHANIC}, September 28, 1877 (London: 1877), 411; the latter author implies it was his own questioning in particular that prompted this change and cites an intermediary stage where Maskelyne attached feet directly to the cylinder before adding the platform, but I can find no external corroboration of this.


\footnote{113} P[ole], “Games At Cards Played By Machinery,” 241;

\footnote{114} Sharpe, “What Happened to “Psycho”?” Part 2, 63.

\footnote{115} See Appendix, fig. 17.

\footnote{116} Gaughan and Steinmeyer, \textit{The Mystery of Psycho...}, 33.


showing the digit 7, so it can be assumed that this was the means by which Psycho communicated numbers or letters for its feats involving arithmetic, spelling, or conjuring. As will be evident from the descriptions of Psycho’s act, the automaton probably interacted with other items, including a pipe, a deck of cards, a bell, and a slate, but the cardholder and the boxes were the only ones that were part of its permanent structure.

4.3.2 Psycho’s act

Although Psycho had many talents, the most famous element of its performance was its trademark whist game. Psycho played with three volunteers from the audience, and enough famous personalities of the age joined the game to refute accusations of secret confederates. Eyewitness accounts describe roughly the same sequence of events: after bringing Psycho onstage, Maskelyne lifted the circular wooden platform and turned it around so the audience could see it; next, he handed around the glass cylinder for inspection. Following this, Maskelyne stacked the cylinder on its platform and set Psycho on top. At this point, Maskelyne permitted anyone who desired to examine Psycho. Australian tourist A. W. Dobbie took advantage of this offer and reports that the figure was “quite hollow”, with “sets of clockwork motions” inside. During the audience inspection, Maskelyne opened and closed “several parts” of the figure, including doors in the box on which it sat, through which he poked a stick. He also asked volunteer examiners to walk around Psycho to prove there were no invisible connecting wires. This accomplished, Maskelyne sent the inspectors back to their

119 “Maskelyne and Cooke’s Automata,” 369.
121 P[ole], “Games At Cards Played By Machinery,” 241.
122 Ibid.; it seems that this sequence was added to Maskelyne’s routine only after Psycho had been performing for some time, as repeat visitor E. C. Middleton, Jr. complains of not having been able to examine the cylinder on his first outing (Middleton, “PSYCHO,” 411).
123 P[ole], “Games At Cards Played By Machinery,” 241.
124 Ibid., 242; Dobbie, Rough Notes of a Traveller..., 46.
125 Dobbie, Rough Notes of a Traveller..., 46.
126 P[ole], “Games At Cards Played By Machinery,” 242.
127 Ibid., 242.
128 Ibid., 242.
seats and briefly demonstrated some of Psycho’s other abilities, as discussed later in this paper, but the climax of the act was what followed.

Having brought five or six gentlemen-volunteers from the audience onstage, Maskelyne selected three of them to play whist and invited the others to stand near the game to spot any trickery. The players sat at a small table some feet away from Psycho. Whist, a simpler version of bridge, is played in teams of two, and so the volunteers cut the deck to determine who would partner Psycho. The cards were then shuffled and dealt; Cavendish, a renowned whist expert, reports having performed these actions himself, but it is unclear whether this task always fell to the audience volunteers. Maskelyne took Psycho’s cards and placed them one by one into the wooden cardholder, their backs to the rest of the players.

Finally, the game proceeded as normal. When it was Psycho’s turn to play a card, the automaton moved its right arm along the radial path of the card holder, turning its head to follow its own motion and apparently looking at the cards in order to make its decision. It lowered its hand over its chosen card, grasped it between fingers and thumb, and lifted it with the face of the card toward the audience. Maskelyne’s auditorium at the Egyptian Hall was small enough that even the audience members at the back of the gallery could probably identify the card from this gesture, so the gesture eliminated any possibility of secret card substitutions. As Psycho’s fingers descended again, Maskelyne took the card from its grip and placed it with

129 Dobbie, Rough Notes of a Traveller..., 46.
130 Ibid., 46.
131 Maskelyne, Automata, 21; Dobbie, Rough Notes of a Traveller..., 46; P[ole], “Games At Cards Played By Machinery,” 242.
132 Quoted in Maskelyne, Automata, 21.
133 P[ole], “Games At Cards Played By Machinery,” 242.
134 One writer reports that Maskelyne announced each card played so that the audience could follow along (“Conjurers and Spiritualists in Two Parts – Part II,” Chambers’s Journal of Popular Literature Science and arts Fourth Series 669 (October 21, 1876): 688), but this is dubious, as one of Maskelyne’s contemporary magicians ponders means by which he could have communicated the action onstage to a hidden confederate (Will Goldston, “Mysterious Stage Illusions,” The Magician Annual 1910-1911, ed. Will Goldston (London: The Magician, Limited, 1910), 99), and surely he would have mentioned simple spoken narration had it been a possibility.
135 P[ole], “Games At Cards Played By Machinery,” 242.
136 Gaughan and Steinmeyer, The Mystery of Psycho..., 17.
137 P[ole], “Games At Cards Played By Machinery,” 242.
the others on the card table;\textsuperscript{139} on some later occasions, he appears to have let Psycho drop the card onto the table.\textsuperscript{140} Other than this, he does not seem to have touched or even approached the figure mid-game; one illustration shows him standing next to the human players, emphasizing the distance between him and his invention.\textsuperscript{141} Psycho generally won most games, and many players, among them whist experts, maintained that no reasonably skilled human player could have improved on its strategy.\textsuperscript{142}

Apart from playing whist, it is unclear what other effects Psycho was capable of performing, a subject made even more ambiguous given that Maskelyne changed his routine over the years in response to audience interest. Most sources agree that Psycho gave answers to addition, multiplication, and division problems posed by audience members,\textsuperscript{143} and many credit the automaton with performing conjuring tricks such as ringing a bell to indicate the suit or number of a card chosen at random by a spectator;\textsuperscript{144} instantly “finding” a marked card re-inserted into the deck;\textsuperscript{145} and naming in order the cards in a shuffled deck held behind Maskelyne’s back.\textsuperscript{146} However, descriptions of these feats omit many troublesome details and raise more questions than they answer. For example, how did Psycho “tell” the order of the cards to the audience? How did it indicate when it had “found” a chosen card? Although John Algernon Clarke writes in the \textit{Encyclopedia Britannica} that the figure could calculate sums “up to 99,000,000,”\textsuperscript{147} the \textit{Illustrated London News} illustration shows only two openings for numbers to be displayed. How did Psycho reveal its arithmetical answers? Unfortunately, surviving accounts are too vague to give a clear picture of what happened.

In addition to the above effects, which it seems to have performed regularly, Psycho had a number of more erratically appearing aptitudes. Various sources report that the automaton

\begin{itemize}
\item \textsuperscript{139} P[ole], “Games At Cards Played By Machinery,” 242.
\item \textsuperscript{140} Venson, “Memoirs of Harry Venson (continued),” 52.
\item \textsuperscript{141} See Appendix, fig. 16.
\item \textsuperscript{142} P[ole], “Games At Cards Played By Machinery,” 242; Maskelyne, \textit{Automata}, 21.
\item \textsuperscript{144} Maskelyne, \textit{Automata}, 21.
\item \textsuperscript{145} Frost, \textit{The Lives of the Conjurers}, 343.
\item \textsuperscript{146} “The Automaton Card Player,” 6.
\item \textsuperscript{147} Clarke, “Magic, White.”
\end{itemize}
showed any colour demanded by the audience,\textsuperscript{148} stopped or moved quickly or slowly on request,\textsuperscript{149} shook hands with its whist partner,\textsuperscript{150} smoked a cigarette,\textsuperscript{151} and answered questions by ringing a bell\textsuperscript{152} or by shaking and nodding its head.\textsuperscript{153} Maskelyne declared in an article on automata that Psycho was capable of spelling any word chosen by the audience and could imitate handwriting.\textsuperscript{154} Jasper Maskelyne repeats these claims and adds that Psycho could bow and give the Masonic grip.\textsuperscript{155} It seems that Psycho may have done all of these at one time or another, although the descriptions of some may be misleading. For instance, the Masonic grip purportedly differs from an ordinary handshake in that the thumb of each participant presses against the knuckles of the other; as the only grip of which Psycho seems to have been capable is a pincers motion of the thumb, all its handshakes likely approximated the Masonic grip. The reference to Psycho imitating handwriting may also be disingenuous: Middleton, who saw the performance on at least three separate occasions, reports that Psycho used to “pretend to write” but never actually did,\textsuperscript{156} and modern magicians have made a Psycho replica seem to write on slates.\textsuperscript{157} As J. N. Maskelyne was not only credited with inventing a new method of secretly writing on slates\textsuperscript{158} but was in fact so well respected on the matter that he was called upon in court at the trial of a fake medium to demonstrate such techniques,\textsuperscript{159} it is easy to believe that he could have concocted some illusion whereby Psycho appeared to copy handwriting onto a slate. Whatever the case may be, Psycho’s talents were far-ranging, though perhaps not as broad as Maskelyne would have liked those reading his reviews to believe.

\begin{thebibliography}{9}
\bibitem{148} “The Automaton at the Egyptian Hall,” 63.
\bibitem{150} “Automata,” 37.
\bibitem{151} “Egyptian Hall,” \textit{The Times}, April 19, 1884, 14.
\bibitem{152} “The Automaton at the Egyptian Hall,” 63; P[ole], “Games At Cards Played By Machinery,” 242; Dobbie, \textit{Rough Notes of a Traveller…}, 46.
\bibitem{153} “Egyptian Hall,” \textit{The Times}, April 19, 1884, 14.
\bibitem{154} Maskelyne, \textit{Automata}, 21.
\bibitem{155} Maskelyne, \textit{White Magic: The Story of the Maskelynes}, 42.
\bibitem{156} Middleton, “PSYCHO,” 411.
\bibitem{157} Gaughan and Steinmeyer, \textit{The Mystery of Psycho…}, 59.
\bibitem{159} Maskelyne, “My Reminiscences,” 22.
\end{thebibliography}
4.3.3 Psycho’s development

Part of the confusion regarding Psycho’s abilities stems from the fact that Maskelyne withdrew Psycho at least twice to make changes to its mechanism. The first time, on 10 November, 1880, Maskelyne promised that Psycho would return with new abilities. Psycho reappeared in 1884, wearing a different costume and newly able to calculate cube roots; however, it was soon withdrawn from the programme once more and did not perform again until 1910. Between Psycho’s retirement and its encore, Maskelyne seems to have been hard at work on its mechanism. Certainly he claimed he was both refurbishing and improving it: even in the late 1870s, he was already sharing plans to give Psycho facial movements “by which [Psycho’s] dusky face shall give expression to the varied feelings that might animate a mortal under like circumstances” and by 1878, he had already announced that he might remove Psycho from the programme for two months to “train him to play at chess and draughts and do other wonderful things.” Clarke claimed that Psycho could play both these games, and contemporary historian of magic Henry Ridgely Evans was confident that it could at least play chess, but there is no evidence that it ever did. However, Maskelyne told an interviewer in 1895 that he was hard at work overhauling Psycho’s mechanism, and when the automaton finally reappeared in 1910, its appearance was sufficiently altered to convince historians of magic that Maskelyne had indeed been working on these improvements.

It was this 1910 version of Psycho that the Maskelyne family donated to the Museum of London in 1934, and anyone examining it today can see that it has been modified from the original.

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160 “Psycho’s Farewell,” The Times, November 16, 1880.
163 Maskelyne, Automata, 21.
164 “Christmas Amusements,” The Times, December 27, 1878, 4.
165 Gaughan and Steinmeyer, The Mystery of Psycho..., 49.
166 Evans, Magic and Its Professors, 85.
168 Gaughan and Steinmeyer, The Mystery of Psycho..., 23.
169 “Psycho” – Maskelyne Automaton in the London Museum,” The Times, August 6, 1934, 8.
Jasper Maskelyne claimed that it was still ready to play whist at any time, but modern magicians agree that Psycho is no longer functional. Tellingly, the Maskelynes did not give the museum the glass cylinder, the platform on which it rested, or any other external equipment. Even a cursory glance at the artifact shows that it differs in certain respects from early eyewitness accounts. Most obviously, Psycho’s card-tray is arranged differently: instead of one long arc of thirteen card-slots, there are now two shorter rows of five and an innermost row of three. A close inspection reveals marks on the wooden tray showing that these slots have been rearranged. This new arrangement suggests that Psycho had the ability to move its arm back and forth as well as along the arc of the card-slots, but it is unclear how this was accomplished. The boxes by Psycho’s left hand are gone, replaced by a wooden opening the correct size to hold a deck of cards. Magician and historian of magic S. H. Sharpe points out that Psycho also now holds a cigarette holder in its left hand, and the box on which the figure sits also seems to have been replaced or at least refurbished. While the box seems to have a protrusion on the bottom where it seems reasonable that the box could have connected to the often-pictured glass cylinder, it is also equipped with casters on each corner, suggesting puzzlingly that the new design was meant to rest on the ground (or at least to convince inspecting parties that it did). The panels of the box and the back of Psycho’s body can all be opened, revealing a confusion of strings, rods, and wooden structural elements. Some of these appear to serve no purpose; others have distinct effects on Psycho’s movements, such as a string that, when pulled, appears to open and close Psycho’s right hand. Unfortunately, most of them are in such a condition that to investigate the purpose of each would be to risk damage to the artifact. Further, a photograph of Maskelyne with the new Psycho on the August 1910 cover of the magicians’ periodical The Wizard shows that the apparatus had acquired porcelain casters on the feet of its platform and gained several inches in height. Evidently, Psycho underwent some extensive renovations between 1875 and 1910.

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170 See Appendix, figs. 19-20.
171 Maskelyne, White Magic: The Story of the Maskelynes, 43.
173 Gaughan and Steinmeyer, The Mystery of Psycho..., 51.
175 See Appendix, fig. 21.
Psycho’s later performances also differed from its appearances in the 1870s and 1880s, although not by much. Despite the new adjustments to Psycho’s apparatus, his feats remained more or less the same. Now he smoked a cigarette while playing a hand of cards, but the only new addition to his repertoire was a “dictionary test.”176 In this variation on an old conjuring chestnut, an audience member silently selected a word at random from a dictionary. Psycho then spelled out the chosen word.177 As with the arithmetical feats described above, it is unclear how Psycho communicated with the audience; however, neither the use of a slate nor the possibility of alphabet cards are entirely implausible. In any case, the various feats Psycho performed over its lifespan suggest that Maskelyne made a habit of incorporating it into established conjuring feats that would not have impressed on their own, and it is clear that he was creative in finding ways for Psycho to take up the communication that would otherwise have fallen to the human conjuror. The staple of Psycho’s act was still its game of whist, and it performed this with its usual dependability. As the September 1910 issue of The Magic Wand explained, “It will be noted that he plays whist and not bridge, and this and an occasional inability to pick up his cards were the only signs he gave of his age.”178 The article goes further to provide some valuable observations of Psycho’s physical range of motion, reporting that the automaton could move “in several planes”,179 and it confirms that while the human players laid their cards on the table, Psycho handed its choices to Maskelyne.180 It is unclear whether these actions constituted a change in Psycho’s abilities—certainly the change in the set-up of Psycho’s card tray suggests the former, at least, was a new addition—and similarly, one would have to be cautious in trying to extrapolate from reports of Psycho’s 1910 appearances the normal routine of its earlier acts. Regardless, it seems clear that not much had changed about Psycho’s act itself in the intervening years. Instead, there were significant changes in its reception.

176 Davenport and Salisse, St. George’s Hall..., 98.
177 Ibid. For more information on how conjurors perform the dictionary test, the reader is advised to consult any number of popular conjuring texts or websites.
178 Davenport and Salisse, St. George’s Hall..., 97-8.
179 Ibid., 98.
180 Ibid., 98.
4.4 Reactions to Psycho

The public reaction to Psycho’s original appearance was favourable. The Times’s review of January 22 calls it the best invention since those of the famous magician Robert-Houdin; the ladies’ magazine The Queen praises Psycho for both its apparent intelligence and what the writers assume must be its “ingenious mechanism.” Fun Magazine gushes that “the like of [Psycho] has never before been seen or even heard of.” Psycho itself became an iconic figure, sufficiently recognizable to be used in political cartoons in popular periodicals like Punch. London underwent a “Psycho” craze: the automaton inspired music-hall routines became a namesake for racehorses, and prompted entrepreneurs to offer Psycho-themed merchandise. Others found in Psycho a poetic muse— one budding author, identifying himself as A-N C-S S-NE, wondered in the pages of The Hornet, “Whence thy sense and thy notions?/Whence thy invisible motions,/ Yet unrevealed?” while another, one William Compton, dedicated some fifty-two lines to “PSYCHO! thou modern Sphinx!” Psycho’s influence was felt even in personal ads: one gentleman writing to a lady-friend on September 2, 1879 addresses her by the name of Maskelyne’s only female automaton and signs himself “PSYCHO.” Psycho made Maskelyne and Cooke’s popular enough that one writer remembers children begging their parents every school holidays to be taken to the show and Londoners buying tickets every time the programme changed. Adults on trips to London stopped by the Egyptian Hall to see a performance. Indeed, at one time, it was “the thing” to for visitors to come to London.

182 “The Automaton at Egyptian Hall,” 63.
184 See Appendix, fig. 22.
185 Gaughan and Steinmeyer, The Mystery of Psycho..., 19.
186 “Sporting Intelligence,” Birmingham Daily Post no. 7425 (April 21, 1882).
187 Gaughan and Steinmeyer, The Mystery of Psycho..., 19.
188 Quoted in Gaughan and Steinmeyer, The Mystery of Psycho..., 18.
189 Quoted in Programme from The John Nevil Maskelyne ‘Psycho’ lecture and in Maskelyne, Modern Spiritualism..., 184.
190 “To Zoe,” The Times, September 2, 1879, 1.
expressly to see Maskelyne’s show, and the experience was evidently memorable enough to warrant recounting it to one’s children until the tale became “threadbare.” With Psycho, Maskelyne had achieved every performer’s dream, popular success.

Psycho’s fame did not end with the public—the automaton also won the interest of other Victorian magicians. During Maskelyne’s last days, colleagues were already excited at the rumours that he was writing his memoirs and they would learn once and for all how the machine played its cards. Others did not care to wait until Maskelyne chose to reveal his secrets: they displayed their own versions of Psycho. Harry Kellar, an American magician who routinely copied illusions from Maskelyne, bought his own “Psycho” from a Manchester magician and profitably incorporated it into his act. Buatier de Kolta, an inventive conjuror who worked under Maskelyne’s banner for a season or two, presented a figure called “Altotas,” which, like Psycho, sat on a glass cylinder, did conjuring tricks, and played cards. The unfortunate Signor Boz (Arthur Weston) toured with a whist-playing, calculating, spelling, and fortune-telling machine that he called “Yorick” and dressed as a court jester; alas, this imitation Psycho became known mainly for having a boy inside working the mechanism, a fact occasionally revealed by accident during the performance. Even Pepper got into the act with his creation Scynthia, which seems to have been more prone to mechanical breakdowns than Maskelyne’s, and Emile Robert-Houdin, son of the great French conjuror, displayed Sophos, a supposedly automaton domino player similar in appearance to Psycho. Imitations of Psycho were so commonplace that Harry Phillips exhibited his own, Han Yee, as “the only one which is built up

197 Gaughan and Steinmeyer, *The Mystery of Psycho*…, 39.
201 Gaughan and Steinmeyer, *The Mystery of Psycho*…, 35.
and taken in pieces in full view of the audience,” suggesting that he saw his creation as one of a horde. A horde it may indeed have been: in addition to the pseudo-Psychos previously mentioned, there were Dr. Cramer’s “marvellous automatic whist player & conjuror mental arithmetician orthographer [sic] & clairvoyant” Acetos, an imitation called Nabob that stood on a glass column atop a three-legged stool, another machine called “Hanky” that, like Yorick, had a child inside; and Charles Arbre’s copy that sat on a glass- rather than wooden-sided box. By the end of the nineteenth century, most magic catalogues offered Hindu whist-players on glass cylinders. The problem was so pervasive that Maskelyne felt obliged to print in his programme, tongue-in-cheek, that he “… would appreciate it more highly if the copies came a little nearer to the original, instead of being clumsy and absurd pieces of mechanism.”

Maskelyne capitalized on what could have been his competition by using it for publicity: he offered a two-thousand-pound reward for a successful imitation and joked in magazine articles about how he had seen his challenge run directly above another ad trying to sell an allegedly perfect copy of Psycho bundled together with an overcoat for eight pounds. If imitation is the sincerest form of flattery, the admiration of magical community for Psycho plainly knew no bounds.

It was not only the magicians of Maskelyne’s own time who took an interest in Psycho. Six years after Maskelyne’s death, magicians excitedly reported in the pages of The Magician Monthly that “MR. MASKELYNE” (presumably meaning Nevil) was rumoured to be planning to revive Psycho. In 1953, magicians celebrated the Museum of London’s choice to put the automaton on display, and Psycho was considered important enough to be included in a 1959 lexicon of

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204 Quoted in Gaughan and Steinmeyer, The Mystery of Psycho..., 32.
205 Gaughan and Steinmeyer, The Mystery of Psycho..., 33.
207 Gaughan and Steinmeyer, The Mystery of Psycho..., 34.
208 Ibid., 35.
209 Quoted in Gaughan and Steinmeyer, The Mystery of Psycho..., 35.
211 “Magic and Magicians,” The Magician Monthly 19, no. 8 (July 1923): 89.
conjuring terms.213 In the journal of the UK Magic Circle, contributors argue over Psycho’s mechanism well into the 1970s.214 The figure was even brought out of retirement in 1973 to celebrate the one hundredth anniversary of Maskelyne’s opening at Egyptian Hall,215 on which occasion J. N. Maskelyne was posthumously granted the Magic Circle’s Magician of the Year award—called “the Maskelyne,” after him.216 It seems that Psycho’s popularity among both laypersons and magicians secured it an honoured place in the history of conjuring.

4.5 Psycho’s decline in popularity

However, it would be a mistake to think that Psycho was guaranteed such great success simply by virtue of the experience it presented to the public. Other seemingly similar acts failed to attract public acclaim: in 1909, to prove that it was always possible to produce an equivalent effect by a simpler method, Maskelyne’s second partner, David Devant, undertook to produce an equivalent to Psycho in one month.217 He did so in the form of Dyno, a disembodied hand that ran back and forth on a trolley car and selected dominos to play against a spectator.218 Dyno seemingly duplicated the effect of Psycho—an inanimate object with no apparent connection to any external motive power undertaking a game that seems to require human intelligence—but it never gripped audience members like its predecessor.

Even Psycho itself failed to seize the popular imagination when it returned to the stage in 1910. As described, Maskelyne’s refurbishment of its mechanism had little effect on its act: most who saw both Maskelyne’s original performance and the 1910 version reacted with nostalgia rather than surprise.219 However, spectators who’d enjoyed its earlier performances found its new

213 S. H. Sharpe, “Conjuring Definitions (continued),” Magic Circular 54, no. 592 (January 1959): 63—although the definition is incorrect, referring to Psycho as a “chess-playing” automaton rather than a whist-playing one.
218 Ibid., 170.
games slow and tedious;\(^{220}\) an American magician on holiday praises the performers themselves, but complains that Psycho “was very rheumatic and his mental processes were somewhat clouded.”\(^{221}\) Some reviewers admit that part of their boredom may have stemmed from the fact that Psycho lost the game they saw it play, but they nevertheless emphasize the slowness of its movement.\(^{222}\) Conjuror Peter Warlock, who as a child saw the new Psycho, also recalls this sluggishness,\(^{223}\) and one gentleman who played as Psycho’s partner describes it lifting cards “\(\textit{slowly and jerkily.}\)\(^{224}\) Maskelyne’s colleague Will Goldston emphasizes that Psycho’s act had aged, pointing out that those who saw it when it made its debut in 1875 must now be taking their children and grandchildren to its revival.\(^{225}\) Tongue-in-cheek, he offers testimonials from two audience members who did find Psycho a treat—an elderly gentleman who finds most other things in the modern world move too fast for him, and a whist-friend who laments the game’s waning popularity.\(^{226}\) Nevertheless, Psycho continued to perform for several months, prompting one magician (probably Goldston again)\(^{227}\) to write in March 1911, “\(\textit{Is it not about time [Psycho] took his old age pension?}\)” and follow it up by concluding that Maskelyne’s new show lacked “go.”\(^{228}\) Finally, in July of the same year, Maskelyne replaced Psycho with Nikola, an illusionist and expert “\(\textit{shadowgraphist,}\)\(^{229}\) prompting the same magician to conclude, “\(\textit{Psycho is coming off; Nikola is going on… All is right with the world.}\)”\(^{230}\) Even more neutral reviewers could do no more than condemn Psycho with faint praise, diplomatically hearkening back to its glory years and pointing out that the act was the same as ever.\(^{231}\) Some more faithful fans

\(^{220}\) “\(\textit{The Doings of Magicians in England & Other Countries,}\)” \textit{The Magician} 6 (October 20, 1910): 160.

\(^{221}\) Dr. J. G. F. Holston, Junior, “\(\textit{Some European Impressions,}\)” \textit{The Sphinx} 9 (December 1910): 222.

\(^{222}\) “\(\textit{The Doings of Magicians in England & Other Countries,}\)” \textit{The Magician} 7 (October 20, 1910, 160; Holston, “\(\textit{Some European Impressions,}\)” 222.


\(^{224}\) Venson, “\(\textit{Memoirs of Harry Venson (continued)},\)” 52; Venson does not specify whether he played cards with Psycho during its Egyptian Hall tenure or the later St. George’s Hall years. However, since he seems certain that Nevil Maskelyne was the one who asked him to be a volunteer, and Nevil first appeared onstage with his father in 1885, shortly after Psycho’s brief 1884 reappearance, it seems reasonable to assume that the events Venson describe took place during Psycho’s final performances.

\(^{225}\) Goldston, “\(\textit{Mysterious Stage Illusions,}\)” 99.

\(^{226}\) Ibid.

\(^{227}\) The article lists no author credit, but since it appears in \textit{The Magician}, which Goldston edited, it is likely that he wrote it himself.

\(^{228}\) “\(\textit{The Doings of Magicians in England & Other Countries,}\)” \textit{The Magician} 7 (March 1911): 6.


\(^{230}\) “\(\textit{The Doings of Magicians in England & Other Countries}\)” \textit{The Magician} 7 (July 1911): 148.

\(^{231}\) “\(\textit{Maskelyne and Devant’s Mysteries,}\)” \textit{The Times}, August 10, 1910, 11.
optimistically report that Psycho’s popularity with the public never waned, but this seems to be more wishful thinking than fact. Even Nevil Maskelyne, J. N.’s son and colleague, understood that Psycho’s day had passed. In 1923, he recalled the 1910 revival and lamented that “[Psycho’s] performance would be voted too slow by modern audiences.” Clearly, the 1910-1911 shows were nowhere near as well received as their earlier counterparts.

There are many feasible reasons for this change of public heart. In a 1911 Daily Telegraph interview, Maskelyne suggested that his audience’s intellectual curiosity had dimmed: “[Psycho] did not appeal to people who did not trouble to think. To those who really tried to solve mysteries it was a great puzzle.” Pessimistically, he concludes, “You cannot entertain people so well now with scientific mysteries as you could years ago.” While this explanation is possible, it ignores other potential contributing factors. Many changes had disrupted Maskelyne and his company since their original performances at the Egyptian Hall. Cooke, Maskelyne’s long-time stage partner, whose presence had likely contributed to the atmosphere of the performance, had died on February 2, 1905. David Devant, a talented conjuror with a distinct style of his own, had joined the company as a full partner only months later, necessitating a new balance of approaches to magic. Finally, the new venue at St. George’s Hall provided a different context. At the Egyptian Hall, Maskelyne had signed the lease a relative unknown and, after thirty years of hard work, emerged a popular fixture of the entertainment world. But at St. George’s Hall, Maskelyne and his company opened with an experiment, The Coming Race, which failed to attract the public attention. Scrambling to regain their audience, the company reverted back to the proven playlets and illusions for which they had been known at their old home. St. George’s Hall was not a bastion of commercial success like the Egyptian Hall had been for Maskelyne. Instead, it represented an artistic retreat—away from the front guard of new ideas and conjuring experiments and back to the old and dependable. In this light, it is possible that audiences could have perceived Psycho’s return as part of this regression. Instead of seeing

233 Maskelyne, “Fifty Years of Magic,” 37.
234 Quoted in Davenport and Salisse, St. George’s Hall..., 99-100.
235 Quoted in Davenport and Salisse, St. George’s Hall..., 100.
237 Christopher and Christopher, The Illustrated History of Magic, 171; Dawes, The Great Illusionists, 165; Price, Magic: A Pictorial History of Conjurers in the Theater, 133.
Psycho’s reappearance as an updated reunion with an exciting old friend, audiences may have seen it as yet another attempt by Maskelyne to backpedal and restore some of his former glory, particularly since despite Maskelyne’s claims of improvements, the automaton’s act was more or less the same as before. It did not even learn a new card game to replace its outdated favourite of whist. All these facts suggest directions to explore to answer the question of Psycho’s fading popularity during the 1910s; nevertheless, they do not address the key poser.

Rather than wondering why Psycho’s popularity waned, historians must ask themselves: what made Psycho so popular in the first place? How did the little automaton attract audience members’ attention, and what made it grip their imaginations? As will be evident from the following chapter, the answer is far from simple.
Chapter 5
Why Psycho?

The floor of the stage is cement covered in a thin layer of carpet, and the wooden cabinet—approximately five feet in length, width, and height—dwarfs the small actress who pushes it into the middle of the stage. Despite the cabinet’s casters, the short distance requires gruelling effort. At the sound of other characters, the actress opens the cabinet doors to reveal two shelves. Climbing onto one, she closes the doors behind her.

When the characters’ voices fade into the distance, she emerges from her hiding spot. But in the middle of her monologue to the audience, a voice interrupts—from inside the empty cabinet.

She flings open the cabinet doors to reveal another actor, dressed in eye-catching white, lounging on the top shelf.

The success of Psycho may be most easily understood by analogy with the findings of a performance experiment like the one described above. This experiment, in which performers incorporated a technology of illusion adapted from the design of one used in the nineteenth century by Maskelyne into a twenty-first-century theatre production, highlights issues pertinent to evaluating explanations for an audience’s reaction to a conjuring effect. This chapter will begin with a short examination of the cabinet performance experiment to illustrate the key themes essential to an understanding of Psycho’s impact on its audiences. It then re-introduces those themes in a more in-depth analysis of Psycho’s particular case. As both the experiment and the historical study will show, mere secrecy of mechanism is neither sufficient nor necessary to guarantee the success of a technology of illusion. Just as the audience’s ignorance of the construction of the cabinet did not ensure its success, historical audiences’ knowledge of Psycho’s mechanism did not ensure its failure. Instead, the effectiveness of both technologies of illusion was dependent on the ability of the production team to place each within certain narrative and socio-cultural contexts in which the illusion had meaning and its presenters could claim epistemological authority. But first, since the audience for this dissertation spans multiple disciplines, a brief word on the goals and limitations of theatrical performance experiments is necessary before embarking on a discussion of the one under consideration.
It is difficult to analyse performance experiments using the same paradigm within which one might discuss scientific experiments; while the ultimate goal of each is to obtain new knowledge by adjusting the parameters of an endeavour, the epistemological assumptions of the practitioners and the expected type of knowledge produced differ. Many scientific experiments are designed to produce quantitative knowledge obtained through a combination of logical induction and deduction. In contrast, the goal of performance experiments tends to be qualitative and experiential knowledge that can be used to interpret others’ descriptions of theatrical events or to plan future projects. Understanding the difference is crucial to understanding of the reason for prefacing the analysis of Maskelyne’s Psycho with a brief description of a related theatrical experiment: a re-creation of a cabinet along the same principles as Maskelyne’s cabinet illusion.

One of the purposes of theatre experiments is to account for the immediacy of live performance; as many performers know, it is misleadingly easy to assume that one can predict one’s reaction to a live performance from a description of that performance. There is an experiential element to live performance that is irrecoverable from recorded accounts. While performance experiments cannot reveal definitive answers to the question of why, overall, audiences reacted in a particular way to a particular act—in fact, it is doubtful that such a unified account of audience behaviour exists, since the context and experience of a performance is unique for each audience member—they can suggest trends of reaction that might not otherwise occur to the researcher. It is for this reason that this chapter introduces into the historical account of Psycho the results of a similar performance experiment.

5.1 The cabinet

As mentioned in the previous chapter, Maskelyne’s illusions often featured large apparatus. One of these was a magic cabinet. Constructed on similar principles to the Proteus cabinet of Pepper and Tobin,¹ and belonging to the family of optical illusions popular through the 1860s and 1870s, Maskelyne’s cabinet featured a hidden compartment that allowed illusionists to make people and objects appear and disappear (and, of course, by combining the two effects, they could transform one person or object into another).² Variations on this cabinet featured in

¹ See Steinmeyer, *Hiding the Elephant…*, 78-79.
² Ibid., 97-98.
Maskelyne’s most popular magical playlet, “Will, the Witch, and the Watch,” and its story is analogous to Psycho’s: originally extremely popular, it wore out its welcome and was relegated to the annals of magic history.

In May 2011, with the support of the cast and crew of Socratic Theatre Collective, I was privileged to build an adapted reconstruction of this cabinet for their production of *Ismene*, a full-length dramatic piece. Based on historian of magic Jim Steinmeyer’s description of Maskelyne’s original, the apparatus was modified to suit the needs of the production and the performers. During the production, one actor would appear and disappear from inside the cabinet at relevant points in the script, representing actions of the godlike character he played in the narrative. Although the details of the project are beyond the scope of this dissertation, the pertinent result is the reaction of the audience to the illusion. Generally, audience members were neutral toward the effect. The disappearance or reappearance of the actor did not impress them; few asked about the cabinet in cast-and-crew talkbacks, and it was not mentioned in reviews. Strangely, there was little criticism of the illusion, either; although audience members noticed it, they did not appear to have strong feelings about the matter.

This reaction was telling because in many ways it was the opposite of the historical reaction to Psycho and other illusions like it. While the claim of this chapter is that Psycho’s success cannot be credited to ignorance of its mechanism alone—that is, that Psycho’s audiences may have enjoyed it as an illusion despite understanding how the effect it presented was accomplished—the cabinet’s overall failure to impress audiences cannot be attributed to knowledge of its mechanism. The one common audience response to the illusion was a post-show request to examine the apparatus. Although it is the case that some audience members reported knowing how the effect was accomplished, many were puzzled to the extent that they were interested in a closer investigation. If it is an illusion’s ability to befuddle its audience that alone evokes amazement, then the impartiality of the audience toward the cabinet is inexplicable; if one

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3 Ibid., 102.
5 See Appendix, figs. 23, 24, and 25.
accepts that other factors are just as important as or more important than the ease with which an apparatus’s mechanism is able to be hidden, then the situation becomes clearer.

A cursory analysis of the failures of the cabinet to read to the audience as an object of wonder reveals a number of these reasons. For example, due to budgetary constraints, the cabinet’s walls were made of cloth, not wooden panels. Although this cloth was firmly attached in place, and the cast and crew knew from familiarity with the details during the construction of the piece that it would have been impossible for a performer to exit or enter the cabinet by this means, the audience members did not have this knowledge, and the possibility was on their minds, diluting the mystery. Similarly, the construction team had painted the cabinet black, and the scenic design included a background of hanging black curtains. In the theatre, and especially on the conjuring stage, black is often used as a background or base colour in part because it absorbs light, making any accidental movement less noticeable to the audience. In this case, the construction team used it because the company happened to have black paint and curtains in stock. Although the effect was not accomplished through secret slits in the fabric, the colour choice may have suggested that the performers were attempting to hide the visual clues that would have encumbered such a mechanism.

The dimensions and construction of the cabinet also may have triggered audience members’ suspicions. It is in the nature of theatrical productions to have restrictions of time and funding; for these reasons, in the design of the cabinet, I erred on the larger side, as it would have been impossible to re-build the cabinet if the original design was too small to hide the performer in its hidden compartment, and an unwieldy cabinet was preferable to one that was non-functioning. Unfortunately, the much-larger-than-needed size of the cabinet worked against the effect for two reasons. First, its unusual size made its special construction conspicuous—recall from chapter three the negative aspects of this reaction. It was clear to the audience that it was a specially made apparatus, and although that did not necessarily mean spectators divined its purpose, again, the fact encouraged them to consider new explanations for the effect. Second, the seemingly unnecessary bulkiness of the cabinet gave audience members reason to consider that it had been built to hide a person inside; after all, ordinary cabinets are smaller because they are built to house items of a particular size, and though adult human beings can occasionally fit inside, it is by chance and not design.
Further, to be effective, the illusion had different requirements than did the narrative of the play within which it was used. All narratives are constructed so as to draw the audience’s attention to salient points, whether those points are the emotions felt by certain characters, details of the plot, or ideas of thematic relevance. As mentioned in previous chapters and as will be discussed in detail below, effective illusions require their presenters to direct their audiences’ attention to the aspects necessary to help them construct a meaningful account of what they are seeing. For instance, P. T. Selbit’s famous Sawing through a Woman illusion is effective mainly because the storyline of life-threatening danger resonates intuitively with most audience members; there is high dramatic interest for the audience in the idea that an extreme act of violence is being carried out onstage in front of them, and magicians who attempted to improve the effect often chose to better direct audiences’ attention to this element of the performance. Although effective stories and effective illusions share some of the same needs—both, for example, benefit from encouraging the audience to focus on characters’ motivations and high-stakes outcomes—the elements to which a storyteller wishes to draw his or her audience’s attention are not necessarily those that benefit an illusionist, and vice versa. Because audience expectations are important to both narratives and illusions, it can be difficult to reconcile the needs of an illusion with the needs of a plot. In the case of the cabinet, the scenes in which the illusion took place were tense and fast-paced; the plot required the performers to keep the production moving along quickly with a focus on the heightened emotions of the characters, the claustrophobic setting, and the possibility of violence. By contrast, for the illusion to be effective, the audience members needed the time to notice the solidity of the cabinet, a moment to make the character’s motivation to climb inside it clear, and more time to register the disappearance of the actor they believed was inside. The difficulty of incorporating an illusion into the performance of a conventional dramatic script was another contributing factor in the results of this performance experiment.

Unlike the adapted Maskelyne cabinet, the historical case under discussion is a success story, not a failure, but similar principles apply. To understand Psycho’s initial success, it is necessary to consider both the functions it performed and the manner in which it was able to represent certain ideas to its audience. It is tempting to explain Psycho’s popularity based solely on mechanism:

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7 Steinmeyer, *Hiding the Elephant...*, 278-279.
8 Ibid., 284-290.
whatever machinery it had inside allowed a human operator to play cards through it while remaining hidden, puzzling and amazing its spectators. Such an explanation is even more appealing because it implies a simple account of Psycho’s failure to enthral during its 1910-1911 revival: while the mechanism moved quickly enough to please early audiences, the pace of life sped up between the 1870s and 1910, and later audiences were no longer willing to put up with the leisurely pace of the automaton’s game. Credible though this understanding may be, it oversimplifies the situation. To base an explanation on function alone is to assume that hiding the mechanism of an artifact is enough to construct an aura of mystery, and to emphasize Psycho’s ability to physically manipulate its surroundings is to ignore the fact that it intrigued audiences not by moving cards about but by appearing to think as it did so. Psycho’s mechanism was important, but the automaton would not have won the hearts of the public had Maskelyne not taken advantage of the states of technology, science, and theatre of his time to represent it as an intelligent machine and to engineer the balance between mystery and explanation most conducive to an effective conjuring presentation.

5.2 Psycho the thinking machine

Maskelyne deliberately and successfully encouraged his audiences to dwell on the paradox of Psycho as a machine capable of human thought. He and Cooke first advertised Psycho as “showing intelligence in its voluntary actions and careful education in its unlimited powers.”

Two days later, they modified their claims, asserting that Psycho would behave as though possessed of “a wonderful equivalent for intelligence,” cleverly highlighting the juxtaposition between mechanical body and incorporeal intellect by pointing out that whatever Psycho exhibited, it was not intelligence as ordinarily understood—that is, organic and human. Audiences accepted this perception of Psycho as part machine, part mind: reviews and newspaper articles on Psycho stress how it appeared to “exhibit intelligence,” performed actions that “demand intelligence,” or went through motions “evidently guided by intelligence

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9 “Maskelyne and Cooke,” The Times, January 11, 1875, 1.
10 “Maskelyne and Cooke,” The Times, January 13, 1875, 1.
11 “The Automaton at Egyptian Hall,” 63.
12 Quoted in Martinez, “Kellar and Psycho in Mexico,” 32.
and consistent purpose.” Pole clarifies that the machine did not “only imitate human motions” but also “exert[ed] human intelligence and skill” to “weird and uncanny” effect, and Dobbie wryly comments that Psycho showed at least as much intelligence as its three human playmates. Interestingly, while most reviewers and diarists claim that Psycho’s movements imply intelligence, they at the same time point out that this intelligence, coming from a machine, can be no more than an illusion. Their confusion over whether to classify Psycho as the free-willed individual it appears to be or the inanimate object they know it must be is clear even in the pronoun with which they refer to Psycho—there is no consensus over whether to use “he,” “it,” or both. However, merely drawing audience’s attention to the contrast between Psycho’s human behaviour and mechanical body would not have been effective if Maskelyne had not been able to present Psycho as an intelligent being in performance.

Before analysing the way in which Maskelyne did so, one must recall that the idea of what a thinking machine is has changed from Victorian times to present day. Advances in technology transform public understanding of what a machine can do, and hence also modify the set of actions considered to be exclusively human. For instance, it has been suggested that the twenty-first-century analogues to nineteenth-century automata are computers: functionally, both technologies are self-directed machines that go through a sequence of actions once set in motion by a human user, and culturally, both have an ambiguous role that straddles the fields of science, business, and entertainment. However, few contemporary Londoners would suggest that a computer capable of playing games like Psycho is thinking; in fact, the popular Windows operating system comes preloaded with programs against which the user can play chess or Hearts, and no one has seriously suggested that PCs ought to be considered sentient for this reason. Before a successful chess-playing program had been produced, philosophers of

13 “Maskelyne and Cooke’s Automata,” 367.
14 Pole, “Games At Cards Played By Machinery,” 243.
15 Dobbie, Rough Notes of a Traveller..., 46.
17 As do Pole, Frost, the author of “Famous Automata” in Appleton’s Journal, and Middleton.
18 As do Dobbie and the author of the The Queen review.
19 As does the author of the The Times review.
computing could list various reasons why such a thing would strain human perception of mechanical intelligence: there is no single correct move at any given point during a chess game, the strategies of expert chess-players cannot be reduced to algorithms, etc. Afterwards, however, when such programs had become ubiquitous, humanity simply removed “chess-playing” from the list of activities that demonstrate true intelligence. As complex technologies play an increasingly larger role in daily life, people become more accustomed to sophisticated behaviour from machines and narrow their definitions of human-like behaviour accordingly.

In contrast, many Victorians understood machines like Psycho to be able to carry out pre-determined, if complex, sequences of actions, but they could not conceive of machines that could modify their behaviour appropriately in uncertain situations. That they accepted the former is unsurprising: genuine automata from the nineteenth century and earlier ran cyclically, sometimes executing long and complicated manoeuvres but always in the same order whenever their motors were running. For instance, one surviving eighteenth-century writer/draughtsman automaton, currently on display at Philadelphia’s Franklin Institute, has a repertoire of four different images and three poems. Three others of similar age, preserved at the Musée d’art et d’histoire de Neuchâtel in Switzerland, display similar talents. One has a bank of images and words that it can reproduce like its cousin in the Franklin Institute; the second plays keyboard melodies, occasionally glancing up to meet its audience’s eyes; and the third can write by hand any message chosen by the individual who sets its mechanism in motion. The memories of all four automata are embodied in their hardware, cams that trace the edges of irregularly shaped gears and translate their bumps into motion. Since memory of this nature is unalterable once installed, the automata cannot learn from their experience or change their actions once set in motion. Reviews of Psycho compare it with this type of machine and take pains to point out that it does not work from this sort of repertoire. One article on chess- and card-playing machines quotes an engineer who distinguishes between machines like the writer/draughtsman and those like Psycho: the former perform one repeated action and cannot cope with unexpected phenomena,

23 See Appendix, fig. 26.
and the latter embody ideas and have a faculty of reason. The article goes on to imply that the second type of machine is impossible: though one can in theory create game-playing machines of the first type that behave like those of the second by enumerating all possible permutations of the game board and prescribing an appropriate move for each, such a machine would take too much time and work to construct. Therefore, anyone encountering a supposed chess- or card-playing device can rest assured that there must be a human mind controlling its movements somehow.

Based on the focus of eyewitness reports and reviews, most audiences did not accept Psycho’s arithmetic and conjuring skills as evidence that the automaton possessed this sort of human or human-like intelligence. Instead, they judged those talents within the context of the technologies that preceded Psycho and found them mechanical rather than truly adaptive. Charles Babbage’s Analytical Machine and William Stanley Jevons’s logic machine gave Victorians a framework within which to contemplate thinking machines; although the ability to solve mathematical and deductive problems was originally considered to indicate the presence of a human or human-like mind, many, when confronted with Babbage’s Analytical Machine, concluded instead that mathematical calculation must not belong to the realm of thought after all. Doing arithmetic did not demonstrate the capacity to adapt to novelty, because arithmetic was predictable: particular inputs would always result in the same correct outputs. When put into context with those of Babbage’s and Jevons’s machines, Psycho’s arithmetic talents did not seem particularly human at all, and several authors did in fact note the similarity between Psycho and its two predecessors. One poet wonders if Psycho’s arithmetic talent could “unto Babbage come up”, another explicitly classes the automaton alongside Babbage’s and Jevons’s inventions. Even Maskelyne himself made this connection: he wrote that Psycho’s calculating abilities would have “gladdened the heart of a Babbage.” Psycho’s mathematical prowess prompted some audiences to compare it to other, non-thinking machines and did not impress the audience with its intelligence. Similarly, Psycho’s smoking and conjuring also did not astound all audience members, who would have been aware of true automata that could also perform those feats.

26 Ibid., 47-48.
28 Quoted in Programme from The John Nevil Maskelyne ‘Psycho’ lecture.
29 “Famous Automata,” 257.
30 Maskelyne, Automata, 21.
Dedicated shops in Paris constructed a variety of automaton magicians and smokers (among other things) that were popular among the middle class. Knowledge of analogous technologies produced outside the realm of conjuring meant audiences did not consider most of Psycho’s abilities to be proof of the figure’s intelligence.

However, one of Psycho’s skills did defy the Victorian understanding of the limits of mechanism: its whist-playing. While solving arithmetic problems, performing conjuring tricks, and playing whist all require thought, only the last is not obviously predetermined. In other words, two given numbers will always have the same sum or product, and a conjuring trick always follows the same sequence of movements, but no one can predict the final moves of a game of whist from the opening deal. Victorians believed that one could not with confidence delineate a set of moves to be repeated that would ensure victory for the player. This is why it was important to Maskelyne’s audiences that Psycho usually won—as can be seen in their emphasis on the skill with which it played its hand. Articles marvel at the confirmation of Psycho’s masterful play from Cavendish, a whist expert; mention how Psycho played like any human player; and list its ability to win games as a separate wonder from its ability to play them. Maskelyne’s grandson claims that Psycho lost only about a dozen of the thousands of matches it played, and while this figure seems exaggerated, Psycho did usually win. The Times at first reports that it lost only against “very scientific players”; later, its reviewers amend the ratio of games won to 3 out of 5. In any case, Psycho won the majority of the four thousand or so hands it played. Since Victorians believed that it was impossible to play whist well by repetitive action, Psycho’s winning streaks indicated the influence of some sort of reactive intelligence. As the ladies’ magazine The Queen points out, winning card games is “a very different thing from simply executing a series of movements for which machinery is

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33 “Conjurers and Spiritualists in Two Parts – Part II,” 688.
34 Ibid.
35 Venson, “Memoirs of Harry Venson (continued),” 52.
36 Maskelyne, White Magic: The Story of the Maskelynes, 42.
37 Frost, The Lives of the Conjurers, 422; Thomas, “Psycho, the Whist Player and Calculator,” 166.
39 “Egyptian Hall,” The Times, April 19, 1884, 14.
While the skills an arithmetician or sleight-of-hand artist might be reproduced by clockwork, a victorious whist-player was surely more than machine.

However, no action demonstrates adaptability in and of itself; unless the audience is willing to perceive them as such, even the most creative acts can seem mechanical, and one can see this by comparing Psycho with the rest of Maskelyne’s automata. Maskelyne incorporated three other figures into his act. Zoe, a female doll who wrote requested phrases and drew portraits of any famous personality suggested by the audience, first featured in Maskelyne’s act in 1877. Although the first review of its performance stresses that it does not draw from a set repertoire, audiences seem to have felt differently. Jasper Maskelyne reports that a few years afterwards, his grandfather reluctantly excised Zoe from the act. After all, since Maskelyne had control over which names to accept (as is evident from the report of a performance during which he defused potential tension when the audience split over having Zoe draw the Prime Minister or his political rival) and chose only a few each performance, how could the spectators experience “her” creativity for themselves? Similarly, Maskelyne’s two musician-figures, Fanfare and Labial, who played the cornet and euphonium respectively and were introduced in the spring and fall of 1878, may have indeed been able to play any song requested of them, but audience members saw only the short set list Maskelyne arranged. Furthermore, despite experts’ assertion that the two figures’ fingering and expression was correct, reviewers seem unenthusiastic, praising the two musicians’ technical excellence but wondering why they were thought to be great inventions for doing something their human exhibitors could do better. Evidently, Maskelyne quickly understood the public sentiment; though he originally announced that he intended to build an entire orchestra of automation musicians and even an automaton composer, Labial was the last automaton he introduced at the Egyptian Hall. The mere

40 “The Automaton at Egyptian Hall,” 63.
41 See Appendix, fig. 16.
42 “A New Automaton,” The Times, June 14, 1877, 5.
43 Ibid.
44 Maskelyne, White Magic: The Story of the Maskelynes, 49.
45 “Easter Monday,” The Times, April 23, 1878, 4.
47 A. J. Phasey quoted in Maskelyne, Automata, 22.
existence of Zoe, Fanfare, and Labial’s creative talents were not enough to turn any of the three automata into the semi-sentient figure Psycho became in the public’s imagination.

Maskelyne made sure that his audiences recognize Psycho’s actions as ones requiring human intelligence in part by manipulating of the language of the stage to convince the audience to accept Psycho as a representation of a human mind—an ability he did not exercise with his other three creations. The mere fact that Psycho could play whist like a human being did not ensure that an audience would perceive it as playing whist like a human being. Writing in 1881, theatre theorist Percy Fitzgerald pointed out that though audiences crave realistic spectacle, they accept only props, costumes, and set pieces that are deliberately unrealistic: for instance, real fire does not appear realistically fiery onstage, and stages set as drawing rooms, unlike real drawing rooms, need to instantly convey what they are to an auditorium full of people. Similarly, real human intelligence in performance does not necessarily convey its own sentient status to the audience. For example, historian of magic John Mulholland tells of his boyhood experience with a similar magical figure, the chess- and checkers-playing Ajeeb. Although Mulholland played many games of checkers with Ajeeb—a pastime surely requiring thought—its uncannily human intelligence dawnd on him only when it shook its head after Mulholland attempted to cheat. What struck Mulholland was not Ajeeb’s ability to recognize illegal moves but the fact that the manner in which it did so suddenly made him consider the figure to have a sense of honour and fair play—human traits. Just as Ajeeb’s exhibitor could not rely on the figure’s game-playing to convey its intelligence to Mulholland, Maskelyne could not rely on the actions and forms of his automaton to represent themselves as human to his spectators. Instead, he had to draw upon stage conventions to influence his audiences’ understanding.

5.3 Psycho and theatrical convention

First, Maskelyne placed Psycho—but not Zoe, Fanfare, or Labial—within a narrative that persuaded audience members to think of it as a human personality. Recall, Maskelyne was well

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50 Fitzgerald, The World Behind the Scenes, 66.
51 Ibid., 53.
52 Ibid., 8.
versed in interweaving illusions with simple stories in short sketches, and his audiences expected him to introduce narratives into his performances. By showing Psycho onstage among real people in a situation with inherent conflict, Maskelyne encouraged them to see the figure as a character in a story. Drawing pictures and playing music are both activities often considered to require human intelligence, but neither is as dramatically charged as playing a game of whist: no one wins or loses a concert. Furthermore, by making the other “characters” in the drama actual human beings, Maskelyne forced the audience members to consider placing Psycho in the same category. As previously discussed, Maskelyne was well known for using narrative to enhance the effects of his illusions: one magician credits him as the founder of the “school of magic presented in dramatic form,” and many consider one of his major innovations to have been the magical playlet, in which a number of short illusions are linked together through a simple comic story. Indeed, audiences of Maskelyne’s time were in some respects ideal for this sort of entertainment, as even legitimate theatre strove to include spectacle, and magical effects were common in genres like pantomime and gothic melodrama. With an atmosphere so ripe for the incorporation of narrative and such a good eye for its possibilities, one might be tempted to ask why Maskelyne did not establish similar contexts for his other three automata. Unfortunately, as Nevil Maskelyne points out the needs of magic and drama often conflict. Though Maskelyne was usually successful, even he sometimes misjudged the delicate equilibrium between story and illusion; remember, his full-length magical adaptation of the science-fiction novel *The Coming Race* was a flop, despite what in description at least appear to be some impressive effects.

Maskelyne did not fail completely in using narrative conventions to help humanize Zoe, Fanfare,

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54 Evans, “Schools of Magic,” 74.
59 C[larke], “John Nevil Maskelyne: A Memoir,” 197.
60 Ibid.; Clarke reports *The Coming Race* featured crawling dragons, flying monsters, levitations, earthquakes, and flashes of the vital force “vril” between actors (197).
and Labial, but, like the most famous scenes of Victorian theatre, his Psycho act combined special effects, story, and character to achieve a much greater degree of success.

The period conventions for displaying and manipulating the human body onstage also helped Psycho seem more human. Maskelyne lived and performed in the “age of the actor,” in which vivid star personalities were a sought-after commodity. Actors and actresses used overstated gestures to communicate emotions to their audiences, and audience members did not expect characters to emote like real people. Psycho’s lack of subtlety of motion and expression would therefore not have seemed as dehumanizing to the average Victorian as it does to contemporary audiences used to the low-key, close-up performances of cinematic actors. Furthermore, the conventions surrounding the presentation of the human body on magicians’ stages meant that otherwise jarring actions—such as carrying Psycho onstage, opening its torso for examination, or setting it on its glass column—would not irrevocably remind the audience that the automaton was just a machine. Mutilation and deconstruction of the human body was a common illusion; Maskelyne himself had various effects of this nature. He decapitated Cooke and paraded his “head” around the stage; secretly substituted a dummy for his own body, which he then levitated to the ceiling; and called up human-shaped spirits at mock-séances. Other contemporary illusionists displayed a living human head in a box set on a table; pretended to stab and resurrect a young girl; and pulled apart assistants limb by limb. During a conjuring performance, audience members could expect the human body to be disassembled and

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66 Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 43; the Magic Circle archive possesses a photograph of this very convincing illusion. For an illustration, see Appendix, fig. 27.
67 Christopher and Christopher, The Illustrated History of Magic, 161.
68 Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 49.
70 Ibid., 68-69.
71 Dawes, The Great Illusionists, 89.
reassembled like a machine, and in comparison, the manipulation of machines like Psycho did not come across as incontrovertibly mechanical. On both the dramatic and magical stage, it was customary for real human bodies to appear more mechanical than they did in real life, and, this being the case, Maskelyne could be sure that Psycho’s ostensibly human features, bearing, and dress would outweigh its mechanical attributes in the eyes of his audience.

5.4 Psycho and science

5.4.1 Maskelyne the inventor

Maskelyne’s success in manipulating social conventions to evoke the impression that Psycho was a thinking machine would nevertheless have been useless if he had not been able to take advantage of the history of association between science and conjuring to construct and preserve an aura of mystery around Psycho’s mechanism. Despite seemingly insurmountable obstacles—including the public’s discovery of a patent that apparently applied to Psycho, several popular articles offering reasonably correct explanations of Psycho’s mechanism, and numerous reproductions of his act—Maskelyne managed to keep his audiences wondering. Newspaper reviewers of the late nineteenth century casually report their continued bafflement as they review Maskelyne and Cooke’s latest shows;\(^2\) Maskelyne’s manager, William Morton, writes that he was surprised the public never discovered Psycho’s secret;\(^3\) Even magicians continue to argue to this day over how exactly the automaton worked;\(^4\) Enough believe the riddle of Psycho’s motive power was never solved\(^5\) to prompt one magician’s annoyed rebuttal: “In point of fact, the secret of Psycho’s working has been known and published these many years past, and there cannot be any serious student of magic in Britain who does not know of it.”\(^6\) Maskelyne knew that illusions thrive on ambiguity: in one article, he compared ghosts to conjuring tricks,

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\(^4\) See, for example, the argument between Peter Warlock and Sam Sharpe in the pages of \textit{Magic Circular}, vol. 71.


lamenting that knowing how they are caused destroys all one’s interest in them. A consummate showman, he used magicians’ self-representations as men of science to give the impression that he was providing answers while at the same time giving credence to his otherwise implausible denials.

From the early nineteenth century to the present day, magicians associated themselves with science, despite rarely doing actual scientific work. The French magician Robert-Houdin was one of the first to abandon the mystical trappings of earlier stage magic for evening dress, a tidy stage, and an authoritative air. He publicized his origins as a watchmaker and displayed his inventions at non-conjuring venues, including the Paris Exhibition of 1844. Other magicians followed suit. Pepper’s success as described in chapters two and three demonstrates the tenuousness of the line between conjuring trick and scientific display, and the proper relationship between conjurors and scientists has always been ambiguous. Conjurors can and do take advantage of the knowledge scientists discover to design their effects: for instance, many of Robert-Houdin’s illusions involved electromagnetic equipment, and many Victorian and Edwardian conjuring manuals offered sections on chemical and optical tricks. Even modern magicians stress that “study of chemistry, electricity, lighting, and mechanics [is] needed to create illusions.” On the other hand, scientists can sometimes benefit from conjurors’ specialized knowledge. For instance, in 1893, five professional magicians used their expertise on the psychology of illusion to help early psychologist Alfred Binet with a study on the subject. Like scientists, some magicians see themselves as having a duty to pursue and expose the truth.

77 Maskelyne, “A Few Words About Ghosts,” 531.
78 Steinmeyer, Hiding the Elephant…, 143-144; Robert-Houdin, Memoirs of Robert-Houdin…, Vol. 1, 271-273. Historian of magic Milbourne Christopher disagrees that Robert-Houdin was the first to adopt ordinary evening attire, maintaining that throughout history, most magicians have dressed in the typical style of their times (Christopher, Panorama of Magic, v).
83 See, for instance, Hopkins, Magic: Stage Illusions and Scientific Diversions…; Hoffman, Modern Magic; and Maskelyne and Devant, Our Magic.
85 Lachapelle, “From the Stage to the Laboratory…,” 319.
They set themselves up as rational observers whose professional qualifications make them suitable for scientific investigations for which scientists’ training has not prepared them, such as debunking the occult, and whose skills allows them to innovate in areas where ordinary inventors lack pertinent experience, such as military camouflage. Conjurors like Maskelyne were thus able to draw upon an established and varied bank of scientific and technological rhetoric to construct the atmosphere in which their illusions were to be performed.

Maskelyne took advantage of these ties between magic and science to lend himself the authority of a scientist without, like a scientist, sharing his secrets. He could expect his audiences to have respect for the scientific institution: ticket prices effectively excluded those who did not have a middle- or upper-class education. To capitalize on that respect, he stressed that his illusions worked based on creative applications of science. Not only did Maskelyne favour mechanical illusions, as detailed in the previous chapter, he also implied that they were possible only due to his understanding of scientific subjects. “All my mysteries have a mechanical or chemical basis,” he told one interviewer, and to T. Hanson Lewis of The English Illustrated Magazine, he confided that he “devote[s] most of [his] attention to the production of optical and mechanical mysteries.” In a series of articles, entitled “Natural Magic,” Maskelyne works hard to associate illusion itself with science: nature, he claims, is the best magician of them all, and “the art of the magician chiefly consists in skilful use of nature's wonders”—that is, like the scientist, the magician’s proper domain is the natural world. He goes on to educate the reader on various scientific illusions, ranging from the use of optics in apparatuses like Pepper’s Ghost to taking advantage of the properties of chemicals to fireproof oneself or effect transformations in materials.

88 Booth, “The Egyptian Hall in London: Center of A Magical Universe,” 125.
89 Kaufmann C. Spiers, “Maskelyne; Mystagogue; and the Future of Stage Illusion,” The Playgoer (1902-1903): 503.
90 Lewis, “The Great Wizard of the West…,” 77.
93 Ibid., 45-46.
95 Ibid., 78-79.
While it is true that many of Maskelyne’s illusions did require facility with mechanical innovation, chemical experimentation, and other scientific activities, he relied just as heavily on decidedly unscientific strategies. For example, his plate-spinning routine and his escape from his signature box both required hours of practice and cultivated dexterity; while “Will, the Witch, and the Watch” did rely on a set-piece utilizing optical principles, there is evidence that it also required more mundane theatrical tricks like having two performers wearing identical costumes pretending to be the same individual; and even Psycho’s routine must have been just as dependent on clandestine methods of communication between Maskelyne and his staff as it was on any innovative apparatus. Maskelyne’s characterization of magicians’ work as consisting mainly of experimentation and exploitation of scientific principles was a choice, not a necessity. Such a statement is not meant to imply that he was deliberately deceitful; it is nevertheless the case that he encouraged this understanding of his work while downplaying other aspects of it.

The media happily promoted this image of Maskelyne as a scientific innovator: Lewis respectfully describes Maskelyne and his son as spending their mornings in the Egyptian Hall workshop, “inventing scientific and mechanical problems and machines to supply commercial requirements.” Maskelyne certainly hoped the public would see Psycho as a scientific and mechanical problem; in a private letter to a Mr. J. W. Cockerhand, Maskelyne insists, “My automaton is not a toy but a very scientific piece of mechanism the result of many years study and experimentalising [sic].” Maskelyne also built up these scientific credentials by working hard to establish himself not only as a creative magical mechanic but as a legitimate inventor.

The Maskelyne family dabbled in experimental technologies as well as conjuring—for instance, the Illustrated London News obituary of Nevil Maskelyne recalls him as both an illusionist and as an inventor of electric appliances. Maskelyne himself held a plethora of non-conjuring patents, both joint and individual, including ones for coin-operated locks used on public

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96 See Spicer; although Maskelyne neither confirms nor denies Spicer’s allegations, his proposed solution is plausible. A Magic Circle archival photograph of Maskelyne dressed as the titular witch shows that elaborate costuming, including facial prostheses that could hide a performer’s identity, meant it would have been easy to substitute one performer for another.
97 Lewis, “The Great Wizard of the West…,” 75.
98 Quoted in Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 33.
99 See Warlock, “The Incredible Mr. Maskelyne,” January/February 1977, for timelines of Maskelyne’s patents.
toilets, wireless telegraphy, and a precursor to the cash register. He also invented the Maskelyne typewriter, the first model to use differential spacing. Maskelyne continued to patent improvements to his inventions throughout his life, demonstrating that he was as dedicated to this aspect of his career as to his illusions, and he prominently advertised his creations in the Egyptian Hall programmes.

5.4.2 Anti-Spiritualism

Finally, Maskelyne further encouraged the public to view him as a scientist by contrasting himself and his activities with those of unscientific mediums. He laid the groundwork for this perception using the same activities that shaped his combative stage persona. He and Cooke identified themselves as “Royal Illusionists and Anti-Spiritualists” on their programmes, suggesting that they saw both roles as equally important to their professional identities. Newspaper reports show that his productions often featured a mock séance parodying Spiritualist beliefs, and Maskelyne was always careful to explain to the audience that his phantasms were the product of clever conjuring and not supernatural powers. He also testified against fake mediums in several court cases, replicating their feats and explaining the deceptions behind them, and he authored several monographs decrying Spiritualist beliefs. In the most elaborate of these, a 182-page book published in 1875, the year of Psycho’s debut, Maskelyne recounts methodically the personal histories of notable Spiritualist performers, giving his readers excellent reasons to doubt their claims. Although he claims in his introduction that he does not

102 Warlock, “The Incredible Mr. Maskelyne,” January/February 1977, 12.
103 Ibid., 11.
104 Lewis, “The Great Wizard of the West…,” 83.
105 See Bibliography, section 9.3 Patents.
107 See the programme in Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 42.
109 Maskelyne, “Fifty Years of Magic,” 38.
110 “Famous Automata,” 254; Maskelyne, “My Reminisces,” 21, 22-24; see Appendix, fig. 28.
112 Maskelyne, Modern Spiritualism...
wish to butt heads with the “scientific investigators,”¹¹³ he undercuts these investigators’ claims to true science by suggesting that those who believe in Spiritualism do so on account of insufficient evidence¹¹⁴—drawing conclusions only based on reasonable evidence being one of the major tenets of the scientific method. Not only did Maskelyne take up the debunking cause himself, he inspired his fellow magicians to join him: it was he who founded the Magic Circle’s Occult Committee.¹¹⁵ By contrasting himself with mystical and intuitive Spiritualism, Maskelyne portrayed himself as rational and objective, always able to provide a reasonable explanation—the consummate scientist.

Maskelyne’s strategies were evidently effective. Articles called for him to be spoken of as a “scientific inventor” rather than a showman,¹¹⁶ and twenty years after his death, a layperson remembers his name along with Houdini’s as one of the top truth-tellers in the face of Spiritualism.¹¹⁷ One member of Maskelyne’s audience even described the master conjuror as an “engineer.”¹¹⁸ In the eyes of the most of his audience, Maskelyne was a man of science.

5.4.3 True automata

This constructed public image helped Maskelyne encourage his audiences to view Psycho partly within the context of true automata. True automata—human-shaped machines that, once set in motion by a human being, continue to move by themselves¹¹⁹—while sometimes considered to be on the fringes of actual science, could nevertheless claim a key position: they were the first complex machines humankind had tried to build,¹²⁰ and, more importantly, it is arguable that their construction could and did lead humanity to more widely applicable technologies such as the cam.¹²¹ Moreover, true automata embodied a scientific and mechanistic understanding of the

¹¹³ Ibid., vi.
¹¹⁴ Ibid., v.
¹¹⁸ “It’s a long time since I spent…,” Abracadabra 59, no. 1516 (February 15, 1975): 131.
¹²¹ Ibid., 41-42.
body, and some argue that they even had a history of being used by their makers as tools to understand how the human body worked and as potential metaphors to understand the human mind. Since the construction of true automata was a legitimate science, Maskelyne’s supposedly scientific credentials allowed him to place Psycho, his work, within their domain. And just as few people expect the exhibitor of a true automaton to explain the details of its mechanism, willing instead to trust the explanation that it works by clockwork or another motive power, Maskelyne’s presentation of himself as a scientist and of Psycho as a scientific instrument persuaded his audiences to accept his partial explanations of how Psycho worked, despite more detailed and accurate explanations from other sources.

5.5 Psycho’s mechanism

It is accepted today that Psycho was operated remotely by a hidden assistant who set its mechanism in motion by controlling a column of pressurized air that travelled through a hollow leg in the bottom platform, through the glass cylinder, and into the box on which Psycho sat. Pole was the first to offer this account, which he gave in the January 1876 issue of Macmillan’s Magazine. In its pages, he explained that the compression and expansion of air, though invisible, results in movement, and even postulated a method by which air could travel through the stage to the figure. This theory was endorsed by Middleton, who wrote to the English Mechanic and World of Science in 1877 to declare, “I have visited Egyptian Hall on several occasions to witness the performance of Psycho, and quite believe the mechanism to be put in motion by air.” In The Liverpool Weekly Post of 1878, Arprey Vere contributed a more comprehensive hypothesis, providing detailed drawings of what the innards of a machine like Psycho might look like. His diagrams were widely reproduced in conjuring manuals, the pages of

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125 Pole, “Games At Cards Played By Machinery,” 244-257.
128 See, for instance, Gaughan and Steinmeyer, The Mystery of Psycho....
129 See Appendix, fig. 29.
magicians’ journals, and general how-to books. These explanations were popular enough that Houdini, in his discussion of Robert-Houdin’s automata, mentions off-hand that they were not worked “like the famous “Psycho” ... by compressed air.”

The air-pressure mechanism is plausible as well as popular: although there were only three feet of room under the stage and very little space behind the backdrop, using the space under the stage for trapdoors and other special effects was common in Victorian theatres. Since one of Jasper Maskelyne’s family stories has his grandfather working on an apparatus underneath the Egyptian Hall stage, it is certain that at least one of Maskelyne’s illusions involved sub-stage equipment. In addition, the idea of moving an automaton through pneumatic force isolated on a glass stand had a precedent: historian of magic S. H. Sharpe credits an illusionist by the name of Decremps with the origination of a similar concept in 1784. Although not identical to the proposed workings of Psycho, the apparatus described works on a related principle and could have accomplished comparable effects. Sharpe also points out how Psycho could have worked despite decorative cloth covering of some relevant surfaces (by extension including such things as the floor-cloth of the stage that would otherwise have presented a problem): through the use of felt, which would present the appearance of a solid surface by blocking light but which would have been permeable to air. Most tellingly, Maskelyne and Clarke registered a patent in 1875 for an “Actuating Automaton Mechanism” designed “to imitate more closely than heretofore the natural movements of human and other figures.” Although some suggest that this patent could have been a red herring, purposely planted by Maskelyne and Clarke to divert the public from

130 Hoffman, Modern Magic, 536-539; Hopkins, Magic: Stage Illusions and Scientific Diversions..., 367-369; Evans, Old and the New Magic, 117-118.
131 Goldston, “Mysterious Stage Illusions,” 100.
134 Maskelyne, “Fifty Years of Magic,” 37.
135 Booth, Theatre in the Victorian Age, 76-78.
138 Ibid., 118.
139 Ibid., 119.
the true mechanism, most agree it is unlikely that they would have gone to such trouble. In any case, most conjurors try to avoid raising suspicions by calling attention to odd details; attempting to divert the audience members’ attention by publicizing an obscure means of motive power that few would have thought up on their own would have been a very odd strategy. Finally, inconspicuous communication between magician and hidden operator would not have been difficult. Many nineteenth-century “second sight” acts, in which a conjuror would borrow objects from the audience and secretly identify them to a blindfolded “psychic” assistant, employed methods with which Maskelyne almost certainly would have been familiar and which he could easily have adapted for his purpose. Even though Maskelyne did not present a “second sight” routine himself, his 1894 treatise on cheating at cards, *Sharps and Flats*, shows that he was professionally aware of many secret methods to identify cards and convey information about them to hidden confederates. If there were any further room for doubt that Psycho contained a pneumatic mechanism, it ought to be dispelled by the fact that both nineteenth-century and twentieth-century magicians successfully replicated Psycho’s act using automata powered by compressed air or bellows.

The one objection historians of technologies of illusion might raise to this solution to the Psycho problem is the question of how Maskelyne handled the apparatus in locations other than the Egyptian Hall. At his home theatre, making the arrangements to connect Psycho to pneumatic apparatus underneath the stage would have been relatively simple in that permanent preparations could be made before the show. Elsewhere, although most standard Victorian theatres had ample room beneath, above, and around the stage for the installation of various theatrical apparatuses, it must have been more difficult to make arrangements at other venues. Maskelyne is known to have made express royal performances at Sandringham, including one two days before Psycho made its debut on the Egyptian Hall stage. He also occasionally took his show on tour. It is,

142 Gaughan and Steinmeyer, *The Mystery of Psycho...*, 25.
143 Steinmeyer, *Hiding the Elephant...*, 117.
145 See Maskelyne, *Sharps and Flats*.
147 Programme from “Maskelyne & Cooke, the Royal Illusionists”.

of course, possible that Psycho did not make an appearance at these performances. But even if Maskelyne brought the little automaton with him, it is not impossible that he could have used the space under the stages at the venues at which he brought his company. Although inconvenient, it still would have been easy to drill the hole in the floorboards necessary for Psycho’s proposed pneumatic mechanism and to install the rest of the apparatus beneath the stage. In sum, there is little reason to doubt this account of Psycho’s movements.

5.6 The continuing mystery

Despite this convincing solution, there was and still is considerable confusion about Psycho’s mechanism. Even after Pole’s article was published, people still wondered how Psycho could possibly work. Lewis Carroll, the author of *Alice in Wonderland*, saw Maskelyne’s show in June 1876 and wrote in his diary that he had “no doubt” there was a “dwarf inside.”149 Another article, published contemporaneously with Pole’s, argued that Maskelyne could be powering the machine with “dark heat.”150 Others suggested variously that Psycho was controlled by electricity, magnetism, a concealed small child, and even a trained dog.151 Well into Psycho’s career, audience members showed up wanting to bring compasses152 and magnets onstage,153 which Maskelyne allowed and even encouraged—he himself offered to fumigate Psycho with chlorine gas to convince the public there was no living being inside.154 Even Maskelyne’s opponents, the Spiritualists, tried to claim Psycho for their cause, contending that they had seen the spirits moving in Psycho’s glass tube.155 On the occasion of Psycho’s 1910 reintroduction, fellow magician P. T. Selbit wrote that it was “still a scientific problem,”156 and over seventy-five years after Psycho’s first appearance, a subscriber to the journal of the Magic Circle—

149 In Wakeling, *Lewis Carroll’s Diaries…*, 468.
151 Steinneyer, *Hiding the Elephant…*, 104.
154 Ibid., 20.
presumably a magician himself—suggested that Psycho was operated by a concealed legless person!\textsuperscript{157} Even those who support the air explanation are careful not to fully endorse Vere’s diagrams, allowing only that similar mechanisms \textit{could} be used to imitate Psycho’s performance.\textsuperscript{158} Even in the face of a convincing, credible explanation, the mystery of Psycho lives on.

### 5.7 Maskelyne’s neutralization of solutions

This is in part due to Maskelyne’s ability to maintain a “scientific”, all-knowing voice of authority even in the face of glaringly contradictory evidence. Like a scientist, he addressed opposing theories directly, but unlike a (good) scientist, he used the objective language of science to dismiss allegations without actually responding to them. For instance, after Pole’s article, he wrote in his programmes: “\textit{We believe it is almost impossible to construct an android upon [Pole’s] principle, though not with the variety of moves Psycho is able to go through. Mr. Maskelyne... will shew that Dr. Pole’s clever idea does not afford a satisfactory solution to the Psycho mystery.}”\textsuperscript{159} In performance, when questioned about compressed air, he replied that he’d already answered the question elsewhere,\textsuperscript{160} and when asked by an interviewer in 1895 whether Psycho’s mechanism had been published, he responded with a firm “no” and appealed to the scientific hallmark of repeatability. If Psycho’s secret had been discovered, he argued, someone would have claimed the £2000 prize for imitating it. Since no one had, the secret was safe.\textsuperscript{161} Psycho’s two inventors were not afraid to rely on their borrowed authority to buoy up otherwise obvious lies, either. In his article on “Magic, White” in the ninth edition of the Encyclopedia Britannica, Clarke cheekily points out the existence of his and Maskelyne’s patent but very seriously informs the reader that “\textit{it is not known}” whether Psycho worked by such a mechanism or whether it applied to some other intended invention;\textsuperscript{162} later, he, Maskelyne, and co-author G. Faur later solemnly “speculate” in the eleventh edition article on “Conjuring” that Psycho’s

\begin{itemize}
\item \textsuperscript{157} Crayford, “Those members who do not take in…,” 172.
\item \textsuperscript{158} Evans, \textit{Old and the New Magic}, 117.
\item \textsuperscript{159} Quoted in Gaughan and Steinmeyer, \textit{The Mystery of Psycho…}, 31.
\item \textsuperscript{160} Middleton, “PSYCHO,” 411.
\item \textsuperscript{161} Lewis, “The Great Wizard of the West…,” 78.
\item \textsuperscript{162} Clarke, “Magic, White”.
\end{itemize}
movements indicated its actions had to be “directed from without.” The speculative, scholarly tone of these articles is obviously insincere: both Maskelyne and Clarke knew exactly how Psycho worked and could have given a detailed explanation of its inner workings. Instead, they took advantage of their authoritative stance to construct an air of frankness (albeit a playful one) while purposely concealing Psycho’s mechanism. Indeed, Maskelyne was known even among his colleagues for his poker-faced denials in the face of evidence to the contrary: in a caricature skit written by members of the Magic Circle, he reacts to another magician’s demonstration of an improved automaton by gravely offering his forgiveness and lamenting that it is not as good as Psycho. Maskelyne’s borrowed scientific authority helped him to hide his secrets from the public and cast reasonable doubt on otherwise convincing explanations.

One can see how this strategy assisted him in concealing Psycho’s secret by comparing its history to that of its most famous progenitor: Baron von Kempelen’s chess-playing Turk. Like Psycho, the Turk was famous for its supposed human intelligence and game-playing ability; like Psycho, although clearly a trick of some sort, it fired the imaginations of the public. The Turk, too, prompted pamphlets and articles offering theories (mostly incorrect) of how it worked, including one by American author Edgar Allen Poe, who compared it to Babbage’s calculating machine. However, the Turk’s creator did not present it as a scientific apparatus as Maskelyne presented Psycho; in fact, von Kempelen reportedly insisted his machine was only a “toy.” While effort was made to safeguard the Turk’s secret from the audience, its exhibitors did not seem to mind that their peers and collaborators, including the community of chess experts, knew how it functioned, and though the actual artifact was destroyed in a fire, there is general consensus today about how it worked. Because its exhibitors presented the Turk as

164 Steinmeyer, Hiding the Elephant..., 107-109.
166 Wood, Living Dolls..., 60.
167 Ibid., 57.
168 Ibid., 64-68.
170 Wood, Living Dolls..., 57.
171 Ibid., 80.
172 See, for instance, Wood, Living Dolls..., or Standage, The Turk...
showmen rather than scientists, they did not construct a social space in which their secrecy was perceived as openness, quelling their audience’s curiosity and suspicion. Although one cannot attribute Psycho’s and the Turk’s contrasting careers entirely to the manners in which their exhibitors represented themselves, it nevertheless seems possible that such differences played a role.

The great conjuror Robert-Houdin once wrote that a magician is an actor playing the part of a magician, and Psycho’s story demonstrates a corollary: an illusion is a machine playing the part of an illusion. Psycho’s mechanism, while interesting in itself, cannot be properly understood without examining what it communicated to an audience, and how that representation of itself affected its ability to achieve its function. Psycho not only played whist, it performed as a human whist player. The various contexts in which its creators both purposely and serendipitously placed it, including those of the scientific community and the Victorian experience of human bodies onstage, helped it to fix itself in Victorian minds as a thinking machine; although witnesses may not accurately report the details of its dimensions and actions, their impressions of what Psycho was are alike. More importantly, modern historians of technology can fully analyze Psycho only by examining its place within those contexts.

5.8 Maskelyne and Pepper

The case study of Maskelyne and Psycho provides an interesting contrast to that of Pepper, Direcks, and the ghost illusion. To modern sensibilities, popular science and stage conjuring are distinct categories of entertainment. They sometimes overlap—for instance, “scientific” magic tricks are a staple of children’s scientific literature and some magicians adopt scientific-sounding explanations for their illusions or weigh in on the supposedly scientific projects of

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173 Maskelyne and Devant, Our Magic, 5; Bhownagary, “Creativity of the Magician,” 31.
debunking supernatural phenomena—but it is generally accepted that the goals of practitioners of each genre differ widely. Similarly, Maskelyne and Pepper would have professed to different core objectives: Maskelyne intended to entertain, while Pepper had been hired to educate. Nevertheless, as has been demonstrated, the manner in which they interacted with technologies of illusion differed not in purpose but in degree. Both used scientific authority to emphasize important aspects of the illusion and downplay others; both incorporated narrative to engage their audience’s sympathies and help divert audiences’ attention from any shortcomings of the apparatus. Both were committed to providing improving entertainment to children and their families. And both found a convenient enemy in the Spiritualists, taking advantage of the existing public controversy and their own skeptical feelings to court audiences either by confirming spectators’ anti-Spiritualist suspicions or daring the true believers to disprove the presented claims.

Maskelyne and Pepper also shared a key ideological stance: the promotion of rationality through wonder. Although Maskelyne promised his audiences entertainment and Pepper promised his education, in practice, both were committed to the triumph of reason over superstition. As he wrote in his books for children, Pepper hoped to inspire his audiences to a life of science-minded thinking through spectacular experiments. The motivating aspect of the spectacle was not merely its entertainment value; instead, Pepper hoped to stimulate the curiosity of young minds. How could they achieve similar effects? And why did the experimental materials behave the way they did? It is clear from Pepper’s actions that he felt this could be achieved through the deliberate withholding of explanation—not only explanations of the ghost illusion, but also explanations of other illusions presented at the Polytechnic during his tenure. Certainly, he wished to keep hold of particular proprietary secrets, and he knew better than to adulterate the reaction of his audiences with immediate clarification. However, the facts that he registered the apparatus for a publicly available patent and that he and Dircks both published explanatory

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177 Pepper, The Boy’s Playbook of Science..., 1-2.
178 See Pepper, The True History of the Ghost..., 3, in which Pepper describes deciding not to reveal the mechanism of the ghost illusion to his first audience; or Pepper, The True History of the Ghost..., 46, where he suggests he will reveal the mechanism of a new illusion in some ten years’ time.
diagrams of the ghost suggest that he was not averse to the dissemination of this information in general. More likely, he encouraged the mystery of the ghost in part because he saw making his spectators wonder “how it was done” to be a step on the road to their scientific education. If they really wanted to know how the ghost illusion was accomplished, they would be forced to conduct their own research and investigation. This is not to suggest that Pepper’s interest in encouraging his audience to ponder the mystery of the ghost was entirely selfless; of course he stood to profit from repeat visitors as well as from book sales and publicity. Nevertheless, his commitment to the connection between mystery and scientific development is clear.

Similarly, Maskelyne claimed that his audience’s inability to determine Psycho’s mechanism encouraged their intellectual development. According to him, audiences were attracted to mystery because they wanted to solve it. Maskelyne’s enterprise was not explicitly an educational one; he did not suggest in his advertising or writing that audience members would attain new knowledge. Despite this, Maskelyne seems to have considered the contemplation of illusions to have an improving effect on developing minds. This, however, was possible only if audiences knew what they witnessed was an illusion. For this reason, he was willing to admire the conjuring skills of even the Davenports, but he could not tolerate that they advertised their performances on false pretences.  

The crime of the Davenports and other false mediums was not the crime of hiding their methods from their audiences but denying that such methods existed by crediting supernatural powers inscrutable through scientific methods. Both honesty and utility play a role in this dismissal: one ought not to take others’ money for services one has not provided, but one also ought not to present problems as solutions. An audience member who believes an effect has been carried about by spirits or other supernatural forces is not motivated to seek out new information about his or her world; contrariwise, one of the responsibilities of a conjuror is to make clear that his or her illusions are produced by natural means precisely because these means are open to scientific investigation. While conjurors like Maskelyne hope that the audience does not discover their methods, they are at the same dependent on its desire to do so—and their belief that this discovery is possible—for the effectiveness of their performance.

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179 Maskelyne, Modern Spiritualism..., 65.
The major differences between Pepper’s presentation of the ghost illusion and Maskelyne’s performances with Psycho were not differences in substance but differences of style. True, the ghost was illustrative of optical principles while Psycho demonstrated no clear scientific knowledge. Equally true, the Royal Polytechnic Institution and England’s Home of Mystery at Egyptian Hall were founded with different aims in mind. But practically speaking, both Psycho and Pepper’s Ghost blended education and entertainment, rationality and wonder, in a way that intrigued Victorian audiences and set clear boundaries between their presenters and epistemological rivals. Both depended on clever apparatus in addition to thoughtful presentation and cultural framing. The presenter of each saw his illusion disseminate rapidly across the English-speaking world, and each man protected his ownership of the responsible technology—Pepper through patent law and Maskelyne through promoting the value of the original over imitators. Each man also constructed a narrative around the development of the technology of illusion: Maskelyne subtly with his carefully vague story of collaboration with Clarke and his and Clarke’s subterfuge over Psycho’s origins, and Pepper deliberately in response to Dircks’s challenges. Finally, both Pepper and Maskelyne incorporated conventions of traditional narrative theatre to encourage their audiences to receive their performances in a mindset conducive to wonder and interest. Despite their professed difference in goal and the obvious differences between Psycho and the ghost illusion, a twenty-first-century observer would be hard-pressed to define exactly what distinguishes a Maskelyne from a Pepper on the Victorian London stage.

However, the third and final case study covered by this dissertation may appear at first to be a technology of a different nature. The effectiveness of the electric duel in Henry Irving’s Faust did not depend on audience interest in its mechanism; it was not the main draw of the performance in which it was featured, nor did it explicitly tie into claims about the natural and the supernatural. The manager under whose reign it was created was concerned not with scientific education or popular acclaim but with realizing a complete artistic vision. The effect itself was not sufficiently iconic for the public to memorialize in an image or phrase. Perhaps most importantly, it does not seem to belong in the same scientific world as Psycho or Pepper’s Ghost: although the performances under scrutiny in these previous two case studies make clear distinctions between rational, scientific thought and emotion, Faust was an exercise in artistic expression and literary interpretation. It awed its audiences not with patent ghosts or thinking machines but with demonic powers. In some ways, it must appear to be the opposite of its
predecessors—while they employed clever showmanship and relatively simple parts to make the case for scientific exploration, the electric duel enlisted the latest science and technology to evoke belief, however temporary and knowingly incorrect, in diabolical powers.

As the following chapter will argue, this interpretation is appealing but unsustainable upon further investigation. Despite the contextual differences between the electric duel and the other two illusions under examination, it will be evident that they share more than divides them. The technologies employed in theatrical special effects differ from those employed in conjuring shows and popular scientific demonstration in degree, not in type. Only from an examination of technologies from all three contexts can one arrive at a coherent and accurate understanding of technologies of illusion on the Victorian London stage.
Chapter 6
Irving in Comparison

One of the reasons scholars might be tempted to classify the electric duel in *Faust* as a different type of technology than technologies of illusion like Maskelyne’s Psycho and Pepper and Dircks’s ghost illusion is due to the apparent disparity of the contexts in which they were presented. While convincing epistemological and ideological similarities can be shown between the Royal Polytechnic and the Egyptian Hall, Sir Henry Irving’s Lyceum Theatre appears to be a different venue for illusion. For simplicity, this chapter will use “theatre” to refer to scripted drama performed by actors and actresses in front of an audience. Although other types of performance ought not to be excluded from the implied legitimacy afforded by the term, this dissertation limits its definition in this way for two reasons. First, it is a convenient distinction to make in order to differentiate between the environment enjoyed by Irving and those in which Maskelyne and Pepper practiced. Second, it follows the distinction originally made by British law: after the restoration of Charles II to the throne in the seventeenth century, performances of the spoken drama were limited to the holders of royal letters patent, a situation that ended with the Theatres Act of 1843\(^1\) only twenty years before the case studies discussed in this dissertation. The law applied only to scripted, spoken drama of the kind designated above; forms like opera, music-hall entertainment, and dance were unregulated.\(^2\) The distinction was still clear in the minds of the nineteenth-century theatregoing audience, since this form of entertainment was also regulated by the Theatrical Licensing Act of 1737,\(^3\) parts of which were not revoked until as recently as 1968. As demonstrated in previous chapters, even master showmen like Maskelyne stumbled when it came to integrating illusions and the theatre, and there is good reason to worry that comparing the two environments is methodologically inappropriate.

The explicitly representational conventions of the theatre are strong, and they are intuitively dissimilar to the conventions necessary for the generation of scientific knowledge. When a lecturer like Pepper produces a ghost onstage, that production is at once a demonstration of and evidence for particular optical principles that can be applied generally in the outside world; when

\(^3\) Irving, *Henry Irving: The Actor and His World*, 43.
an illusionist like Maskelyne escapes from a locked box, audience members understand that despite the physical impossibility of his apparent action, they are meant to understand that a real individual, not a character, though he may also represent one, has escaped from a real box that ought to obey the universal laws of physics. Contrariwise, when an actor like Irving stabs Claudius in the role of Hamlet, the audience draws no conclusions about real Danish princes or vengeful sons. While it gains new knowledge from the experience—perhaps psychological insight or emotional experience—it is understood that this knowledge cannot be applied generally to reality. The audience knows (and the performers know that the audience knows) that Hamlet is not a real person; that the circumstances of his actions are a pretence carefully constructed to heighten emotional effects; and that any attempt either to derive universally applicable, context-independent truths from the performance or to evaluate it based on other knowledge of this kind is ill fated. This discrepancy alone should be enough to give one pause.

However, as this chapter will show, despite the legitimacy of a number of worries about the incommensurability of the theatrical stage and that of the illusionist or scientific lecturer, historians of technologies of illusion are still able to view technologies used in any of these three environments through a unifying paradigm. It will also argue that this is particularly so in the case of Sir Henry Irving and the Lyceum Theatre under his management. Irving’s values, both artistic and epistemological, were counterparts to those of Maskelyne and Pepper. His commitments to pictorial, architectural, and psychological realism resembled the commitments of illusionists and popularisers of science to materialism and rationalism. Like them, he at the same time cultivated a loyal audience through his charismatic personality, and like them, marrying his above commitments to various realisms with the necessity of clear communication with his audience, he knew when to veer from isomorphic realism when it would have represented reality more poorly than deliberate inaccuracy. In fact, the most pertinent difference between the showmanship of Irving, Maskelyne, and Pepper was Irving’s openness about his strategy and the compromises he made to ensure he could represent reality onstage rather than re-create it. To make this point, the chapter will explore three of the reasons historians might doubt that theoretical frameworks applied to illusionists’ stages and sites of the popularization of science can be applied to the theatrical stage. It will then counter these claims with evidence collected mainly from contemporary interviews with Irving and memoirs of those who knew him personally but also gathered from modern secondary sources. Finally, it will lay the groundwork
for an investigation in general of the special effects of *Faust* and in particular of the electric duel between Faust, Mephistopheles, and Valentine.

### 6.1 Sources and related problems

First, it is necessary to review the sources that will be used in this argument. Although, as established, Maskelyne and Pepper were both notable figures in the history of their fields, any historian researching Irving is at once blessed and cursed with a glut of material. Simply put, Irving was one of the most famous public figures in the English-speaking world of his own time, and although he is no longer a household name, he still has fans over a century after his death—for instance, the Irving Society, founded in 1996, publishes its own journal dedicated to Irving and refers to its members as “Irvingites.” Historians of theatre consider Irving to be the major figure of English theatre of his time—it is not uncommon for authors to dub Victorian theatre “the age of Irving.” This means a researcher can easily encounter a number of difficulties unique to the study of Irving, apart from the ordinary problems of investigating historical performances as outlined in previous chapters.

One major problem is that Irving’s extreme popularity in his own time resulted his having a large number of one-sided relationships. Irving’s friends and acquaintances sometimes claimed a greater degree of intimacy with the famous actor than they possessed. While there is no doubt that he spent time with such individuals as Bram Stoker, Walter Pollock, Austin Brereton, and Edward Gordon Craig, and it is a fact that he had strong professional connections with them, the collective personal portraits of Irving reveal an extremely private man whose public persona did not necessarily reflect his inner thoughts. Each biographer of Irving implies that he was the one who knew the “real” man; each appears in others’ accounts as a satellite of the famous actor-manager, unaware of being held at arm’s length. Those who one might have reason to believe were better acquainted with Irving’s private character are discreetly vague or even silent: his

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4 See *The Irving Society*.  
5 See, for instance, historian George Rowell’s book, titled *Theatre in the Age of Irving*.  
leading lady Ellen Terry paints a warm but nebulous picture of her professional partner; his great friend, comedian J. L Toole offers a few affectionate anecdotes but otherwise avoids delving into Irving’s personal life; and H. J. Loveday, Irving’s loyal stage manager, did not commit memories of him to paper. Consequently, the trustworthiness of existing accounts of particular incidents of Irving’s career ranges from almost certain to debatable, especially since a number of these accounts were written years after Irving’s death, with the intervening time contributing to lapses in or embroidery on memory.

Another difficulty encountered by Irving’s researchers is the emotional commitment of many sources, both primary and secondary, to particular interpretations of the evidence. As a public figure, Irving constructed a vivid personality that he presented to his audiences and acquaintances; just as many today feel emotional connections to celebrities whom they have never met, many in Irving’s time felt themselves to have a personal relationship with the great man, as evidenced by the overwhelming applications for entrance to his funeral. Irving promulgated this impression through his generosity: not only was he generous in his payment of his fellow artists, but he was also famous for his liberal gratuities, for his financial support of fellow thespians, and for the magnanimity of the dinner parties he hosted at his theatre. The theatrical profession is a close one, and it has been noted that many elements of craft are passed down through oral history told by older performers to their younger colleagues. By this

8 See John Lawrence Toole and Joseph Hatton, Reminiscences of J. L. Toole, Vol. 1 (London: Hurst and Blackett, Limited, 1889), and Toole and Hatton, Reminiscences of J. L. Toole, Vol. 2 (London: Hurst and Blackett, Limited, 1889). Part of Toole’s reluctance to divulge more about Irving may have stemmed from the twin facts that the books were written around the peak of Irving’s career and that they were written through personal interviews with writer Joseph Hatton, not by Toole directly.
9 “Funeral of Sir Henry Irving,” The Times, October 21, 1905, 12.
10 This is one aspect of Irving’s personality about which Toole is quite clear. See Toole and Hatton, Reminiscences of J. L. Toole, Vol. 1, 177.
11 Percy Nash, “Irving As Mephistopheles,” in We Saw Him Act: A Symposium on the Art of Sir Henry Irving, edited by H. A. Sainstbury and Cecil Palmer (London: Hurst & Blackett, 1939), 264. See also, for instance, the story in Harry Plunket Greene, Charles Villiers Stanford (London: Edward Arnold & Co., 1935), 247-248, in which Irving pays his composer in guineas rather than the agreed-upon pounds (an increase in wages of 5%) and pays W. G. Wills twice for the rights to Charles I because he knows the playwright needs the money.
12 Brereton, Henry Irving, 19.
13 Richards, Henry Irving: A Victorian Actor and His World, 82.
means, in the tradition-steeped world of acting, Irving’s influence as an actor-manager is still felt, and more importantly, those who work in English-language theatre, especially in the United Kingdom, know they owe him much of their professional status. Irving’s iconic artistic and social visions of the theatre transformed the theatrical landscape. According to the mainstream historical understanding, he singlehandedly made the theatre respectable and paved the way for star actors and actresses to be accorded high social status along with their peers in other arts. For these and similar reasons, many who write on Irving both in his own time and after his death, have strong commitments to certain characterizations of his actions. Although he had vociferous contemporary critics—including Henry James and George Bernard Shaw—many of his colleagues seem to gloss over his artistic flaws or redefine them as stylistic virtues. Similarly, few of his contemporaries acknowledge the negative aspects of his personality or the harmfulness or cruelty of any of his behaviour, and even fewer modern historians join them.

For instance, in mainstream theatrical histories of Irving, few dwell on his propensity for unkind practical jokes, his authoritarian government of the Lyceum, or his inability to compromise his own goals for the needs of the people around him. While observations like these obviously do not comprise the whole or even the majority of Irving’s personality, accounts that omit them or that absolve Irving of responsibility for them do not present a complete picture of the man and his work. Similarly, both historical and modern narrators tend to be strongly committed to the image of respectability Irving constructed for himself and by extension for the theatre. It is rare, for example, to find authors willing to speculate in depth on the nature of Irving’s romantic attachments or on the textual evidence for or against possible sexual relationships he may have

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17 For instance, Irving contemporary Bebohm suggests that Irving had a “cruel” side to his nature (Around Theatres, 523); Broroton vehemently denies this (Henry Irving, 26-27), and Foulkes, Bingham, Booth, Richards, and Rowell all understandably but perhaps unfortunately avoid dwelling on this aspect of Irving’s personality.
18 See Irving, *Henry Irving: The Actor and His World*, 157; Bingham, *Henry Irving and the Victorian Theatre*, 80. Irvingite Kilgarriff points out the sometimes mean-spirited practical jokes in which Irving and his friend Toole sometimes indulged but talks himself down from outrage with the suggestion that such antics were “of the age” (“Very Like a Whale,” 1).
19 In the most dramatic example, after the opening-night success in *The Bells*, when his wife, Florence O’Callaghan, objected to his chosen career, Irving simply got out of the carriage in which they were travelling and never saw her again (Irving, *Henry Irving: The Actor and His World*, 200).
had. Although all the parties involved have been dead for over a century, perceived slights to their reputations are often felt as keenly as though they were still alive.

Finally—and this is perhaps a difficulty many historians would delight to have—there is simply such an overwhelming amount of material on Irving that it can be difficult for a researcher to achieve focus. Irving paraphernalia is spread out over a number of collections around the world; when one includes in one’s search the material pertaining to his colleagues, the number doubles or trebles. Much of the archival material, such as ephemera and correspondence, remains uncatalogued, and although many are currently working on projects to document Irving material, the task is simply tremendous. The researcher must be wary of claiming to have reviewed all the material on a given slice of Irving history, and she must resign herself to the fact that particular items or texts of interests may be unattainable—or, if they are not, it may be impossible to track down their provenance or history. This situation has been aggravated by the closure of London’s Theatre Museum in 2007 and the reclassification of its collection under the umbrella of the Victorian and Albert Museum. For example, at present, at least two important artifacts pertaining to this study are in the process of being transferred between the two museums, and there is some theatrical history material that appears to be undocumented. Similarly, while the Magic Circle museum claims to possess one of Irving’s Faust swords (and a second seems to have been spotted temporarily at a lecture given by a BBC producer—or perhaps it was the same artifact on loan?), there is no documentation other than oral history connecting the sword to Irving. In some cases, these difficulties have prevented the use of what appear by description to be pertinent pieces of evidence.

In the face of these obstacles, how can an historian interpret the existing literature and research material? This dissertation relies on the guidance of accepted canonical sources, such as Laurence Irving’s 1951 biography of his famous grandfather both to provide one key historical

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20 For example, although Ellen Terry and Henry Irving inarguably had an emotionally intimate relationship, of the historians of theatre cited in this dissertation, only Richards openly brings his speculations on the possible sexual nature of that relationship to a conclusion (Henry Irving: A Victorian Actor and His World, 41), while Kilgarriff, on the basis of personal interviews with Irving’s descendants, takes the opposite stance (“Very Like a Whale,” 5-6) and seems to deny Irving any sexual dimension after his separation from his wife.


perspective and lead to other important sources. Facts are cross-referenced where possible, both between textual sources and between textual sources and archival materials. It is understood that much of the Irving literature is coloured by its authors’ preconceptions of the famous actor and that even eyewitnesses have a propensity to misremember or misrepresent the events at which they were present. This being the case, these chapters avoid generalizing inappropriately in their conclusion and have erred on the side of deriving less from the available evidence. With these strategies in place, it is still possible to make a strong argument from ambiguous evidence.

6.2 Three methodological worries

6.2.1 Fictions of the real vs. fictions of the true

The first reason one might doubt that the theoretical approach used to discuss the technologies of illusion of Maskelyne and Pepper is also appropriate for Irving’s special effects is what appear to be contrasting standards of realism. In *Modern Enchantments: The Cultural Power of Secular Magic* (2002), Simon During distinguishes between fictions of the real and fictions of the true.²³

The former term encompasses fictions like those inherent in a conjuror’s trick. These fictions represent material reality:²⁴ when a magician goes through a cup-and-balls routine, audience members are meant to believe—even though they know the impression to be the result of deception—that the balls actually are transported through solid cups and really do disappear into thin air, in defiance of the laws of physics. Maskelyne and Pepper presented fictions of this sort. Audience members really were intended to believe that the little exotic-looking automaton was able to play whist and that the ghostly figure among the other performers was actually onstage with them. Contrariwise, theatrical special effects, including those integral to Irving’s *Faust*, seem to belong to the category of fictions of the true. In contrast to fictions of the real, During explains, fictions of the true are those more conventional fictions encountered in storytelling media.²⁵ An audience no more believes that performers in the play *Peter Pan* are actually flying than it believes that the stage set is really Neverland or that Peter and Captain Hook are real individuals who happen to be having a sword fight in the theatre. More importantly, everyone involved in the performance understands that the audience is not meant to believe in these things.

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²⁴ Ibid., 58.
²⁵ Ibid., 58.
To use the term popularized by Samuel Taylor Coleridge, it is understood that audiences approach a story with “*willing suspension of disbelief*.”\(^{26}\) The audience enters into its agreement with the performers understanding exactly how they intend to lie to it, aware of the conventions of narrative and of the medium. Audiences agree not to let this awareness interfere with their enjoyment of the story or emotional involvement with its characters while still maintaining that awareness alongside their belief in the narrative. The performers for their part understand that awareness of the limitations of the realism of the story is necessary to enjoyment of that story: an audience member who believes that one human being really has stabbed another right in front of her will enjoy a production of *Hamlet* as little as the spectator who refuses to buy into the fictional existence of Polonius. This last is the key to understanding why the needs of fictions of the real might clash with those of fictions of the true: awareness of the fiction is a key component to participating in the latter. As During points out, audiences are aware of the conventions for fictions of the true\(^ {27}\)—in fact, these fictions rely on audience complicity for their power. However, there are no analogous widely known conventions for fictions of the real.\(^ {28}\) Instead, these fictions implicitly challenge their consumers to uncover the conventions independently—that is, to distinguish what is real and what is fiction of their own initiative.\(^ {29}\) Given the conflicting or even opposite needs of each type of fiction, one might question whether a conceptual framework appropriate for technologies of illusion embedded in fictions of the real are appropriate for those embedded in fictions of the true.

### 6.2.2 Generation of knowledge in performance

Another concern one might have when applying this framework to Irving’s *Faust* is the contrasting epistemological stances embodied in the different venues. As was shown in previous chapters, Pepper’s demonstrations at the Polytechnic were intended not only as demonstrations of natural laws but also as embodiments of those laws. For Pepper and his staff, the spectacle they produced onstage did not merely guide its audience toward the generation of knowledge—it

\(^{26}\) Samuel Taylor Coleridge, *Biographia Literaria; or, Biographical Sketches of My Literary Life and Opinions* (London: 1817), 145.


\(^{28}\) Ibid., 58.

\(^{29}\) Ibid., 58.
was part of the process of knowledge generation. Similarly, although Maskelyne purposely deceived his audiences, he nevertheless claimed to be performing something of real scientific value. By presenting them with his anti-Spiritualist entertainments, he would arm his audiences against superstition with truth. Whether or not they knew exactly how the effect they were witnessing was produced, they could still be sure that it was the product of natural, not supernatural, forces. It is true that his presentation did not have this effect on all audience members, just as it is surely true that not all of Pepper’s audiences left the auditorium understanding the effects they had witnessed. Maskelyne’s performances did differ from Pepper’s in his attitude toward the relative importance of certain levels of truth and the appropriate role of the audience in the production of knowledge; while Pepper disseminated scientific knowledge by introducing his audiences to it in visual form, Maskelyne stimulated his audiences to discover it for themselves by challenging them to unravel the riddles he posed in the form of apparent defiance of the laws of physics. Regardless, both men worked to convey a particular type of information. This information described the behaviour of material objects (or persons) in the physical world; it was context-independent and universally applicable; and, while it was not necessarily quantitative, it purported to describe objectively measurable facts about a mind-independent world. Whether he conveyed that information by making it visible onstage or by challenging his audiences to uncover it for themselves, each showman underwrote his performance with this implicit understanding of what valued knowledge was.

In contrast, although it is arguable that the purpose of some theatrical performances is in part to disseminate knowledge, the types of knowledge most often associated with the dramatic theatre do not meet these criteria, and they are disseminated through alternate methods. There are exceptions: some narrative plays are explicitly educational, offering descriptive knowledge of particular subjects, and propositions of descriptive knowledge might be included in a play otherwise not intended to be instructive—for instance, an audience member watching a scene of a character learning he has contracted an illness might from the conversation between the character and his doctor learn some facts about the illness in question. However, neither of these can be said to be the primary means of knowledge conveyance in the theatre. In general, the knowledge conveyed by the theatre—particularly by the narrative theatre of the Victorian age—

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30 Maskelyne, *Modern Spiritualism*..., 162.
is experiential rather than propositional and normative rather than descriptive. In the first case, this means that theatrically distributed knowledge tends to be conveyed not through mere sensory engagement with the performance (for example, seeing a visual demonstration or hearing a lecturer speak about a topic) but emotional engagement with the character represented by the performer. The primary way in which performers intend their audiences to interact with a play, particularly in the Victorian age of earnest melodrama, is through empathy for the characters. By identifying emotionally and intellectually with one or more of the characters in the play, audiences join him or her on the journey of the narrative. To some extent, they learn what it is like to be him or her during the events of the story presented to them. This effect is so pervasive and such an integral part of traditional theatre that decades after Irving, it took deliberate effort (the Verfremdungseffekt or “making strange” effect popularised by Bertolt Brecht in the 1930s)\(^{31}\) to produce performances discouraging it. The knowledge gained through such an activity is normative, not descriptive, in the sense that it does not provide propositional knowledge that can be tested through observation of the world. Instead, traditional drama provides audiences with a paradigm of possibilities through which they can structure their own lives. An audience watching *Hamlet* does not learn what to do if one’s father’s ghost instructs one to kill one’s uncle, just *Oedipus Rex* does not instruct one on what to do if one encounters a stranger on the road. These plays do not even instruct on generalities such as how to cope with confusion over one’s obligations or how to investigate an ancient crime. Instead, they provide audiences with frameworks of significance—lenses through which to view their own lives and assign value to concepts, actions, and beliefs. *Hamlet* offers audiences willing to collaborate with the performers a certain ontological and value-laden structure with which to compare their own experiences and determine their meaning. One might not think, “When Hamlet delayed, tragedy struck; therefore too much deliberation is wrong,” or even “Am I behaving like Laertes or Hamlet in this situation?” but one might inform one’s actions with tacitly absorbed understandings of what constitutes the difference between action and inaction, amalgamated with similar understandings gained from other narratives. It is easy to see the difference between this kind of knowledge and the kinds of knowledge contained in performances like those of Pepper

and Maskelyne. What is not clear is whether the approach toward technologies of illusion tempered in the latter two cases can be applied to technologies of illusion presented in the former.

### 6.2.3 Audience demographics

Finally, given the emphasis this dissertation has placed on the importance of the expectation and background of the audience when seeking to understand the effectiveness of illusions, a researcher would be remiss not to wonder first whether the audiences of the Lyceum were significantly different from those of the Polytechnic and the Egyptian Hall and second, whether those differences must inform an investigator’s theoretical standpoint. The differences between the kinds of fiction on offer at the two types of venue and the kinds of knowledge valued at each are made clear above; what is not clear is whether these differences affected the demographics of audience members and their beliefs about what would occur in those venues. At first glance, it seems simple: audiences came to performances by each of the three men under study to be entertained, to learn, and to participate in public social life. They might have wanted different balances of these three things in different environments, and goals might have varied between particular audience members or between the same audience member at different times, but ultimately the similarities outweigh the differences. However, the question of whether there were any real differences between Lyceum audiences and audiences at the Egyptian Hall or the Polytechnic is an important one. A different balance of priorities might significantly affect the way in which an audience interacts with technologies of illusions and necessitate a new approach to study their effects. If the success of an illusion depends on the mindset of its audience, then understanding that mindset is critical. An illusion for an audience with a significantly different mindset than that of audiences at other venues would have to be explained differently, and an approach constructed with the assumption of audiences of one type might founder in the face of audiences of another.

It is clear that there is a grain of truth in each of these worries: the environment of a theatrical production is inherently different from those of other types of productions. The question is, is it sufficiently different to warrant a theoretical overhaul, or can the same conceptual framework be applied despite the differences? An examination of Victorian theatre in general and the Lyceum under Irving in particular shows that it is this latter scenario that is the case. While there are
differences between the dramatic theatre and the magician’s or lecturer’s stage, these differences are not theoretically insurmountable.

6.3 Realism on the Victorian Stage

While no one would deny that the dramatic theatre focuses on fictions of the true to a greater extent than it does fictions of the real, it is important to note that the pictorial realism of Victorian theatre was a representational style that moved more closely to fictions of the real than other styles had before. At the beginning of the nineteenth century, English theatre was more presentational: audiences were called upon to imagine elements of the set or to identify location from conventional wing-flats that slid in grooves on the sides of the stage;\textsuperscript{32} actors drew from established gestures representing emotion;\textsuperscript{33} and classical tragedies involved larger-than-life characters in extraordinary situations. The nineteenth-century theatre saw a move toward realism in set design and other material aspects of production,\textsuperscript{34} psychological verisimilitude in performance,\textsuperscript{35} and the development of domestic-scale dramas that reflected life in contemporary society.\textsuperscript{36} The more presentational wings-and-borders system began to fall out of favour, sharing the stage with the box set.\textsuperscript{37} In the former style, locations were represented by painted flats that stood in parallel rows on either side of the stage, creating an effect of narrowing down to the painted backdrop at the rear of the stage. In contrast, a box set comprised three actual walls—one upstage, one stage right, and one stage left—that enclosed the acting area to represent an indoor setting. Although in today’s climate of hyper-realistic cinema and wildly experimental theatre it is easy to take for granted functional, three-dimensional set pieces and props,\textsuperscript{38} it is important to remember that these were not always conventional. While it would be inaccurate to represent the Victorian stage as a locus of total and instant theatrical change, the new understandings of stagecraft that began to crop up during the Victorian era hint at a shift in understandings of the

\textsuperscript{32} Booth, \textit{Theatre in the Victorian Age}, 74.
\textsuperscript{33} Booth, \textit{Theatre in the Victorian Age}, 120.
\textsuperscript{34} Ibid., 95-97.
\textsuperscript{35} Ibid., 132-133.
\textsuperscript{36} Ibid., 120-121, 132-133.
\textsuperscript{37} Ibid., 75.
\textsuperscript{38} Which is not to say the use of painted flats has been completely abandoned—consider, for instance, the matte paintings used for background images in television and film production.
stage. Similarly, because today acting is often popularly seen as the epitome of personal creative expression, it can be difficult to remember that in the large theatres of eighteenth-century Britain, acting was a prescribed series of presentational poses, and through the nineteenth century, traditional lines of stage business were handed down with particular scripts.\(^{39}\) Again, although the change was neither wholesale nor sudden, the Victorian era can be identified as the beginning of the movement toward concern with characters’ psychological realism.\(^{40}\) Finally, the Western theatrical tradition, stemming from the theatre of ancient Greece, has always focussed on tragedy or comedy: the trials and antics of larger-than-life figures in romanticized plots. While the Victorian melodrama can be seen as a continuation of this tradition, it is important to note that the nineteenth century also saw the rise of so-called drawing-room comedies and dramas.\(^{41}\) These plays focussed more closely on the daily lives of their characters, emphasizing the smaller joys and sorrows of ordinary lives. While it is true that Irving was an actor-manager of the melodramatic camp, the change is nevertheless important as a sign of change in the overall way theatrical professionals could begin to think of the stage: as a mirror held not just to nature but to real people’s daily experiences of nature. An examination of Irving’s work shows his commitment to many of these new theatrical principles.

Irving’s pursuit of psychological realism in his portrayals of the characters he played can be seen as his dedication to certain fictions of the real. In his own time and in the eyes of historians, Irving was acknowledged to have several physical traits disadvantageous to actors: he was tall and gawky; he moved awkwardly; his voice was not powerful; and his pronunciation was strange.\(^{42}\) But even his critics acknowledged that he overcame these obstacles to mesmerize his audience through force of personality and passion. The art of acting has long had as its central debate the question of whether a performer ought to seek to physically emulate emotional states of the characters she portrays, or whether her goal ought to be to faithfully reproduce that character’s mindset.\(^{43}\) In other words, should an actor portraying a happy character perfect his

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\(^{39}\) Booth, *Theatre in the Victorian Age*, 127.

\(^{40}\) Ibid., 137.


smile, or should he try to reproduce in himself the happiness his character feels? Although of course in practice no performer purposely takes one of these approaches in complete disregard of the other, Irving made it clear that he believed the second afforded greater realism. When the French comedian Coquelin criticized Irving’s style, rebuking Irving for showing true emotion and not focussing on the physicality of his characters, Irving replied that actors ought to strive to cultivate real emotion in themselves. Believing that no actor can erase his own thoughts to completely inhabit a character, Irving argues that actors ought to use their own understanding of the character’s psychology to cultivate real emotions on their behalf. This, he maintains, is why actors ought to value originality, because tradition can lead one to perform certain parts in ways that out of familiarity no longer move an audience, whereas real emotion is one of the best tools with which to engage an audience.

One can see Irving’s dedication to psychological realism in his original interpretations of many famous characters. For instance, Irving was one of the first to portray Shylock in Shakespeare’s The Merchant of Venice as a sympathetic character. His Shylock was a mistreated social outcast devastated by the desertion of his only daughter not because Irving wished to convey any political messages about anti-Semitism or bigotry, but because he was inspired by a chance meeting to explore what it was like to be a man in Shylock’s position. Irving brought this same desire to be faithful to the circumstances and psychology of a character to each role he played. His Hamlet and his Macbeth were both meticulous character studies, original interpretations of characters ordinarily played another way. He insisted on the truthfulness of his performance despite adverse reviews from critics. Irving was even known to pursue the psychological verisimilitude of a character at the expense of the production. It is acknowledged that his serious portrayal of Malvolio in Twelfth Night hamstrung the comedy of the play; audiences had trouble laughing at an ending that asked them to feel the ridicule and shame heaped upon the over-reaching steward. Irving did not restrict this psychological strictness to the characters of

45 Ibid., 103.
46 Ibid., 101.
47 Brereton, The Lyceum and Henry Irving, 224.
Shakespeare, who, after all, had been developed by generations of actors over the centuries. His best known role, the murderous burgomaster Mathias in *The Bells*, was played by the elder Coquelin around the same time; however, Coquelin emphasized the rough comedy of the character while Irving drew in audiences with his portrayal of a man torn apart by guilt.\(^{50}\)

Even Irving’s methods of preparation demonstrate his conceptualization of a character as a real individual with a personality about which things could be objectively known, if one looks carefully enough. Just as the scientist studies nature through close observation of natural phenomena, Irving studied texts; for him, the script was evidence of a character’s true personality. As he told the Philosophical Institution of Edinburgh in a lecture, the performer’s responsibility was to reproduce the ideas of the author onstage.\(^{51}\) This can be seen in his insistence on restoring abridged and altered Shakespearean texts that had been performed in their rewritten forms for decades.\(^{52}\) Before playing a role, Irving immersed himself in the world of his character. On the large scale, this often meant travelling to visit that character’s native environment; for instance, an encounter with a real Jewish man in Venice inspired his portrayal of Shylock,\(^{53}\) and when it came time to prepare for *Faust*, he took a trip to Germany.\(^{54}\) Irving’s business manager Stoker describes Irving’s method of character construction as “scientific”:\(^{55}\) he compares the great actor to great naturalists like Cuvier. Just as these men of science are able to apply logical laws to their empirical observations of fossils and re-construct long-dead elements of the natural world, Irving is able to apply similarly logical laws to empirical observations of others and re-construct otherwise hidden human personalities.\(^{56}\)

This also took the form of smaller touches like arranging for accurate costumes, props, and make-up. Even in his provincial touring days, before he became famous as a star of the London

\(^{50}\) Brereton, *The Lyceum and Henry Irving*, 177.


stage, critics complimented Irving for the care he took in his characters’ appearance.\(^{57}\) In those days, actors and actresses were responsible for their own props, costumes, accessories, and make-up,\(^{58}\) and Irving’s was routinely meticulous in every detail.\(^{59}\) Although Irving could easily have adopted the more slipshod criteria of his fellow touring performers, he chose to focus on the details, suggesting he saw small points like this as key to the art of acting. For the best results, he maintained, all the physical details—including set and costume but also less concrete aspects such as the performer’s physical bearing—ought to be appropriate to the character and the time.\(^{60}\) Similarly, after his rise to fame at the Lyceum, he continued to use period props and costume pieces whenever possible,\(^{61}\) and actors and actresses who worked under him at rehearsal recall how he had an exact concept of how each line should be said and each gesture should be played.\(^{62}\) That precision and control were important to Irving is evident from the size of the Lyceum staff. At its prime, during major productions, Irving’s company likely boasted up to 30 scene painters;\(^{63}\) although costumes were generally produced by an external costumier, Irving was so concerned with detail that he was known to have an additional costume staff of up to 40 persons, with up to half of those being commissioned to make archeologically authentic props.\(^{64}\) Obviously, although Irving traded in fictions of the true, he valued a high degree of faithfulness to reality.

To be clear, this is not to argue that Irving embraced a naive understanding of recreating every aspect of reality through one-to-one mimicry onstage. Irving understood his art, and he was able to marry accuracy with artistry to best evoke the desired responses in his audiences. Irving put the ability to move an audience first and foremost, and for this he was ready to sacrifice any amount of realistic detail. Apart from his reputation for acting, he had a strong sense of the visual impact of the stage pictures he facilitated; no aspect of production, from set design to music to

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\(^{59}\) Bingham, *Henry Irving and the Victorian Theatre*, 34.


\(^{61}\) Performers were even expected to wear period undergarments—see Edward Gordon Craig, *Ellen Terry and Her Secret Self* (London: Sampson Low, Marston & Co., Ltd., [1932]), 103.


\(^{64}\) Ibid.
lighting, escaped his attention, and there are recorded cases of him refusing what seem to be fictions of the real for the sake of the plausibility of the fictions of the true. For example, in his production of *The Corsican Brothers*, a melodrama in which the spirit of a deceased man appears to his living twin brother, despite offers of more realistic ghost apparatus from conjurors, Irving preferred the traditional method: raising an actor through the stage as he moved laterally on a special apparatus known as a Corsican trap. At the time, this specific effect was well known and associated with the play (for which it had been developed, as its name suggests); Irving’s choice to use it rather than have a more insubstantial ghost shows that he had an eye to what his audiences would expect as well as the best approximation of the situations of the characters. In one interview, Irving even stated to the *Pall Mall Gazette*, “I would prefer beautiful anachronism to an ugly reproduction of an original costume.” Irving’s priority was always the evocation of a particular emotional response from his audience, and he used all the tools at his disposal to accomplish this.

However, just because Irving did not devote himself entirely to fictions of the real does not mean he did not devote himself to them at all. As shown above, his understanding of his performance style had room for both kinds of fictions. First, the fact that he felt he had to respond to accusations of archaeological faithfulness over artistic integrity speaks volumes on the public’s perception of his work. As will be further demonstrated in the following chapter, audiences appreciated the verisimilitude of Irving’s elaborate sets; more to the point, they took for granted that the details they observed, such as architectural intricacies or small articles of costume, were realistic representations of the fictional reality inhabited by the characters, which in turn resembled the real locations in which the story was set to the greatest possible degree. Irving was an adherent of the Victorian trend of archaeological realism, the movement to reproduce physical elements of particular times and places as historically faithfully as possible. Until the nineteenth century, theatrical costuming was more a matter of convention than of accuracy; performers tended to wear the costume of their own period and location, adjusted to convey the personality and analogous contemporary social status rather than the background of the character they

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67 “Re-Opening of the Lyceum Theatre: An Interview With Mr. Henry Irving,” 2.
played. In Irving’s time, audiences and artists alike began to appreciate historical accuracy in background detail—for the first time, for example, an actor-manager producing *Romeo and Juliet* might inquire into Italian history and customs. More to the point, this practice was not merely an exercise in research: instead, at least for Irving, it was the key to establishing the kind of realism that mattered.

Irving knew he was not convincing his audiences that they really were in Venice, Verona, or the Brocken; he knew that they knew that he was not really Shylock, Romeo, or Mephistopheles. But he did believe it was possible to convince his audiences that they really were witnessing the emotions of a Shylock—anger, vengefulness, pain—and that the mere knowledge of the necessary artificiality of the setting did not and should not prevent audiences or the performers from expecting that every detail be as close to reality as possible. The purpose of this was not just to dazzle—instead, Irving saw archaeological accuracy as an important step in cultivating real psychological states in performers that in turn evoked emotion in the audiences who watched them act. While it is true that Irving often explicitly considered his stagecraft in terms of the visual impression it would leave on the audience—for instance, his use of light and colour to heighten the impact of certain scenes was well known—it is also clear that all that he did did with the ultimate goal of conveying characters’ emotions to the audience. The setting, he understood, should be the frame to the drama, not its main attraction. In the same *Pall Mall Gazette* interview, he elaborated, “The finest upholstery will not run a piece for a week. It is the acting and the acting alone which enables a piece to occupy the boards.”

In other words, the elaborate scenery, costumes, and props were not valuable in and of themselves but rather had value in that they enriched the production through their power to enhance the realism of the acting in the minds of both performers and audience. From the previous chapters, it should be no surprise that a showman as gifted as Irving understood the importance of context in the framing of meaning within a narrative. For him, realistic detail—detail that many in his audiences would have been too far away to appreciate or with which many would have been personally unfamiliar—was a key element in the production of emotion, on and off stage.

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68 See, for instance, the comment of the chairman recorded in Fitzgerald, “On Scenic Illusion and Stage Appliances,” 465, who notes that famous actor David Garrick played Macbeth dressed in the military costume of his the eighteenth century, not in that of Macbeth’s time.


70 “Re-Opening of the Lyceum Theatre: An Interview With Mr. Henry Irving,” 2.
So, while Irving’s productions did not have the same relationship to fictions of the real as did those of Maskelyne and Pepper, it would be a mistake to conclude either that he had no interest in them or that conceptual frameworks developed for them do not apply. Perhaps following the lead of the poet John Keats, Irving confidently proclaimed truth to be part of beauty. By this, he meant not that the most aesthetically pleasing option is always objectively correct but that the supposed distinction between During’s fictions of the real and fictions of truth is itself an illusion. The truth of a performance—be it conjuring trick, scientific lecture, or theatrical piece—exists only in the minds of its audience and its performers. It is the aesthetic quality of a performance that touches the hearts and minds of those who witness it. In this, there is little difference between the fiction that a saltshaker has passed through a solid wooden table and the fiction that on the stage is a man named Hamlet who has just learned his father was murdered. In neither case is the goal of the performer to secure naive belief from his or her audience. The goal is instead to produce visceral emotion—wonder, grief, excitement—and provide grist for intellectual contemplation. Seen in this light, just because the emotions are different in different genres of performance does not mean a conceptual framework for one cannot be applied to the other, provided one takes this difference in goal into account.

6.4 Artificiality as key to conveying knowledge

The second objection, that theatrical performances create a different epistemological environment from the performances of illusionists or conjurors, seems more difficult to address. In this case, the difference seems undeniable: although Irving maintained that theatre was educational, intellectually stimulating and an introducer of novel ideas and viewpoints, he acknowledged that it had no single purpose. Instead, a theatre artist ought to be content with changing some mind, somewhere, for the better. This is certainly a vaguer goal than that of Maskelyne or Pepper, who, recall, advocated for the dissemination of rational anti-Spiritualism and scientific knowledge, respectively. If Irving had a specific kind of improving knowledge in

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mind, it was knowledge of the perspectives of others—again, non-propositional, experiential knowledge.

Although this knowledge was a different type of knowledge, the way in which Irving intended audiences to acquire it was roughly the same as the way in which Pepper and Maskelyne hoped audiences would learn what they had on offer. For Pepper, the visual experience of observing an onstage experiment conveyed objective knowledge of natural laws; for Maskelyne, the same kind of visual experience called into question the trustworthiness of vision and therefore stimulated the intellect on the true qualities of natural law. Irving, too, identified the knowledge he wished his audiences to perceive with visual stimuli. Like Pepper, he believed that what the audience saw was the knowledge itself: the physicality of the characters he played and the reality of the environment around them. When an audience saw Irving performing as Mephistopheles, it was encouraged to identify the striking figure onstage with the diabolical concept of his character that Irving had in mind. By empirical observation, audience members could translate the movement, expression, tone of voice, speech, and action of the characters into mindsets. Just like would-be scientific hobbyists, audience members were purposely being asked to take in data and interpret it based on a pre-existing set of rules and conventions to arrive at a universal concept not physically present onstage. If Pepper’s experiments asked audiences to journey toward abstract optical principles from specific, artificially isolated instances of their action, so too Irving’s asked them to make conclusions about a similarly abstract principle—the human psyche—based on specific, artificially isolated instances of theirs. Whereas Pepper believed himself to be presenting the principles he sought to convey directly to his audience, Irving, like Maskelyne, employed deliberate deception to aid the audience’s experience.

A key part of the transfer of knowledge attempted by both Irving and Maskelyne was the drawing of the audience’s attention to the fact that their performances were deceptive. For Maskelyne, this assurance of deception primed the audience for curiosity: he counted on the contrast between what their senses told them was happening and what their minds knew to be the case to prompt their attempt to reconcile sensory and theoretical input. In the case of Irving, this overt deception—the known fictionality that permits the willing suspension of disbelief—

72 Ibid., 679.
allowed audiences to more clearly perceive the intended information. Because Irving was conveying knowledge about a subject that can itself have intentional states, the human mind, and because knowledge of the status of those intentional states can influence an audience’s interpretation of its observations, the audience’s knowledge that the artist’s intention is to clearly represent mental states despite not necessarily achieving them is paradoxically key to its belief in and perception of those states. Such knowledge helps an observer remove the “noise” from the “signal”; audience members know they must learn from the mental state of the character, not the performer, and a strong delineation of the difference helps them to distinguish for any given response which of the two they are observing.

More importantly, this knowledge of artificiality underlies all three of the epistemological environments under consideration. It was the very artificiality of Pepper’s stage that was considered to allow his audiences to perceive the scientific truths of nature: by stripping away each principle to its key concepts in highly artificial circumstances, Pepper could guarantee that his results displayed that particular principle and no other. If an audience cannot be assured that an experiment has been carefully constructed, that there are no unacknowledged variables or uncontrolled external influences, it will not draw the conclusions its lecturer hopes to convey. Similarly, the artificiality of the illusionist’s stage allows audiences to knowingly focus on the crucial elements of the illusion and assign them meaning that would not be evident in everyday scenarios. To return to the example of the vanishing saltshaker, such an incident would not be remarkable if not represented from the beginning as a “trick”; each of us has experience every day with accidentally dropping or misplacing even relatively large objects, and a situation in which one might do so is of interest only when its audience understands that the performer is either purporting to exhibit supernatural powers or implicitly defying spectators to understand how the effect is accomplished. The deliberate deception of theatrical performances has an epistemological role analogous to the roles it plays in popular science lectures and conjuring performances.

So, the difference between the presentation of propositional knowledge by Pepper and Maskelyne and experiential knowledge by Irving is not one of kind but of degree. For this reason, although the methodology applied to Pepper’s and Maskelyne’s technologies of illusion can still be applied to the case of Irving’s electric duel, the specific approach must be changed. While the combination of overt deception, illusion, and effect exists in all three, the exact
balance of each element with the others changes, and this must be taken into account by the researcher. The willing suspension of disbelief that is crucial to narrative theatre also plays a role in conjuring and popular science; perhaps the pertinent difference in the case of the former is the audience’s awareness that it is engaging in this suspension of disbelief and its explicit understanding that such an activity is necessary for enjoyment of the performance. Exploration of the technologies of illusion used on the dramatic stage in this context can shed light on the connections between these various genres of performance.

6.5 Coping with differences in audience composition

Similarly, to cope with the third difficulty, that of different audience expectations, rather than view any differences as insurmountable obstacles, it is necessary instead to reconstruct the unique perspective of those who came to watch Faust. It is true that there are many more factors that make this difficult: first, the shows at the Lyceum were significantly more popular than those at the Royal Polytechnic and the Egyptian Hall, and they reached a broader swathe of society. Not only did Irving and his company tour Faust around the United Kingdom, they also brought it to the United States and Canada. The popularity also poses a problem for identifying the audience of Faust in that media saturation for the show in the form of reviews, letters to the editor, articles, and advertisements was significantly higher for a significantly longer time. The attitude of the media toward a performance helps to shape an audience’s attitude toward that performance, and there were so many different sources from which an individual audience member might learn about Faust, including ephemeral sources like word-of-mouth and impressions of Irving’s previous productions, that reconstructing the atmosphere surrounding Faust can be an insurmountable task. The second major difficulty of audience composition in maintaining a uniform methodology across all three case studies is the intended age range of the audience; while the Royal Polytechnic Institution and the Egyptian Hall were understood to be locations appropriate for the entertainment of children, Faust seems to have been considered adult entertainment, not in the twenty-first-century sense implying overt sexuality or violence but in the sense that its subject matter was considered to be of a level more suited to the mature intellect and emotional range. Finally, a researcher must take into account the social import of

73 Booth, Victorian Spectacular Theatre 1850-1910, 123.
attending a show at the Lyceum, and how different this import was from that of attending a conjuring show or a scientific lecture. While Pepper boasted of the status of his ghost by recounting the reactions of famous scientists like Michael Faraday and Maskelyne was pleased to build a reputation by distancing himself from unsavoury public figures like the Davenports and Home, Irving linked the Lyceum to politicians, renowned artists, and other men and women of high esteem. While none of these three factors is enough to disqualify Faust from the same ideological framework used to examine Psycho and the ghost illusion, each must be dealt with carefully to ensure consistency.

The chief factor one must take into account when attempting to compare the audiences of Faust, Psycho, and Pepper’s Ghost is the definite gap in age. While the Egyptian Hall and the Royal Polytechnic both served adults, a significant portion of their audiences were children. Although courses at the Polytechnic were designed for working-class adults, most of the exhibits and lectures were advertised with a younger audience in mind, and the frequency with which personal accounts either reminisce on childhood visits or recount the parallel reactions of a young companion suggests that the appeal skewed—or was perceived to skew—younger. Similarly, although the audience for Maskelyne’s Psycho and his other anti-Spiritualist illusions was mainly adult, as supported by the contemporary accounts from mature reviewers and the references to adult games like whist and adult affairs like Spiritualism, “England’s Home of Mystery” was also considered to be an appropriate venue for children. Maskelyne ran matinées as well as evening performances every day, and it seems that adults took for granted that the show would appeal to children. Contrariwise, while reviewers covered many different aspects of production—from the physical construction of the theatre to the apparatus behind the special effects and from Irving’s perception of the play’s success to literary discussions of whether

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74 Recall, for instance, the deliberate attempt of the Christmas programme to attract young visitors with free gifts (“Programme,” Royal Polytechnic Institution Limited, Christmas 1861) and adults’ accounts of childhood visits (for instance, “Playing With Lightning”).
75 Jenness, Maskelyne and Cooke Egyptian Hall, London, 1873-1904, 13; see also Programme from “Maskelyne & Cooke, the Royal Illusionists”.
76 See, for instance, Nesbit, The Railway Children, 1.
77 “Lyceum Theatre,” The Building News 49, no. 1601 (September 11, 1885).
78 “Theatrical Mechanism at the Lyceum Theatre,” The Engineer, April 2, 1886, 260.
79 “Re-Opening of the Lyceum Theatre: An Interview With Mr. Henry Irving”.

he could do justice to Goethe—none suggests children as an audience for the show. Of the many congratulatory letters Irving received from audience members, most if not all appear to be from adults who wish to discuss the artistic and literary merits of the production.

This demographic difference is important in the analysis of the technologies of illusion used in Faust for two reasons. First, it gives the researcher better tools to reconstruct the expectations of the audience upon entering the theatre. Most adults who attended the show would have been familiar with the Faust legend and, if not familiar with Goethe’s Faust, would at least have felt any lack of familiarity to be their own ignorance, and not a problem with the presentation of Irving and his colleagues. It also shows that the audience expected a nuanced performance evoking difficult emotions, presenting troubling scenarios, and posing intellectual challenges. But second and most importantly, Faust’s target of adult audiences reminds the researcher to overturn the assumptions that proved fruitful in the cases of Maskelyne and Pepper. Both these performers addressed audiences who, though they might be their social equal, were not their epistemological equals. The flow of knowledge was assumed to be unidirectional: information moved from stage to stalls. That this was not entirely the case, we have seen in previous chapters; however, this assumption on the part of the performers sheds light on how they may have chosen to present their acts. That Irving could assume his audience would share his education and cultural experience (or even, in some cases, that they would exceed it, given his own humble beginnings as the son of travelling salesman and his childhood years spent in the country) suggests he had to apply a different method. Rather than approach his audience as a schoolmaster, setting challenges and giving lectures, he had to approach them as equals, relying on something other than the authority of age and social position. From existing accounts, Irving’s chief resources were charisma, dedication, and intellect, which will be discussed further in the following chapter. In any case, it is obvious from the audience composition that Irving’s individual strategies of relating to his audiences must be taken into account when examining the technologies of illusion he used.

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81 See Henry Irving Correspondence.
82 Irving, Henry Irving: The Actor and His World, 31-33.
Another aspect of his audiences that suggests Irving had to employ different methods than those of Maskelyne or Pepper is their relative stature. Historians and critics have suggested that Irving was very aware of the consequences of cultivating relationships with particular public figures; since one of his chief goals was the restoration of theatre as a sister art equal to her more accepted counterparts like painting, music, sculpture, and literature and the promotion of the stage as a respectable venue for artistic enlightenment. He therefore chose his alliances with care. This can be seen not only in the elite audience members he attracted but also in his treatment of them and in the tone of correspondence between him and his audiences. One of his most famous devotees was the Liberal politician and later Prime Minister William Ewart Gladstone, who enjoyed special onstage seats at the Lyceum and was even permitted to make a cameo appearance during one performance of The Corsican Brothers.  

It has been suggested that Irving was closer in ideology to Gladstone’s political opponent Benjamin Disraeli but cultivated his public relationship with Gladstone instead to facilitate the construction of a suitable image of theatre in the minds of the public.  

Other public figures Irving brought to the Lyceum include the famous composer Franz Liszt, who attended a performance of Faust, and famous foreign actors and actresses, including Sarah Bernhardt and Célestine Galli-Marié. While Maskelyne and Pepper framed the public figures who attended their performances as patrons, Irving interacted with his in a way that suggested a relationship more social than business. Under his management, a complimentary seat at a Lyceum opening night was akin to having high status in social court, and at banquets and invited dinners, he dined with hundreds of the luminaries of theatre and popular life. The existing written correspondence between Irving and the members of his audience further suggests a different kind of relationship with them than either Maskelyne or Pepper had with theirs. Irving’s audience members, both prestigious and ordinary, wrote him
in a familiar tone. They thank him personally for securing them tickets, or compliment him or argue with him on aspects of production, design, performance, and concept, and integrate him into their social world through the mention of mutual acquaintances. Many of those surrounding Irving report that he had the gift of forging quick friendships with those he met. It is evident from the interaction he had with the public—be they candid letters from famous intellectuals, personal congratulations from the Prime Minister, a whispered word from the Queen during knighthood, or simply the thousands who felt personally bereft on his many departures from England to tour overseas and finally after his death, that audience members felt they had a personal relationship with Irving. The fact that many of these audience members were higher class themselves suggests that researchers ought to consider alternate explanations for Irving’s authority rather than rely on the models that proved useful for Pepper and Maskelyne.

Finally, the diversity of public acknowledgments, criticisms, and praise of Irving’s *Faust* cautions researchers to be aware of the idiosyncratic nature of theatre’s effect on audience members. Those who bought tickets for *Faust* might have any number of reasons for coming to see the play: historian of theatre Michael Booth notes that in the different seating sections of the Lyceum, one might find the elite, middle- and working-class patrons, university students, and even clergy and provincial visitors. Each of these segments of society not only attended for different reasons but was exposed to different periodicals and reviews. Further, each might choose to take into account particular reviews based on their own pre-existing beliefs and stances. The historian has two methods of attack: first, to note the motivations and experiences all these people had in common. They all wanted to see *Faust*; they all surely expected to be entertained in some measure; and they all expected the production to resemble in some respects

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90 See, for example, Clarice Sinico, letter to Henry Irving, May 10, 1888; G. Barnett Smith, letter to Henry Irving, March 31, 1886; Mary Woolgar Mellon, letter to Henry Irving, May 18, 1887.
91 See, for example, Fred Maccabe, letter to Henry Irving, April 19, 1886; E. J. Broadfield, letter to Henry Irving, June 16, 1886; J. Ashby Sterry, letter to Henry Irving, May 22, 1886; John Gilbert, letter to Henry Irving, November 7, 1887; J. Raymon, letter to Henry Irving, [n. date].
92 See, for example, Julian Sturgis, letter to Henry Irving, December 30, 18--; Mueller, letter to Henry Irving.
93 See, for example, Gertrude Tennant, letter to Henry Irving, June 3, 1886; Julie Pollock, letter to Henry Irving, [1885].
94 See, for example, Mueller, letter to Henry Irving.
95 See, for example, W. E. Gladstone, letter to Henry Irving, April 11, 1886.
96 According to Stoker, Queen Victoria told Irving, “I am very, very pleased” as he was being knighted—a great honour (*Personal Reminiscences of Henry Irving*, Vol. 2, 240).
previous Lyceum productions. However, the historian must also integrate a second methodology and take care to evaluate individual responses and reviews as singular cases rather than making unwarranted assumptions that one instance of a particular opinion is indicative of its ubiquity. When studying technologies of illusion, it is also important to evaluate the performers’ understanding of their audience and how that might have shaped their choices in the construction and presentation of the illusion. While the diverse audience at the Lyceum does pose problems, a careful researcher should be able to draw meaningful conclusions from the available data.

The singularity of Irving and the Lyceum and the unique and popular status of *Faust* pose some problems for the historian, and they pose particular problems for the historian of technologies of illusion. However, as shown above, meticulous methodology and careful elaboration of key terms make it possible to discuss technologies of illusion on the dramatic stage in a way comparable to technologies of illusion on the conjuror’s stage or beside the podium of the popular-science lecturer. Although the theatre is in many ways a unique environment for deception and the conveyance of knowledge, understanding its methods and practices, especially those particular to nineteenth-century London, alleviates many of the difficulties and shows conceptual roadblocks to be artifacts of a simple way of classifying representation and knowledge production. The following chapter will move from general discussion of Irving and the Lyceum within the context of nineteenth-century theatre to discussion of the specific production of *Faust*. The concepts outlined in this chapter will be applied to demonstrate the nature of the production’s special effects and to draw comparisons between those effects and the other two case studies previously examined in this dissertation.
Chapter 7
The Electric Duel

As the previous chapters have demonstrated, it is not always obvious how to evaluate a technology of illusion, and it is nearly always unwise to assume that a presenter’s sole goal is to baffle or amaze. Conjurers may seek to educate; lecturers may hope to establish authority; and presenters of all kinds may desire simply to entertain. Because the success of technologies of illusion depends so strongly on the socio-cultural environment in which they are used as well as on their physical mechanisms, they must be evaluated in how well they fulfills the needs of those who use them, and their effectiveness (or lack thereof) can be explained only through assessment of their performance in context. The electric duel in Irving’s 1885 production of Faust is no different.

Although a simplistic interpretation of the effect would conclude that Irving was trying to represent diabolical power through electrical technology, and that he either failed or succeeded depending on what proportion of his audience accepted the effect as a reasonable representation, more careful consideration will reveal this cannot be so. How, for example, could Irving attempt to reproduce something that does not exist? Irving could not simply hold the mirror up to nature if there was nothing natural to reflect, and whether deliberate or not, his understanding of the nature of supernatural evil informed his choices in his presentation of its power as powerfully as the limitations of the electrical equipment he used shaped the illusion. Unlike the presenters in the previous two case studies, Irving also did not have a proprietary attitude toward the mechanism he used. Instead of trying to hide how the duel was produced, he and his company encouraged the public to take interest in the details of its creation. It is obvious that many of the assumptions ordinarily made in the analysis of technologies of illusion do not apply in this instance.

This chapter will therefore proceed in two parts. First, it investigates Irving’s goals for Faust and what he hoped to achieve with the inclusion of the spectacular effects, including the electric duel. After describing how Irving pursued these goals and the duel itself, the chapter will then evaluate whether Irving achieved his goals and explore why his methods did or did not work in particular cases. An analysis of these areas will demonstrate that although the electric duel did not achieve the same reaction of awe as Pepper’s Ghost or Maskelyne’s Psycho, it was nevertheless fully
successful in impressing the audience in its overall contribution to the stage picture and moderately successful at representing the embodiment of supernatural evil that Irving had in mind.

7.1 The Lyceum and its denizens

7.1.1 Sir Henry Irving

Before beginning this examination, it is necessary to briefly introduce the main historical characters. The chief of these is, of course, Sir Henry Irving. Born John Henry Brodribb in 1838, Irving was the actor-manager of the Lyceum Theatre in London from the resignation of its former manager Mrs. Bateman in 1878 onward, and he also managed the company’s provincial and North American tours. Irving had wanted to be an actor from a young age, and his position at the Lyceum was hard-won: after hours of elocution lessons, years of living in poverty while touring with provincial companies, and one or two false starts, Irving finally obtained a position at the Lyceum Theatre under its then-manager, Hezekiah Bateman, in 1871. Irving’s contract with Bateman stipulated that the Lyceum produce the melodrama The Bells. The lead role of the guilty burgomaster Mathias turned out to be what would now be termed a break-out role; the play and its star were extremely successful, and when Bateman died, leaving the management of the theatre to his wife, it was only a matter of time before Irving took over. By the end of his career as a manager, Irving had produced between twenty and thirty shows, divided between Shakespearean classics and Victorian melodramatic plays dealing with dramatic subjects like murderers, mistaken identity, and the lives of historical and legendary figures such

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1 Irving, Henry Irving: The Actor and His World, 31.
2 Brereton, Henry Irving, 48.
3 Brereton, Henry Irving, 3. See also the account of the actor’s early life in Irving, Henry Irving: The Actor and His World, 31-42.
4 Brereton, Henry Irving, 4; Irving, Henry Irving: The Actor and His World, 40, 55.
5 See Irving, Henry Irving: The Actor and His World, 71-128 for an account of these years.
6 See, for instance, Toole, Reminiscences of J. L. Toole, Vol. 1, 74-76, for the story of Irving’s disastrous and poorly attended attempt to earn money with a public reading early in his career.
8 Irving, Henry Irving: The Actor and His World, 172.
9 See Brereton, Henry Irving, 37-38, where Brereton reminds the reader that Irving played Mathias almost continually from the opening of The Bells, with the implication that the demand supported it.
as Charles I, King Arthur, and Richelieu.\textsuperscript{10} Irving staged each show with the utmost artistic care, and despite the capable stable of actors and actresses he employed,\textsuperscript{11} his own performance and design were chief draws of each piece.\textsuperscript{12} He occasionally re-staged plays he had produced in the past using props, costumes, and set pieces created for their original productions and replacing unavailable performers with new ones, especially when taking productions on tour.\textsuperscript{13} However, it was not the typical \textit{modus operandi} of the Lyceum company to mount a variety of different plays within a single season; mainly for financial reasons, Irving favoured single-show runs in which the company produced a set performance for many evenings in a row.\textsuperscript{14}

Like Maskelyne, Irving had children whose careers intertwined with his own, although unlike Maskelyne, he did not found a family dynasty of entertainers. It is to avoid confusion rather than introduce key players that this dissertation mentions them. His eldest son, Harry Brodribb (H. B.) Irving (1870-1919), followed in his father’s footsteps as an actor and actor-manager. The younger brother, Laurence Irving (1871-1914), was better known for his writing. The most important member of the extended Irving family to this chapter is Harry’s son, also named Laurence Irving (1897-1988), who wrote \textit{Henry Irving: The Actor and His World}, one of the most highly regarded syntheses of his grandfather’s life and work. As with Maskelyne, this chapter will refer only to Sir Henry Irving by surname alone; any other family member will be identified by full name. In addition, it can be assumed that “Laurence Irving” refers to Irving’s grandson and biographer rather than his son unless otherwise noted.

Although Irving was an enigmatic and contradictory public figure, he was best known for three things. As a manager, he was painstaking in his attention to detail to serve his overall concern with the beauty and composition of the stage picture. Critics positive and negative used terms like “picturesqueness,”\textsuperscript{15} “elaborate,”\textsuperscript{16} and “beautiful”\textsuperscript{17} in connection with his scenic work. Many explicitly compared him to a painter—even one of his great detractors Henry James chose

\begin{itemize}
  \item \textsuperscript{10} See Stoker, \textit{Personal Reminiscences of Henry Irving}, 70-71.
  \item \textsuperscript{11} Sir Frank Benson, \textit{My Memoirs} (London: Ernest Benn Limited, 1930), 174.
  \item \textsuperscript{12} “About Mr. Irving,” \textit{The Century} 35, no. 4 (February 1888): 650-651.
  \item \textsuperscript{13} See Brereton, \textit{The Lyceum and Henry Irving}, 328.
  \item \textsuperscript{14} Craig, \textit{Henry Irving}, 133.
  \item \textsuperscript{15} Quoted in Irving, \textit{Henry Irving: The Actor and His World},
  \item \textsuperscript{16} “On Saturday Evening Next,” 5.
  \item \textsuperscript{17} Ibid., 5.
\end{itemize}
to frame his criticism in artistic terms, calling Irving a “painter [...] who goes in for colour when he cannot depend upon his drawing.”\(^{18}\) The son of Irving’s co-star Ellen Terry, Edward Gordon Craig, who worked at the Lyceum as a young man and later became an innovative and influential set designer, wrote that Irving had a style all his own—“Irvingesque”—born out of the necessity of conveying the ideas he visualized in his mind’s eye to the rest of the company and the audience.\(^{19}\) Even those of a less visual bent noted Irving’s care in attending to the aspects of production other managers neglected, such as incidental music\(^{20}\) and stage lighting.\(^{21}\) His contemporaries praised Irving’s ability to control the colour and mood of the latter,\(^{22}\) and present-day scholars concur that Irving brought unique innovations as well as artistic vision to stage lighting.\(^{23}\)

As an actor, Irving had a similar reputation: most agreed that his performances were unique and detail-oriented, although whether this was perceived as evocative and idiosyncratic or absurd and distracting depended on the taste of the critic.\(^{24}\) Critics chided him for his peculiar enunciation,\(^{25}\) and, although the few existing recordings of his speech do not sound out of the ordinary,\(^{26}\) even his admirers like Craig admit that Irving often enriched the sound of the English language to make it more expressive,\(^{27}\) Craig also defended Irving’s gait as at once ordinary and more meaningful than that of any other actor,\(^{28}\) while those who were not as enamoured of his style disapproved vocally of how he twitched and described his legs as “skating away” with him.\(^{29}\)

\(^{19}\) Craig, *Henry Irving*, 90-91.
\(^{22}\) Stoker, “Irving and Stage Lighting,” 903; Fiske, “The Irving Influence in America,” 76.
\(^{24}\) See, for instance, the contrast between The Fashionable Tragedian. A Criticism. With Ten Illustrations and “About Mr. Irving.”
\(^{26}\) Richards, *Henry Irving: A Victorian Actor and His World*, 318; see also *The Irving Society* for reproductions of a surviving recording of Irving declaiming Shakespeare.
\(^{27}\) Craig, *Henry Irving*, 61.
\(^{28}\) Ibid., 69.
Both supporters and detractors agreed that he gave his best performances in roles heavy in grotesque emotions, such as guilt, terror, and frenzy.  

Whether these qualities carried over into his personal life or whether his natural disposition informed his acting is impossible to say, but regardless of the causal relationship, the third and final point for which Irving was known was his own passionate but removed personality. Craig reports that Irving lived and breathed theatre, his one and only passion; many others in close contact with Irving describe his personality as “magnetic” but also report a sense of detachment. From the anecdotes told of him, it sometimes seems as though his offstage behaviour was an extension of his onstage performance; there is a sense, perhaps, in which Irving played the part of being himself just as he played his theatrical roles. Essayist Max Beerbohm suggests Irving knew exactly what he was doing and purposely cultivated this air of mystery, presumably to enhance his magnetism. While the extent to which Irving purposely shaped his own behaviour in order to present a particular façade to the public is debatable, there is no question that he was aware of his celebrity. Although many purport to share the day-to-day aspects of his life, few details of his private relationships were made public. He was careful enough about his relationship with his leading lady Ellen Terry that over a century later, despite the fact that they spend the majority of their lives as professional partners, there is little evidence of the nature of their personal relationship. The few anecdotes of Irving’s personal life reveal a man of deep emotion: his grief upon the accidental death of his beloved dog Fussy and his sudden and complete detachment from his wife’s life upon her unfavourable remark about his theatrical work demonstrate the profundity of his feelings. While it is evident that Irving had a

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31 Craig, Henry Irving, 93-95.
33 Irving, Henry Irving: The Actor and His World, 19. Edward Gordon Craig hints at this when he suggests one of Irving’s key successful insights was to allow the public to fall in love with him rather than itself (Craig, Henry Irving, 105).
34 Beerbohm, Around Theatres, 401.
complex personality with many public facets, these three qualities were the scaffolding upon which his reputation was built.

### 7.1.2 Irving’s staff

The Lyceum staff, cast and crew, was extensive, but a few individuals stand out as worthy of note. The first of these, Bram Stoker, was Irving’s business manager, although today he is better known as the author of *Dracula* (a novel whose antagonist, some have suggested, bore more than a passing resemblance to his employer—another example of Irving’s reputation for passion and mystery). Stoker handled the financial accounts of the Lyceum and what might now be termed front-of-house. As Irving could not be expected to find time to greet all guests and keep audience members happy, it fell to Stoker to act as the Lyceum’s figurehead during performances, greasing the social wheels with courtesy and attention. For instance, on opening nights, it was his job to recall where important guests were sitting, identify them, and greet them on behalf of the management as they entered. He reported extreme attachment to Irving and found Irving’s performances emotionally inspiring; however, there are inconsistencies between some of the incidents he reports and accounts of those incidents from other writers. Irving’s private secretary L. F. Austin found Stoker overweening and insensitive in matters of public presentation; Laurence Irvin reports that Stoker was never as interested in Irving as he was in Irving’s fame. He suggests instead that the staff member truly loyal to Irving was his stage manager, H. J. Loveday. Although Loveday did not write a personal account of his years with Irving, he was often the source for newspaper accounts of the technical abilities of the Lyceum, and he invariably toured with the company. Most sources agree that he was extremely loyal to Irving, to the point where the great actor-manager would sometimes play the cruel joke of reversing his

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39 Ibid., 154-155.
41 Ibid., 453.
42 Ibid., 453.
expressed opinion mid-conversation to watch his devoted employee struggle to reverse his own just as quickly. 43

Although even a shortlist of the Lyceum staff would both encompass many famous names and be beyond the scope of this chapter, no account of Irving’s colleagues is complete without mentioning Ellen Terry, the actress who co-starred in many Lyceum productions and whose name is often mentioned in the same breath as his in criticisms both Victorian and contemporary. Where Irving was perceived as moody and fervent, Terry’s stage persona embodied the perfect Victorian woman: demure, sweet, and spirited but deferential. 44 Like Irving, Terry’s onstage persona extended to her life offstage, although in her case, her association with ideal womanhood enabled her to preserve her reputation of purity despite actions that would otherwise have ruined her, such as living with men other than her husband. 45 Together, she and Irving had good onstage interaction. Terry and Irving had a close personal relationship. For instance, her son Edward Gordon Craig grew up with Irving as something of a father figure. 46 It would be no exaggeration to state that Irving spent more time with Terry and her family than with his own estranged wife and sons. Despite this, Terry and Irving left curiously little public record about each other. However, understanding the relationship between Irving and Terry is the key to understanding the atmosphere at the Lyceum, since each contributed to the artistic environment. While Irving liked to control every detail of performance, he respected Terry sufficiently that she alone of the company never received his direction, 47 despite evidence that she sometimes fumbled her lines. 48 This did not mean that he put Terry’s artistic needs above his own: it was the exception rather than the rule when he selected a play with a part that showcased her talents at the expense of his own, and when his interpretation of his own part came into conflict with her interpretation of hers, he did not modify his performance accordingly. In one case, Terry remembers coming to Irving with a scarlet cloak costume piece—one that would attract any audience’s attention

43 Kilgarriff, “Very Like a Whale,” 1.
44 Richards, Henry Irving: A Victorian Actor and His World, 64.
46 See, for instance, Craig, Henry Irving, 11. Irving was Edward Gordon Craig’s godfather (Craig, Ellen Terry: Her Secret Self, 77).
47 Stoker, “Irving and Stage Lighting,” 911. Craig writes that Terry was probably the only performer other than Irving whose intuition Irving trusted (Henry Irving, 98).
48 Even her son reports that he has no recollection of the services of the Lyceum prompter being needed by anyone except his mother (Craig, Henry Irving, 157).
onstage—she intended to wear herself, only to have him annex it for his own use. Nevertheless, she was his professional partner, and if Irving guided her career in what today might be seen as a controlling fashion, together, they filled the seats at the Lyceum Theatre night after night.

### 7.1.3 The Lyceum Theatre

The final personality necessary to the understanding of *Faust* is that of the Lyceum Theatre itself. Not only did the Lyceum have a reputation for particular types of productions, but it also underwent renovations in the off-season immediately preceding the premier of *Faust*. As theatre historian Michael Booth points out, the care with which all parts of the theatre were modified shows the Victorian actor-manager’s understanding of the theatre building as part of the entertainment in and of itself, which entailed in part the decoration of the auditorium and vestibule with as much care and consideration as the decoration of an onstage set. The perceived technological capabilities of the theatre also played into its status: for instance, a theatre at which the resident company relied on the old style of scene-setting or on stock scenery created for past productions created a different impression on its audiences than a theatre at which the resident company adopted the new scene-setting practices and created new set piece for each production. All these elements came together to build a particular impression of the Lyceum Theatre.

Although it is admittedly difficult to separate the reputation of the Lyceum under Irving’s management from the reputations of Terry and Irving as its stars, it is nevertheless possible to form a picture of the kinds of plays audiences expected to see when they went there. Craig informs his readers that the seven major playhouses in London during the early 1880s each had a reputation for particular types of entertainment. The Lyceum was known for its productions of tragedies, classics, and comedies. While this may seem a broad range, it is easier to see what Craig means by contrasting the description with the types of plays for which Craig claims other houses were known, such as domestic drama (St. James’s under the Kendalls), light comedy (the

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51 Craig, *Henry Irving*, 152.
Haymarket under Bancroft), and spectacular drama (Drury Lane under Augustus Harris).\textsuperscript{52} A word of clarification on this last is necessary: although Irving embraced spectacle as a means of enhancing the plays he produced, he did not, like Harris, produce shows whose chief draw was spectacle. Harris, famous for his innovative and extravagant pantomime productions,\textsuperscript{53} produced flash and fanfare for its own sake; Irving, by contrast, although his style would be considered over-the-top today, selected all aspects of production, including spectacle and special effects, based solely on their ability to highlight the aspects of the play he felt were pertinent and to aid the presentation of the piece as a holistic work of art. In any case, that Craig describes the Lyceum’s reputed strengths as tragedy and comedy rather than drama and comedy suggests he believed the public saw the Lyceum as a source for classical forms of theatre. While the strict definition of the terms is slightly different, domestic drama and melodrama suggest plays in which the storyline happens not to be comic; tragedy, by contrast, evokes the classical definition of a protagonist whose fundamental flaw leads him or her to disaster in a journey that is cathartic for the audience. Although individual plays might vary, the Lyceum Theatre was seen to produce mainly works that followed traditional theatrical structures from valued historical periods. Some of these plays were time-honoured pieces, such as the works of Shakespeare; others were new plays adapted from established literary sources or figures, such as Tennyson’s \textit{The Cup};\textsuperscript{54} \textit{Olivia}, adapted from Goldsmith’s eighteenth-century novel \textit{The Vicar of Wakefield};\textsuperscript{55} and of course \textit{Faust} itself, adapted from Goethe. Before producing \textit{Faust}, in his role as the manager of the Lyceum, Irving’s seasons included such Shakespearean classics as a revival of \textit{Hamlet}, \textit{The Merchant of Venice}, \textit{Othello}, \textit{Romeo and Juliet}, \textit{Much Ado About Nothing}, and \textit{Twelfth Night}.\textsuperscript{56} The Lyceum’s production history gave it a reputation for carefully staged classics. Audience members who chose the Lyceum could expect to see something well crafted, something emotionally and intellectually meaningful, and above all, something with a familiar story. If Irving hoped to make the theatre respectable, the reputation of the Lyceum was a sign of his success.

\textsuperscript{52} Craig, \textit{Henry Irving}, 152.
\textsuperscript{54} Irving, \textit{Henry Irving: The Actor and His World}, 364.
\textsuperscript{55} Ibid., 254.
Apart from the Lyceum’s reputation for producing a certain kind of entertainment, audience members would also form impressions of the Lyceum from the physical appearance of the building. Outside and inside, the Lyceum was designed to leave audiences in no doubt that they were in a theatrical environment from the moment they approached it on the street. Victorian theatre writer Percy Fitzgerald describes the Lyceum as “the most elegant and architectural theatre in London.”

Located on a plot of land between the Strand, Exeter, Burleigh, and Wellington Streets, the Lyceum had entrances opening onto each street, including a private entrance on Burleigh Street leading to Irving’s private rooms. Craig recalls that the design of the theatre clearly telegraphed its purpose to passersby. He suggests that the Wellington Street façade with its six pillars indicated the classical drama to be found inside. While it is impossible to know the exact impression the outside of the Lyceum had on its patrons, it was clearly large and imposing, and accounts of the inside suggest the interior architecture matched the façade in grandeur and size. Upon their entrance, theatregoers found themselves in a spacious main hall and gallery with a lofty ceiling. It was here that patrons could find the main staircase, which led them up to circles and down to the stalls. Fitzgerald suggests that the Lyceum was constructed in such a way that it took audience members longer than usual to reach their seats, meaning they had time to take in the decor.

After the 1885 renovations, all remnants of the style favoured by previous managements had been removed to make way for accoutrements better suiting Irving’s own taste. Dusty box-front panels, in place since the 1840s, were removed to make way for C. J. Phipps’s new “Italian” design. The old style had been dingy and dust-filled, with components “coloured so as to resemble old Wedgwood bisque.” The new design combined white ground with “rich, pure colouring.” Italianate-style patterns in deep greenish-blues complemented amber and cerise

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57 Fitzgerald, The World Behind the Scenes, 247.
58 Ibid., 248.
59 Craig, Henry Irving, 41.
60 Fitzgerald, The World Behind the Scenes, 248; Craig, Henry Irving, 42.
61 Craig, Henry Irving, 41-2.
64 Ibid.
65 Ibid.
hangings on the walls, and the armrests of the seats were refurnished with cerise plush.\textsuperscript{66} While this scheme might read to modern eyes as overly ornamental, to Victorian audiences, it spoke of expense, class, and a concern for audience comfort. The classical Italian designs were likely chosen to link the theatre to the classical drama of Rome, and the new portraits of dramatists like Plautus and Menander on the circular ceiling fit this motif. To make it clear that the Lyceum was a home for respectable arts, Irving had a frieze of boys playing musical instruments installed around the base of the ceiling, and above the proscenium arch, there were representations of a blue sky and clouds, and among them boys who personified the arts of music, acting, and dance.\textsuperscript{67} Though Irving obviously had an overall atmosphere in mind, he did not forget the practical details: to facilitate audience arrival and departure, he had steps removed, doors widened, and handrails installed in the middle of aisles to divide the flows of audience members moving different ways.\textsuperscript{68} Certain architectural modifications, such as the removal of cornices or restoration of pillars, were made to restore sightlines,\textsuperscript{69} and Irving actually decreased the number of seats to give each patron more room. The seats themselves were refurbished for comfort and ease of use. Irving knew the appearance of luxury was important to keep his audience satisfied, and he made sure that no atmospheric detail was overlooked; for instance, while most theatres had their programmes printed by the same mass printer, the Lyceum not only had its printed specially but they were fine enough for Fitzgerald to single them out as an “elegantly printed pale buff colour.”\textsuperscript{70} Inside and out, the Lyceum was designed with the intention of sending a message to its audiences: this was a place of taste and culture, a place where the management had high artistic values and cared about the experience of its customers.

There was, of course, more to a theatre’s reputation than its architecture; in the Victorian age, as now, an audience could judge a theatre’s financial status and artistic capability by the technical apparatus available for its use. That Irving was aware of this is shown by the articles in otherwise non-theatrical periodicals, such as \textit{The Building News},\textsuperscript{71} describing renovations and newly built special effects. These journals could not have published such detailed articles without obtaining

\textsuperscript{66} Ibid.  
\textsuperscript{67} Ibid.  
\textsuperscript{68} Ibid.  
\textsuperscript{69} Ibid., 428.  
\textsuperscript{70} Fitzgerald, \textit{The World Behind the Scenes}, 267.  
\textsuperscript{71} See, for instance, “Lyceum Theatre.”
information from someone connected with the theatre, and it is evident from the forward-looking tone of their reports that the writers considered the apparatus they describe to be a selling point for the theatre in question. The Lyceum had the standard set-up of a large Victorian theatre: plenty of space below the stage, including the apparatus for trapdoors and other effects—Craig describes his first boyhood venture below the boards as a journey “through a forest of wooden machinery.” It used a mixture of built-up set pieces and old-fashioned painted backdrops, although these were not necessarily a detriment; Irving hired only the best scene painters, including his usual artist, Hawes Craven, and the quality of the painted scenery at the Lyceum was praised even by critics unfriendly to Irving. Irving obviously cared about keeping these masterpieces in good repair, and he took care to let the public know it. One of the first changes The Building News mentions in its report on the 1885 renovations is how the stage ceiling had been raised twenty feet so that the Lyceum staff no longer had to fold backdrops as they were raised to keep them from hanging in the audience’s line of sight. This, the writer claims, would reduce wear and tear on the paintings, which seems a likely explanation, since hiring additional stagehands to facilitate the folding process would likely have been far cheaper than enlarging the building. At the time Faust was first produced, the Lyceum used gas lighting onstage, relying on horizontal battens flown above the stage that had batswing burners, vertical pipes with Argand burners as side lights, and footlights at the front of the stage. All the lighting instruments were supplied with two separate sources of gas so that the stage would not go dark in the event that one was interrupted, much as is done today when electric lights are connected to separate dimmers. These lights could be coloured using a frame that stretched calico fabric in front of the light source, similar to twenty-first-century colour media. This frame could be rotated to change the colour of the light. The Lyceum also possessed portable gas brackets on heavy vertical

72 Craig, Henry Irving, 9.
75 See, for instance, Joseph Pennell and Elizabeth R. Pennell, “Pictorial Successes of Mr. Irving’s “Faust,”” The Century 35, no. 2 (December 1887): 309.
76 “Lyceum Theatre,” 427.
77 “Theatrical Mechanism at the Lyceum Theatre,” 260.
78 Craig, Henry Irving, 10.
80 “Theatrical Mechanism at the Lyceum Theatre,” 260.
stands that could be connected to the nearest gas outlet using leather hoses for quick portable onstage lighting. However, the most outstanding pieces of lighting equipment available at the Lyceum were the 25 limelights used for *Faust*. Limelights, which produced brilliant white light through the combustion of calcium oxide in an oxyhydrogen flame, not only required a steady supply of flammable hydrogen and oxygen gasses, but each instrument required an experienced operator to monitor the flow of both gasses, ensure the cylinder of lime burned evenly, and direct the beam of the light as necessary. Although human resources were plentiful on the Victorian London stage, operating a limelight required skill, and an experienced limelight man was valuable enough to the management that he could get away with such pranks as playing tricks on performers who were disrespectful. The profession likely required even more skill at the Lyceum, where Irving demanded very precise lighting effects, including following his face, a target of difficult size even using today’s electric spotlights, with a small limelight. All in all, the lighting resources at the Lyceum were extensive, and since Irving was well known for his use of light, it seems likely that audiences were aware of his theatre’s extensive technological capabilities.

The final element of theatrical technology boasted by the Lyceum was the human element: Irving’s army of trained stagehands. The Victorian theatregoing audience was accustomed to elaborate sets, many of which required onsite construction during the performance of the show. It was common for playwrights to include “carpenters’ scenes” between scenes that called for elaborate sets. These scenes were short interactions that could be staged in front of a pair of painted flats that met in the centre of the stage while behind it, the stage carpenters worked to assemble the set for the next scene of the piece. The Lyceum backstage crew was renowned for its speed and efficiency. An American listing in 1896 the concepts Irving’s overseas tours brought to North American theatres writes how American audiences saw “...that while Irving

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81 Ibid.
82 Ibid.
83 Rees, *Theatre Lighting in the Age of Gas*, 49-53; this did not necessarily mean that there were 25 limelight operators, as it was not necessarily the case that all the instruments were lit at once. Booth gives the figure of 8 limelight operators hired for *Faust* (Booth, *Victorian Spectacular Theatre 1850-1910*, 97).
85 Nash, “Irving as Mephistopheles,” 263.
was acting before the scenes, [stage manager] Henry J. Loveday and his assistants were acting behind the scenes."

Fitzgerald describes the action backstage at the Lyceum Theatre during the 1881 season production of Tennyson’s *The Cup* followed by Boucicault’s *The Corsican Brothers*. As soon as the drop curtain fell, he writes, stagehands swarmed from every direction. The stage was set as an ancient temple; the workers lifted up parts of set pieces and gas pipes and took them away, clearing the area in about three minutes. To transform the stage to the temple interior, some stagehands secured the beams meant to represent the upper portion of the temple as they descended from the flies, while others brought out the pillars and bases on which they would rest. The operation was coordinated with great precision; as Fitzgerald writes, “In a few moments everything is fitted and falls into its place with a martial exactness.”

While the scene changes in *Faust* did not impress across the board—one reviewer admits that even the most complicated took intervals of only a few minutes but complains that they still “naturally destroy all possibility of illusion”—it is clear that Irving and his staff were aware of the fascination that a swift and organized swarm of stagehands held for their audiences. Irving certainly considered his audiences’ experience during the time it took to change sets; he was one of the first theatrical managers to darken the lights onstage during set changes to make sure the audience did not see the process and could marvel all the more at the speed and thoroughness of the transformation. In the *Engineer* one author writes of how the stagehands for *Faust* all wore silent “india-rubber shoes” to mask the sounds they made as they moved backstage and compares their movements admiringly to an army moving into position on command.

Even offstage, critics noted the efficiency of the Lyceum crew. Fitzgerald reports on the theatre’s “ingenious” ticket system for patrons of the pit and galleries, in which the combination of a unique mechanical register, a carefully designed box-office grille, and trained staff prevented theft or fraud. The repeated rhetoric comparing the Lyceum backstage crew to soldiers—with the implication that Irving’s position as actor-manager was analogous to that of a general—suggests that many focussed on

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87 Fiske, “The Irving Influence in America,” 76.
89 Ibid., 44.
91 Fiske, “The Irving Influence in America,” 76.
92 “Theatrical Mechanism at the Lyceum Theatre,” 260.
93 Ibid.
the Lyceum’s efficiency and meticulousness. The reputation was so pervasive that when things did go wrong, reviewers took it not as a sign of the incompetence of the Lyceum staff but as an indicator of the complexity of the job. Wrote one *Times* reporter of *Faust*’s opening night: “At an ordinary theatre, such an event [accidents and delays] would call for no remark; at the Lyceum, where the art of producing plays has been carried to a high pitch of perfection, it speaks volumes for the greatness and the difficulty of the task in hand.”

The theatrical technologies, both human and mechanical, in place at the Lyceum combined to give the theatre a reputation for modernity within reason. The Lyceum both moved with the times, bringing in built-up sets and elaborate lighting, and maintained tradition, using flats, wings, and borders in tandem with new styles of set design to achieve the best possible effect. It embraced innovation, such as the use of coloured light, but it never pursued new technologies for their own sake. For instance, Irving carefully considered replacing gas lights with electric—he was aware of the shortcomings of the latter compared to the former, and no doubt gave thought to Ellen Terry’s worry that the stark white electric glare would not flatter her as well as cloudy yellow gaslight. While the Lyceum Theatre had the resources to achieve many of the most modern effects, it did so—or at least, its management tried to give the impression that it did so—only when supported by artistic reasons.

### 7.2 *Faust*

#### 7.2.1 The preparation

Given the reputations of the Lyceum and the personalities who populated it, it is easier to see how Irving came to produce such a spectacular yet serious version of *Faust*. He claimed that he had wanted to produce the piece for years before he was able to pursue production, and both his history of cannily identifying parts in which he could excel (as he had with *The Bells* when he signed on with Bateman) and the clarity of his conception of the show attest to the truth of this.

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95 “*Faust* at the Lyceum,” *The Times*, December 21, 1885, 10
Stoker writes that a competent actor-manager planned his schedule at least a year in advance, and Booth notes that expenses are recorded for Faust as early as 1882, three years before the production’s opening night. Irving was prepared to begin work on Faust in earnest as the previous season closed. He, Ellen Terry, her daughter Edith, Terry’s personal maid Sally Holland, their friends the Comyns Carrs, and later Hawes Craven, Irving’s chief scene painter, took a grand tour of Germany over the summer (to Nuremburg and Rotherburg specifically, although Laurence Irving also mentions a stop in Berlin). Terry recalls that almost all the props for the show were bought in Nuremburg, and the location provided some inspiration for the set of the play. Major scenes took place in Nuremburg’s St. Lorenz-Platz, and critics noted Craven’s careful reproduction of the architectural details of the buildings and cathedral for the set.

Meanwhile, Irving had commissioned playwright W. G. Wills to adapt Goethe’s play to a script of the duration and themes relevant to the Victorian public. Wills’s job was cut out for him: although Goethe’s Faust was widely considered to be unplayable, it was understood that the masterpiece had a strong following among Germans and scholars of German literature alike. Wills had experience adapting literary works for Irving, since it was he who adapted Goldsmith’s novel into Olivia; he knew the practical limitations of the stage and of Irving’s stage in particular, as demonstrated by the correspondence between him and the actor-manager as he worked on the script. While obviously concerned with the plot and the drama, Wills was also careful to consider how closely he could juxtapose scenes requiring extensive sets, and he emphasized the striking images he created for Mephistopheles, the character Irving was to play. A scholar of German, Wills also carefully considered both fidelity to what he
considered to be the spirit of the original text and suitability to Irving’s needs. And Irving’s needs in all areas of production were specific: Wills’s letters contain comments like “I was so pleased to find that on the whole you liked the alterations - I gather however that you did not care for the love scene in the garden [...] I’ll correct all this”\textsuperscript{109} and “I send you the changes suggested by you - viz - garden scene,”\textsuperscript{110} indicating that Irving was providing commentary on successive drafts of the script. Indeed, Laurence Irving reports that his grandfather and Wills worked on the project together for five years.\textsuperscript{111} Irving also had clear ideas about the set design, and rejected many completed pieces until he was satisfied; Terry remembered, “There was enough scenery rejected in Faust to have furnished three productions and what was finally used for the famous Brocken scene cost next to nothing.”\textsuperscript{112} Stoker recalled how Irving rejected a carefully crafted rainbow painted for the final scene in which Margaret\textsuperscript{113} ascends to heaven, finally deciding after lighting it several different ways that he would use the simpler effect of standard dark blue sky borders and blue limelights to represent the scene.\textsuperscript{114} Irving brooked no shortcuts. His dressing room was filled with sketches of potential ideas, scenic inspirations, and research materials.\textsuperscript{115} Irving also took the steps of having incidental music composed by Hamilton Clarke\textsuperscript{116} and expanding the number of musicians in the already above-average Lyceum orchestra especially for the production.\textsuperscript{117} Even in the early stages, Irving had a clear idea of what he wanted from the production.

\textsuperscript{108} Fitzgerald, \textit{Henry Irving: A Record of Twenty Years at the Lyceum}, 219.
\textsuperscript{109} Wills, letters to Henry Irving.
\textsuperscript{110} Wills, letters to Henry Irving.
\textsuperscript{111} Irving, \textit{Henry Irving: The Actor and His World}, 460.
\textsuperscript{112} Terry, \textit{The Story of My Life}, 172.
\textsuperscript{113} Because the character played by Ellen Terry was named Gretchen in Goethe’s original, many reviewers refer to her as this despite the fact that she was listed as Margaret in the script and programme.
\textsuperscript{117} “Programme,” Lyceum Theatre, December 23, 1885.
To Irving’s dismay, the preparation for *Faust* took longer than expected, forcing him to open on December 19, 1885 rather than the hoped-for September 5, and once the play was running, he continued to make changes to it. Stoker attributes the delay to the necessity of testing all the experimental special effects, and it is certain that many of these effects continued to be adjusted throughout the run of the show. Audience members who saw *Faust* early in its run report minor mishaps: in one of the first scenes, a vision that was meant to be seen in Mephistopheles’s steam did not appear, and in the electric duel, the actor playing Valentine got shocked. H. J. Conway, the actor playing Faust, gave such a poor performance that he was soon replaced by George Alexander, who had been playing Valentine, a role that was then given to another actor, Tyars. Irving’s opening-night speech after the show made it clear he was unsatisfied with the production; he hinted at his intention to bring it closer to the spirit of Goethe’s text as soon as possible. Whether or not he fully kept this particular promise, he did make changes to the script during the run, adding new scenes like the Witches’ Kitchen. Over the years, as performers grew older or became unavailable and had to be replaced, and as scenery and apparatus had to be rebuilt after a warehouse fire or refitted for touring, it became clear that the key elements of the Lyceum *Faust* were not the individual performers or even the specific production equipment, but rather the presence of Irving as Mephistopheles and the spectacular elements of production he had created.

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119 Ibid.
121 “Faust at the Lyceum,” *The Times*, December 21, 1885, 10.
123 Fitzgerald, *Henry Irving: A Record of Twenty Years at the Lyceum*, 221-222.
126 See, for instance, “Programme,” Royal Lyceum Theatre, London: April 26, 1902, which has Cecilia Loftus playing Margaret in the place of Ellen Terry. Laurence Irving maintains this was due to Terry’s advancing age (*Henry Irving: The Actor and His World*, 640).
128 Irving and the Lyceum company brought many of the set materials for *Faust* with them on tour. See, for instance, Ellen Terry’s anecdote of how the Liverpool stage carpenters reacted to the complex ropes for *Faust* in Terry, *Ellen Terry's Memoirs…*, 187.
7.2.2 The electric duel

Before summarizing the electric duel in Faust, a brief explanation of the plot and the casting is necessary for purposes of clarity. Faust followed the traditional legend of the over-ambitious scholar, Faust, who makes a pact with the devil Mephistopheles for great knowledge and power in exchange for his soul. In the Lyceum version, much of the play was taken up with Faust’s courtship of the innocent maiden Margaret. Unfortunately, Faust both impregnates Margaret and accidentally kills her brother Valentine in a duel. Driven mad by the emotional stress, Margaret kills her child but is saved when she repents and ascends to heaven. Irving played Mephistopheles, and during the period this chapter discusses, Ellen Terry played Margaret.

7.2.2.1 The duel’s blocking

The electric duel took place between Faust, Valentine, and Mephistopheles, played first by Conway, Alexander, and Irving, respectively, and then by Alexander, Tyars, and Irving. Although all the actors could see one another onstage, it is unclear whether the audience was meant to understand that all the characters could see each other. The full scene from Wills’s script gives a rough idea of the action:

“Val.

I am a soldier.

I only know what wounds a soldier's honour,

And how to slit a foul seducer's throat.

Faust.

The door is fast.

Val.

Thou coward, draw!

Mephis.

Draw what?---A cup of ale?---

Faust.

I know no cause of quarrel, sir, with you!

Mephis.

If you affect the old dame, don't be jealous.

Val. [Furiously to Faust].
Wilt wait until I strike thee?

*Mephis.*

Out with your goose-quill, Doctor;
Keep by me.

*Faust.*

I want no aid.

*Val.*

Villains, have at you.

[They draw.

*Mephis.*

Lunge like fury, Doctor, I will parry.

*Val.*

Then parry that.

*Mephis.*

Why not?

*Val.*

That too.

*Mephis.*

Just so.

*Val.*

And that, and that, and that.

*Mephis.*

With pleasure.

*Val.*

I think the Devil fights against me.—
My right hand is benumbed.

*Mephis.*

Thrust home.

*Val.*

O God!

*Mephis.*

Ha, ha!
While one must be careful not to presume that actions implied in a script were actually performed, particularly since it is apparent that Irving and his cast worked from new drafts of the script in later performances, corroboration from other textual sources and images of the duel suggests that the duel played in much the same way as outlined above. However, the convention of whether all the characters could see each other is unclear. While Mephistopheles’s earlier retorts are addressed to Valentine, the latter does not seem to react, and Faust does not behave as though his antagonist can hear his companion’s cruel comments. On the other hand, Valentine begins the duel with, “Villains”—plural—“have at you,” which seems to indicate that he is aware of both Faust and Mephistopheles. To add to the confusion, through the actual fight, he neither comments on the fact that he is outnumbered nor seems to notice the supernatural powers of his adversaries. When he realises he is losing, he cries, “I think the Devil fights against me”—a strange moment to notice the fact, since up until now, Mephistopheles has certainly been employing his own sword in the aid of Faust. Further evidence that suggests that Mephistopheles is invisible to Valentine is both Stoker’s description of the character as having a “supposed invisible quality” in the scene and the available images of the scene in performance, which show Valentine and Faust facing one another in conventional duelling poses while Mephistopheles with his own sword lurks upstage between them. (Not coincidentally, this also makes Mephistopheles the most conspicuous figure in the duel.) It seems, therefore, that whether the plural “Villains” is an error, either by the transcriptor or by Wills, and Valentine is totally unaware of Mephistopheles or whether Valentine can see Mephistopheles but is unaware of his true nature or his magical interventions in the duel, it is safe to assume the swordplay was conducted in a manner by which the audience was meant to understand that Valentine was unaware of Mephistopheles’s sword.


Although the scene seems simple, various sources give conflicting clues as to the exact nature of the combat. The script seems to indicate that Valentine, the more skilled character, strikes toward Faust several times, only to be parried each time by Mephistopheles. Once this has occurred a number of times—and Valentine’s attempts become more frenzied, Valentine finds his right hand becoming numb from Mephistopheles’s power. When Mephistopheles sees this drop in Valentine’s guard, he urges Faust to strike. Faust does so, and his blow kills Valentine. It is unclear as to what degree this fight was choreographed. Irving expected onstage swordplay to be part of an actor’s training in much the same way as elocution—he himself practiced with a wooden sword as part of his self-instituted training regimen as a child. When older, he studied fencing with a master known as Shury in Chancery Lane and continued to practise fencing in the major cities where he performed as a touring actor; swords were also among the props he bought as a young man to prepare himself for a lifetime of acting. Consequently, he may have assumed that all serious young actors would seek out similar training in swordsmanship. Since an appropriately prepared performer would know how to handle a weapon onstage well enough to appear sufficiently capable in the fight scenes and to prevent injury to himself or his co-stars, this assumption may have led him to care little about practising the exact choreography of swordfight scenes, an attitude he seems to have adopted. The anecdote recalled by Sir Frank Benson, an inexperienced and (then) untrained young Oxonian who found himself playing Paris to Irving’s Romeo a few years previous to Faust, suggests their duel outside Juliet’s tomb was unrehearsed until the moment of performance: fearing Benson’s too-correct swordplay would cause him injury (claims Benson), Irving unexpectedly grabbed Benson’s foil with his free hand, rapped Benson’s knuckles with his own foil, kneed Benson in the stomach, clashed the two swords for the sake of spectacle, and wrestled Benson into the tomb while whispering, “Die, my boy, die; down, down.” Humorous as this incident may be, it demonstrates at the very least that it was not always a priority at the Lyceum to rehearse fight scenes with full movement before the performance. Otherwise, one hopes, Benson’s too-realistic swordsmanship would not have surprised Irving to such a great extent. It seems likely that preparation for Lyceum

134 Brereton, Henry Irving, 7.
136 Benson, My Memoirs, 173.
swordfights involved at most making sure that both performers were in agreement regarding their characters’ motivations and the eventual outcome of the fight. Nevertheless, considering the Faust fight incorporated a special effect that required at least one specific movement, and it being likely that Irving would have wanted to make sure the effect worked before using it onstage, it is plausible that the electric duel or a part of the electric duel was rehearsed before opening. Was the choreography more determined than that of previous Lyceum fight scenes? Did the performers use the same sequence of moves each night? It is impossible to know. What does seem clear is that the bulk of the skilful swordplay fell to Irving; Brereton describes the duel as showcasing “masterly [...] parrying,” an activity that the script suggests fell mainly to Irving’s character Mephistopheles.

Regardless of the amount of rehearsal, it must be noted from the script that each actor had a certain measure of control over the pace of the swordfight while on stage. The performer playing Valentine cues the duel with “Thou coward, draw!” signalling his readiness, but in the narrative, his character is given motivation to wait until he receives a response from the others. Mephistopheles cues Faust to draw his sword (and presumably draws his own) on “Out with your goose-quill, Doctor,” but the fight does not start until Faust has spoken his final line. During the fight, it seems likely that Valentine and Mephistopheles have a line for every blow, making it easier for the actors to coordinate their efforts and understand when the other is about to strike. After many performances of the show, it seems likely that, choreographed or not, all the performers would have been able to approach the scene with confidence regarding what their colleagues would do.

7.2.2.2 The duel’s appearance

What the electric effect looked like is a matter of some contradiction; although it is relatively clear how it was accomplished, different sources give different descriptions. All but one agree that the effect was present only when the swords of Valentine and Mephistopheles touched; an undated image included in a Theatre Museum exhibition clearly shows sparks emanating from

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the point of contact when Valentine and Faust clash swords and Mephistopheles stands apart, but it seems more likely that the illustrator was drawing from faulty description or memories. An illustration from the souvenir programme created by Joseph Hatton, which was sold at the Lyceum performances and in which were included numerous sketches of scenes from the play, shows Mephistopheles’s electric sword clashing with the weapons of the other two. The Times’s opening-night review explicitly states that “Faust is not so equipped; his sword is harmless.” However, that Faust’s sword was occasionally in contact with both those of his scene partners is suggested by Pollock’s report that the actor playing Faust also wore an electrically insulating glove. This would have been necessary if his sword were made of a conductive metal, as despite its lack of wiring, it would have been able to conduct the current to the body of the actor holding it when in contact with the circuit.

It is certain that when Irving’s sword struck that of the performer playing Valentine (either Alexander or Tyars), some kind of electrical effect was visible. (For simplicity’s sake, since Tyars played Valentine for the majority of the run, this chapter will henceforth refer to the actor playing Valentine as Tyars except in instances where sources specifically reference Alexander.) Most sources agree that the effect was some kind of electrical discharge. However, sources disagree on the nature of this discharge. Most sources refer to it as “sparks.” Reviewers describe how the “electric sparks flash from the sword of Mephistopheles in the duel scene”; the saw-like teeth on the edges of the swords (more on this to come) that “each [...] [give] off its spark”; and how “sparks fly from [the actors’] clashing rapiers.” Stoker writes of the “sparks emitted,” and another audience member remembers Mephistopheles “intervening and striking sparks from the blades [of Faust and Valentine].” The writer for the Engineer, whose
readers would presumably be interested in exact details, describes the production of “the sparks which come from Mephistopheles' sword when he wards off that of Valentine who is fighting the duel with Faust.” Even conjuror Charles Bertram, whom one might expect to have some interest in being specific about the effect, since he describes it in the context of having designed an imitation, writes that “each time that Mephistopheles knocked up [Faust’s and Valentine’s] swords with his, a number of sparks emanated from the contact.” The Graphic refers to what seems to be a similar phenomenon with the phrase “coruscation of fire”; this seems to reflect literary aspirations on the writer’s part rather than a different perception. One might argue that these writers are using the term “sparks” merely to describe some luminosity that does not fit the other models they have in mind, but an anonymous letter-writer who entitles him- or herself “Spectator” writes in the Sporting and Dramatic News that the effect is not new because Dickens’s fictional actor-manager Mr. Crummles instructed his children to make sparks during a stage fight through hard work, not electricity. Although the writer is arguing tongue-in-cheek, his or her suggestion that one can think of the effect produced by Irving’s electric duel as a bigger, better version of the sparks produced by extreme exertion seems genuine. This is underscored by the fact that a respondent to the letter agrees that Irving’s effect merely intensifies the “natural result” of the clash of the swords. The swordplay in the 1887 American tour production also seems to have produced sparks, as the reviewer for The New York Times writes, “the use of electricity cause[s] sparks to fly from the sword of Mephistopheles in the duel scene.” Further—and admittedly, circumstantial—evidence for the production of sparks exists in the form of contemporary experimentation with electrified metal swords. In this online video, when the electrified swords clash, they create large sparks. Whether or not sparks similar to these were the main intended effect in Irving’s case, it seems clear that the

147 “Theatrical Mechanism at the Lyceum Theatre,” 260.
149 “‘Faust’ at the Lyceum,” The Graphic, January 2, 1886.
150 “Spectator,” “On the subject of Faust...,” The Illustrated Sporting and Dramatic News 24, no. 631 (January 9, 1886).
sparking during stage combat whenever the two electrified swords struck one another was more spectacular than usual.

The other reported effect is less clearly described. The sources that mention it report a blue discharge around the blades of Valentine’s and Mephistopheles’s swords. Pollock is emphatic in his description of this effect. There were not sparks, he writes, but instead “an eerie, lambent, blue fire”\footnote{Pollock, Impressions of Henry Irving..., 45.} that appeared whenever the swords crossed. Fitzgerald has a similar account, describing how “blue fires are seen to flash along the blades of Faust and Valentine”\footnote{Fitzgerald, “On Scenic Illusion and Stage Appliances,” 457.} — note that here, Mephistopheles’s sword appears to be absent, a circumstance that Fitzgerald repeated six years later in his \textit{Henry Irving: A Record of Twenty Years at the Lyceum}.\footnote{Fitzgerald, Henry Irving: A Record of Twenty Years at the Lyceum..., 224.} By contrast, the writer in \textit{The Century}\footnote{Likely one of the Pennells or even Henry James himself.} does not mention exactly when the effect is perceived but still complains about “the blue fire that plays about Mephistopheles,”\footnote{“The Acting in Mr. Irving’s Faust,” 312. Emphasis in original.} which he or she implies is present in many different scenes, including the play’s famous Brocken scene. This writer perhaps exaggerates to make a point, but it does seem that these eerie blue fires were strongly associated with Irving’s character in the play. What all three of these writers seem to be describing is an electrical discharge similar to the natural phenomenon known as St. Elmo’s Fire. During lightning storms, tall objects with a high curvature—such as spires on the tops of large buildings or the top of masts on sailing ships—can seem to become enveloped in blue flames. This form of lightning results from the high charge of static electricity in the atmosphere, and it has been observed that pointed objects can achieve this luminescence at lower voltages than other shapes. It is not difficult to imagine that the pointed, saw-toothed swords at the Lyceum could have been designed with this effect in mind. Another reason to believe in the existence of this second effect, apart from the multiple sources that describe it, is the insistence on the discharge being blue in colour. Sparks would have been red or orange; only the luminescence of flame-like discharge would have had the required colour. While it is sometimes the case that stage lighting makes it difficult to judge the colour of onstage items, it seems unlikely that so many audience members
would be wrong about the second effect’s colour so consistently. The case for the glowing blue effect is equally strong as the case for the sparks.

### 7.2.2.3 The duel’s mechanism

The historian must evaluate these potentially contradictory accounts in consideration of the extant knowledge of the mechanism of the effect. The records of how the electric duel was produced are relatively detailed. The set-up was not dissimilar to the electrical apparatus used to score twenty-first-century fencing. Each electrified performer had a metal plate screwed to his right shoe. A wire travelled through each performer’s clothing to his right hand. There it connected to a steel plate in his palm, from which his hand was insulated.\(^\text{159}\) Although the report in the *Engineer* implies that the actors were bare-handed and the hilts of the swords themselves were insulated for their protection,\(^\text{160}\) Stoker and Pollock, two eyewitnesses, both make definite mention of gloves,\(^\text{161}\) which Stoker identifies as rubber inlaid with a conducting piece of metal,\(^\text{162}\) and since there appears to be one extant in the collection of the Victoria and Albert Museum, there is no reason to doubt them. When the actor drew his sword, the metal plate would have been in contact with the metal hilt of the sword. The power for the duel came from a 90-volt intermittent current from a 50-cell Grove battery beneath the stage.\(^\text{163}\) Each terminal of this battery was connected by insulated wire to an iron plate set in the floor of the stage.\(^\text{164}\) It is unclear how many onstage plates were used. Stoker and the *Engineer* are emphatic that there were two plates;\(^\text{165}\) however, Hatton’s sketch of the duel shows the right feet of Valentine and Mephistopheles in close proximity, as if both actors are stepping on the same plate.\(^\text{166}\) Perhaps the most reliable source, the Lyceum stage manager Loveday, explained that there was only one plate. In response to a reviewer’s claim that Mephistopheles started the duel by standing on a metal plate, Loveday corrected, “*He has saddled the wrong horse. It is the other man whose*..."

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163 “Theatrical Mechanism at the Lyceum Theatre,” 260.
164 Ibid.
sword 'Mephistopheles' strikes up, who stands on the plate.”\textsuperscript{167} This seems strange, as to complete the circuit, the electricity would have had to conduct from Irving to the battery as well. It also contradicts Stoker’s version, which claims that when the performers wanted to complete the circuit, each stepped with his right foot onto one of the metal plates.\textsuperscript{168} Perhaps Loveday was trying to communicate that Tyars was the only one standing completely on the single metal plate, while Irving merely touched it with his conducting boot when he wanted to make the swords flash. In any case, when the two actors’ swords touched, the current could travel the complete circuit from one terminal of the battery, through the shoe plate, up the wire, through the glove plate, and through the sword of one performer and back to the other terminal of the battery through the other.

Although the safety of the performers was a consideration—Stoker mentions how the numerous light and flame effects in \textit{Faust} required precision to avoid injury\textsuperscript{169}—it is equally clear that some combination of ignorance of the possible effects of electricity on the human body and different standards of reasonable workplace safety affected the design. Recall, Pollock and others report instances of the actor playing Valentine having a mishap with the effect and getting shocked in return.\textsuperscript{170} The two primary sources, the \textit{Engineer} and Pollock, differ on whether the unfortunate Valentine was Alexander on opening night\textsuperscript{171} or Tyars at another point in the run,\textsuperscript{172} and whether the problem was the actor grasping the incorrect part of the sword\textsuperscript{173} or forgetting to wear his special gloves.\textsuperscript{174} Regardless of which of these events occurred—or perhaps they both did at different times—it is clear that what a modern director would consider safety was not foremost on the minds of the Lyceum staff.

\textsuperscript{167}“The Stage Mechanism of “Faust.” Mr. Loveday Talks About The Settings and the Forces Behind the Scenes,” \textit{[New] York Tribune}, 18[87].
\textsuperscript{169}Ibid.
\textsuperscript{170}Pollock, \textit{Impressions of Henry Irving...}, 45
\textsuperscript{171}As “Theatrical Mechanism at the Lyceum Theatre,” 260 suggests.
\textsuperscript{172}As Pollock, \textit{Impressions of Henry Irving...}, 45 implies.
\textsuperscript{173}“Theatrical Mechanism at the Lyceum Theatre,” 260.
\textsuperscript{174}Pollock, \textit{Impressions of Henry Irving...}, 45.
Textual sources are not the only existing clues to the nature of the electric duel effect. Fortunately, an electrified boot, glove, and sword still exist. While the first and second of these are sadly unavailable to the scholar at present, the third can be examined at the Magic Circle Museum in London, UK. The provenance of the item is unclear, so it is unknown to whom it belonged (might Valentine’s sword have differed from that of Mephistopheles?) and how it came to be in the possession of the museum. The sword is 43 inches (110 cm) long and has its own scabbard, which resists movement of the blade sufficiently to keep the weapon from falling out during onstage exertion. It is made of a dull, brown-coloured metal. Matching that belonging to Valentine in Hatton’s illustration, the guard is lopsided, with the lower branch curving in the direction of the tip about ninety degrees and the top branch with a lesser curve.\textsuperscript{175} There is also a metal bend directly above the part of the hilt to be grasped; if this were closer to the pommel, it would be the correct size and shape for a metal plate designed to ensure contact between the metal in the glove and the wiring in the sword, but as one can pick up the sword without touching this band, it is perhaps ornamental or structural. The sword itself is very light, which would have facilitated the movements of the duel but perhaps increased the risk of damage to any delicate parts of the apparatus. The sword has a thin wire coiled around the handle and a thicker copper wire that extends straight down both sides of the hilt, in a parallel line with the groove running down the flat of the blade. A small knob at the very tip of the blade presumably prevents accidental injury to the actors. Perhaps the most interesting detail of the sword is the way its edge is made up of saw-like triangular teeth. This appears to be purely functional: an attempt to increase the local curvature of the blade and the total length of the surface. There is no trace of any connection the sword might have had with the glove; the current was carried entirely by contact.\textsuperscript{176} Presuming the other sword was similar to the Magic Circle artifact, the material evidence is consistent with the textual sources.

\textsuperscript{175} See Appendix, figs. 32-34.
\textsuperscript{176} Despite Hopkins’s report that when Valentine lost the duel, he unplugged his sword before throwing it away (\textit{Magic: Stage Illusions and Scientific Diversions}..., 342). Since no other source makes this claim, it seems reasonable to conclude that Hopkins is either relying on dubious information or describing another company’s imitation of the duel.
7.2.2.4  More questions than answers

However, both material and textual sources raise questions that are no longer possible to answer in full. The most intriguing of these is the genesis of the electric duel apparatus. It is safe to say that the overall effect was dreamed up by Irving, but who designed the swords and the special gloves? The toothed sword blades speak to at least some understanding of the electrical principles involved—whose understanding was it? According to Stoker and those who use him as a source on this matter, the individual responsible was Colonel Gouraud, Thomas Edison’s London representative.\(^{177}\) As Irving Society member Michael Kilgarriff points out, it is certain that Gouraud and Irving were acquainted. As evidence, Kilgarriff emphasizes the existence of wax cylinders that are the only known recording of Irving’s voice. Shortly after Edison produced the first phonographs, he sent the technology to Little Menlo, Gouraud’s home in London, also known as the “electric house.” Irving’s rendition of speeches from Richard III and Henry VIII were among the recordings made using the early form of this technology. He mentions the phonograph to Terry in a letter dated August 31, 1888.\(^{178}\) Aside from Stoker’s certainty, there is a strong case to be made for Gouraud: he certainly had the resources and the knowledge to build a system like the electric swords.

The other contender for the title should be familiar to readers of this dissertation—according to the magic community, it was J. N. Maskelyne who designed the electric swords for Irving upon special request.\(^{179}\) Maskelyne and Irving were certainly acquainted, although perhaps Maskelyne’s own account of how closely is exaggerated. Maskelyne claimed a visit to his own performance inspired Irving to schedule matinées at the Lyceum.\(^{180}\) Many have shown the causal part of this claim to be untrue,\(^{181}\) but none has argued against the idea that Irving paid a visit to the Egyptian Hall. Irving was something of an amateur conjuror, although it is doubtful he expended much time on or interest in this hobby. He seems to have enjoyed attending conjuring shows: the Prince of Wales’s favourite conjuror Charles Bertram suggests that Irving was a

\(^{178}\) See Henry Irving Correspondence for a record of this letter.
\(^{179}\) Steinmeyer, Hiding the Elephant..., 183; Steinmeyer, Art & Artifice..., 35.
\(^{181}\) Davenport and Salisse, St. George’s Hall..., 91-92.
frequent onstage volunteer.\textsuperscript{182} Maskelyne had reviewed Irving’s exposure and parody of the Davenport brothers,\textsuperscript{183} so he was familiar with the great actor’s skill. It also must not be forgotten that a decade or so later, Maskelyne opened his own show in which characters fought using weapons that could strike down opponents using “vril,” the life-force. While Hoffman explains this illusion with the presence of secret blasting caps,\textsuperscript{184} he also mentions other illusions in which magic wands could be electrified using concealed batteries.\textsuperscript{185} At the very least, it seems Maskelyne would at least have been familiar with the overall concept behind the electric duel, whether or not it can be shown he knew of the particulars. One must also wonder if he was one of the conjurors whom Brereton claims approached Irving in the 1880s with suggestions of how to improve the ghost in \textit{The Corsican Brothers}.\textsuperscript{186} Certainly the fact that the Magic Circle museum has an electric sword in its possession at least begs the question of how it came to be there; equally plausible is a scenario in which a member of the magical community under the impression that Maskelyne was the inventor of the sword illusion and acquired the artifact for the museum based on this assumption of its historical significance. It is clear that Irving at least had a reputation for acquiring technologies of illusion from conjurors, though whether he did so was another matter entirely: James Walker, Pepper’s collaborator on \textit{Metempsychosis}, claims he designed the effect “for Mr. Irving’s necessities” only to find it was no longer needed.\textsuperscript{187}

Unfortunately, any correspondence between Maskelyne and Irving or Gouraud and Irving has been lost to time; the few letters still extant are short notes from Maskelyne to Irving requesting, as many did, to reserve a box for a Lyceum performance.\textsuperscript{188} At present, it is unlikely that evidence exists to resolve this question, since the case for the one depends on oral history and the case for the other on a single source. Nevertheless, one can note that the two possibilities are not inconsistent: it is possible that Maskelyne may have come up with the idea for the duel or the

\textsuperscript{182} Bertram, \textit{Isn’t It Wonderful?}…, 103.
\textsuperscript{183} Although this researcher has been unable to locate a copy of the review, it was purportedly reprinted July 16, 1911 issue of \textit{The Referee}.
\textsuperscript{184} Professor [Louis] Hoffman [i.e. Angelo John Lewis], \textit{More Magic} (London: George Routledge and Sons, 1890), 2.
\textsuperscript{185} Ibid. 4.
\textsuperscript{186} Brereton, \textit{The Life of Henry Irving}, Vol. 1, 325.
\textsuperscript{187} Quoted in Pepper, \textit{The True History of the Ghost}…, 45.
\textsuperscript{188} See \textit{Henry Irving Correspondence} for a record of this letter from July 12, 1882.
suggested mechanism to enact it while Gouraud was left to actually construct the device in a usable way. After all, Maskelyne’s strength was mechanical construction, not electrical wiring; if he did require the collaboration of someone like Gouraud, electrical work would be a plausible reason why. Perhaps Maskelyne’s contribution to the duel was analogous to the contributions of Direks to Pepper’s Ghost or Clarke to Maskelyne’s own Psycho. In any case, it is unfortunate that scholars do not know more about the origins of the device, as this might help to answer questions about its appearance.

It is also difficult to shed light on the duel by comparing it with the other uses of electricity for special effects in *Faust*, because it is difficult to determine the reliability of reports of these effects. In general, Irving used electricity for a number of diabolical effects, and he often used light effects to symbolize supernatural powers. There is evidence that the production displayed many electrical effects through its run, although it is difficult to tell from the surviving sources which innovations were actually acquired and which were mere fanciful conjecture. For example, as Mephistopheles, the devil incarnate, Irving may have worn electric lights in his cap; the *Illustrated Sporting and Dramatic News* of January 9, 1886 reports that Sir F. Bolton is inventing a way for Irving to carry three variously coloured lights on the inside brim of his hat. The writer adds that the same Bolton is working on “a sword so charged that he can at will produce an electric light on the point. When Valentine has fallen, Mephistopheles will point to him contumeliously with this weapon, and the face of the dead man will be illuminated.”

While Booth suggests the second of these effects was incorporated into the show, it is unclear whether there is any further evidence to corroborate anything beyond the letter-writer’s intention to produce them. Similarly, Irving’s use of gaslight was so clever that it is difficult to tell which of his lighting effects made special use of electricity. Even the writer for the *Engineer*

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191 Ibid.
193 For instance, Booth takes the mention of the red light that Mephistopheles “carries […] with him wherever he goes” in the November 8, 1887 *The New York Times* review (“Amusements: Irving’s “Faust,”” *The New York Times*, November 8, 1887) to support the existence of the illuminated cap; it seems equally likely that this description could support an interpretation involving a directed limelight instead.
thought the lightning that flashed around Irving when he first appeared as Mephistoephles was electric but later learned that this effect was accomplished through the ignition of lycopodium powder. One actual use of electric light, to illuminate the book Faust signs in the first scene, seems to have gone unremarked except by the Engineer, which noted it only because its reporters were speaking to the staff specifically about the production’s special effects. In the set-piece Brocken scene, famous for its elaborate spectacle and over-the-top special effects, many sources report Irving making fire flash around the head of the monkey (an actor in costume) whose head he patted. The Times’s reviewer mentions how the “piece of rock on which Mephistoephles sits […] seems girded with fire which flashes and crackles,” which sounds similar to the electric effect of the swords. The Times also attributes many more Faust effects to electricity, crediting to it the spurts of flame that Irving’s character suddenly called up “cunning electrical contrivances for producing flashes of fire in unexpected spots at unexpected moments.” This impression may not be entirely reliable; for example, Mephistoephles’s much-noted trick of pouring wine on the ground only to have it burst into flame was accomplished using a gas-burning pipe with a paper cover. Evidently, unless the mechanism of an effect was purposely promoted among the public, accounts of other supposedly electrical effects cannot be taken at face value, which means a careful historian must not rely on them for information about the electrical duel. The only clue from the Lyceum staff regarding other uses of electricity in the piece is stage manager Loveday’s explanation to an American interviewer that upon arrival at a new theatre, the company replaced the gas border lights with electric ones to be used during the “light scenes.” In other words, the second confirmed use of electricity was to power illumination rather than contribute to another electrical effect. One can observe, however, that accounts of the duel seldom give the incorrect means of production; this indicates that Irving and the Lyceum staff purposely de-constructed the aura of mystery surrounding the effect by sharing the explanation of its production. One can conclude from the fact that the electric apparatus was disseminated among the public that the performers thought both that the spectacle was important

194 “Theatrical Mechanism at the Lyceum Theatre,” 260.
195 Ibid.
197 “Faust at the Lyceum,” The Times, December 21, 1885, 10.
198 Ibid.
199 “Theatrical Mechanism at the Lyceum Theatre,” 260.
200 “The Stage Mechanism of "Faust." Mr. Loveday Talks About The Settings and the Forces Behind the Scenes.”
enough for explanation to be meaningful and that understanding improved the overall effect. In this respect, knowledge of the other electrical effects in *Faust* does contribute to the understanding of the duel.

Just as noting the public’s areas of ignorance regarding the other effects in *Faust* can clarify the handling of the duel, noting the historian’s areas of ignorance regarding the duel can shed light on what was important to recorders at the time. Although there is ample evidence of the visual details of the duel, despite occasional contradiction, and there are causal descriptions of how electricity transforms from battery to Satanic swordplay, accounts leave out many other details. Some of these have to do with senses other than the visual: what did the clash of the swords sound like? Electrical swordplay certainly makes a distinctive sound in modern experiments such as the video cited above. Did the electricity make a hum? Was the sound enhanced? Did the actors have to hide certain sounds with their lines? Other senses are similarly neglected: did the electric swords have a distinctive smell when in use? How did they feel to the performers holding them when electrified? While it is only to be expected that the audience did not record these impressions—Victorian auditoriums were large, and at the Lyceum, with a capacity of over 1700,201 audience members would have had a difficult time hearing the dialogue of a soft-spoken performer, let alone incidental sounds—it would have been possible for those involved in the running of the apparatus or its production to make a note of them. Like Sherlock Holmes’s dog that did not bark in the night-time, this lack of recorded data bears testament to a focus on the visual by both performers and audience and also suggests that these other sensory impressions did not make themselves noteworthy by being surprising or problematic.

Another area about which little information exists is the practical considerations of the effect. For example, at what point in the production did Irving, Tyars, and Alexander don the wired costumes? Hopkins claims Valentine threw his sword away after the duel: was this what happened202—and if it was, what happened to the sword during the rest of the scene?—or is this another unreliable report? Were the electric swords used as costume pieces through the entire performance, or did the actors switch them in for the pertinent scene? How large were the metal

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201 Booth, *Victorian Spectacular Theatre 1850-1910*, 94.
plates onstage, and were they uncovered for the entire performance? If so, was any effort made to hide them from the audience?

On a similar note, how did the actors understand the apparatus they operated every show? While they obviously shared a tactile knowledge of the effect and in some ways understood the electrical operation better than anyone else—they presumably learned what actions they had to take to get the effects they wanted, and according to the anecdote of Valentine getting shocked, they also must have quickly developed an intimate knowledge of the conduction of electricity—what did they understand themselves to be doing? Did they know the theory behind the effect? Did they understand the potential hazard to their bodies and grasp the principle behind the rubber shielding that protected them from it? Considering there is only the handful of vague stories of one actor experiencing a shock, they must have understood enough to avoid injury over the long run of the show. But did they simply trust blindly in the assurances of Gouraud (or Maskelyne)? There is little room in narrative theatre for performers to think about the physics behind the apparatus they use, but knowing whether the knowledge resided at the Lyceum and if so, in whom it resided would be helpful to understanding the effect.

In general, the nature of the information recorded about the duel suggests a devaluing of the performers’ experience and the human contribution to this technology of illusion. Like conjurors’ audiences focussing on “how it is done,” feeling satisfied at the understanding of the mechanics of a card sleight but unable to articulate how the effect of the trick depended on its performer’s presentation, theatrical audiences and performers ignored the hard offstage work necessary for the electric duel to function. The explanation of the effect in terms of batteries, wires, and specially rigged costumes at the expense of learned techniques and backstage organization suggests a valuation of technologies of illusion based solely on their physical apparatus. Victorian actor-managers and their staff focussed their explanations of effects on the technological concept—like Dircks—while tacitly devaluing the equally necessary but less glamorous details. They may have considered them to be more commonplace, since the bulk of backstage work is finding human solutions and organizing routines that succeed; they may have recognized that their audiences found them less interesting, since unlike special effects, human management is endemic to almost every field; or they may have not considered the human aspect
to be part of the applied scientific knowledge they characterized as providing the impetus for the effect.

Despite the vagueness and contradiction of descriptions of the electric duel—and in some places, because of it—the historian can form a picture of what must have occurred onstage. Although the strength of live performance is that the same show never runs identically twice, it is nevertheless reasonable to claim that, in general, Tyars drew on Irving and Alexander; Irving struck down Tyars’s sword; and the clash of their weapons emitted sparks and sometimes produced a blue electric discharge along the length of the swords. While it is obvious that the apparatus was successful in producing the intended physical results, the question remains of whether it was successful in producing the desired effect. To answer this question, one must look first to the audience’s reaction and then to what Irving intended to evoke with the duel.

7.3 The audience’s reaction

There is no doubt that Faust was an extremely successful production by the standards of its time. It boasted tremendous profits, drew a large audience, and attracted a clear demographic. Faust continued to run for the rest of Irving’s career, although the bulk of its production was in the first decade after its opening. Faust played for two continuous seasons, followed by a provincial and American tour. The show was revived three times in 1888, 1894, and 1902, and it is only fair to note that the original scenery for Faust was destroyed in a warehouse fire of February 1898, a definite impediment to the production of any show and in particular one that was as well known for its scenery and spectacle as Faust. It is therefore even more significant that despite this mishap, Irving was still playing Mephistopheles three years before his death. According to Booth’s figures, Faust played 187 shows in its first season and reached over 500 performances in its lifetime. He interprets the Lyceum accounts to show that apart from the opening night, at which up to half of the audience were invited, non-paying guests, the box-
office receipts for *Faust* never slipped below 300 pounds a night. To put this in perspective, Booth’s approximate ticket prices range from one shilling for a spot in the galleries to 10 shillings sixpence for a seat in the stalls or between 2 and 4 guineas for a private box. He lists the approximate capacity of the theatre during the production of *Faust* at about 1700-1800 individuals or roughly 420 pounds. This puts the theatre at approximately 75% capacity minimum each night for the first season; on a good night, the receipts could break 400 pounds, and Terry’s benefit performance took in 471 pounds. Booth calculates that the second season saw a reduction in attendance for an average of about 65% capacity or about 273 pounds a night. In other words, although Irving was certainly highlighting the positive in his September 1886 claim to the *Pall Mall Gazette* that "... there seems no cessation in [Faust's] popularity; and there is no saying how long it will run," there is also no reason to disbelieve his claim that on the most popular nights, the Lyceum had to turn away enough people to fill the theatre to capacity a second time. While his claim of a “constant stream of people a hundred deep” is hyperbolic, and his figure of 2000 for the capacity of the Lyceum is perhaps rounded up, he is genuine when he explains that "*Faust* [...] has been the greatest success we ever had at the Lyceum," besting the previous success of Shakespearean productions, and his figure of 35,000 people who have already seen *Faust* seems reasonable. Helpful for the historian, Irving expands on his understanding of the potential audience for London shows. A hit show, he explains, has roughly one and a half years of life in London. He estimates the resident London theatregoers at eight hundred thousand and the number of visitors who might attend the theatre at twenty thousand. Based on these figures, he expected approximately two-thirds of potential theatregoers to maintain the success of a hit play. Irving does not guess at how many audience members could be expected to see it for a second or third time, although Terry writes that most

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209 Ibid.
210 Ibid., 123.
211 Ibid., 123.
212 Ibid., 124.
213 “Re-Opening of the Lyceum Theatre: An Interview With Mr. Henry Irving,” 1.
214 Ibid.
215 Ibid.
216 Ibid.
217 Ibid., 2.
of the people who came to see Faust were “repeaters.”\footnote{218} In any case, Irving’s investment of over ten thousand pounds\footnote{219} in the production paid off; despite the fact that Booth’s figures put running costs of the show at about three times the initial investment,\footnote{220} they also put net profit at a little under the same. People were flocking to see Faust in droves.

As a side note, although interest in Faust as a whole and interest in the electric duel for its own sake are distinct, if related, phenomena, and this chapter will deal with the latter further on, it is nevertheless clear that the duel was iconic to some degree. Not only do articles frequently mention it,\footnote{221} but, in what is perhaps a more trustworthy indication of public notice, parodies mocked the scene. Faust inspired a number of parodies that featured special effects as complex as the original, including a sketch using the Metempsychosis apparatus in which a gentleman, upon overindulging in curried prawns, finds himself experiencing strange visions that include Mephistopheles, Faust, and Margaret.\footnote{222} Another parody of Faust, a burlesque entitled “Faust and Loose” was produced by Irving’s friend Toole.\footnote{223} This production deliberately recreated the electric duel from the Lyceum. To duplicate the effect, Toole consulted conjuror Charles Bertram, who rigged up a system where each sword was equipped with a tube of acid intended to break and ignite chemicals like chlorate of potash, firing a scrap of red flash paper.\footnote{224} That a burlesque production would go to such trouble to imitate the effect demonstrates not only that its manager believed audiences would recognize the reference but also that the original effect was prominent enough that audiences would to some degree expect it at a parody of the Lyceum production. Bertram remembers that when the swords he designed touched each other, spurting red flames alternately, it “necessarily caused a deal of laughter.”\footnote{225} This suggests the audience’s

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\begin{itemize}
  \item \footnote{218} Terry, Ellen Terry’s Memoirs..., 187.
  \item \footnote{219} “Re-Opening of the Lyceum Theatre: An Interview With Mr. Henry Irving,” 2.
  \item \footnote{220} Booth, Victorian Spectacular Theatre 1850-1910, 123-124.
  \item \footnote{221} As in “The Stage Mechanism of “Faust.” Mr. Loveday Talks About The Settings and the Forces Behind the Scenes”; “Theatrical Mechanism at the Lyceum Theatre,” 260; and “Faust at the Lyceum,” The Times, December 21, 1885, 10.
  \item \footnote{222} Pepper, The True History of the Ghost..., 45.
  \item \footnote{223} Terry, Ellen Terry’s Memoirs..., 188. Terry and Bertram differ on who starred as Mephistopheles in the production, with Terry claiming it was an actor named Fred Leslie (Ellen Terry’s Memoirs..., 188) and Bertram remembering Toole taking that part (Isn’t It Wonderful?..., 138-139).
  \item \footnote{224} Bertram, Isn’t It Wonderful?..., 138.
  \item \footnote{225} Ibid., 139.
\end{itemize}
recognition of the effect as a take-off of the original duel and supports the idea that the effect was one of the more striking aspects of the production.

The success of *Faust* can also be seen in the nature of the audience who came to see it. *Faust* attracted crowds of different nationalities and supported a tour across the United States and Canada. The *Standard* takes the trouble to report the success of *Faust* in New York, citing a full house and applauding audiences.\(^{226}\) The *New York Tribune*’s review was positive,\(^{227}\) and although *The New York Times*’s reviewers were unimpressed with the spectacle in both 1887 and 1888, they concede at both times that large audiences are filling the theatre.\(^{228}\) In the British provinces, *Faust* received a similarly positive reception. The *Liverpool Mercury* reported a full house and gushed, “Rarely, indeed, in the history of the stage in this city [...] has there occurred an incident, or a series of incidents, such as was compressed within three brief hours at the Alexandra Theatre last evening.”\(^{229}\) But word of *Faust* crossed borders and oceans. In his closing-night speech on the last performance of the 1886-7 season, Irving reportedly asserted, “The interest in 'Faust,' ladies and gentlemen, has not been confined to England, or even to England and America, for we have had invitations to represent it in many European capitals.”\(^{230}\) Even in London, *Faust* received a fairly diverse number of visitors. For the higher classes, attendance of *Faust* was an important piece of social currency. *Blackwood’s Edinburgh Magazine* singles it out from other theatrical offerings as the chief event of the year\(^{231}\) for the middle class, who, it claims, are finally able to experience the more sophisticated joys of the city once the upper classes are no longer in town.\(^{232}\) The aristocracy certainly made their own appearance at *Faust*, with the Royal Family reportedly in a box on opening night and the Prince of Wales present behind the scenes.\(^{233}\) —Brereton specifies that the Princess of Wales and

\(^{226}\) “Mr. Irving's “Faust,”” *The Standard* 19758 (November 8, 1887): 5.

\(^{227}\) “Mr. Irving's “Faust,”” *The Standard* 19759 (November 9, 1887) :5.


\(^{231}\) “London in January,” 258.

\(^{232}\) Ibid., 246.

\(^{233}\) Fitzgerald, *Sir Henry Irving...*, 103.
Princess Louise were the other two royals in attendance. Foreign royals also graced the Lyceum for Faust. Stoker remembers the pleasant visit of the Crown Prince of Germany (the native country of the Faust legend). Archival letters of congratulations from audience members reveal among Faust’s audience notable public figures from many nations, like Sims Reeves, Sarah Bernhardt, Célestine Galli-Marié, W. E. Gladstone, Nellie Melba, Joseph Chamberlain, and F. Max Müller. Perhaps the visitor whose spectatorship attracted the most attention was the composer Franz Liszt, who saw Faust by special invitation, dining with Irving afterwards, and whose attendance attracted its own sizable viewership to the performance; Stoker recalls having to fortify Liszt’s box to prevent the public from accosting him. While it is true that not every citizen could afford to attend the production—the cheapest ticket at approximately one shilling could represent up to a fifth of the lowest-paid domestic worker’s weekly budget, and the prices excluded the poorer among the working classes. Similarly, concerns for moral hygiene excluded some female theatregoers from the Lyceum; Terry remembers how some mothers who were perfectly happy allowing their daughters see the Faust story in Gounod’s opera shuddered at the thought of their offspring sitting through the drama at the Lyceum. Nevertheless, there are records of female audience members who enjoyed Faust, and the queues for the cheapest seats were long indeed. There can be no doubt of Faust’s success when one reads Percy Nash’s account of waiting outside the theatre in a crowd excitedly discussing Irving’s past productions, so densely packed that Nash recalls taking out his shilling while still outside because he knew there would not be room to manoeuvre when he

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236 Sims [Herbert] Reeves, letter to Henry Irving, April 19 1886.
237 Bernhardt, letter to Henry Irving.
238 Galli-Marié, letter to Henry Irving.
239 Gladstone, letter to Henry Irving.
240 Nellie Melba, Letter to Henry Irving, [n. date].
241 Joseph Chamberlain, letter to Henry Irving, January 2, 1887.
242 Mueller, letter to Henry Irving.
244 Booth, *Victorian Spectacular Theatre 1850-1910*, 94.
245 This is going by the self-admittedly rough figures of Sally Mitchell, which put lowest-paid servants and assistants at a yearly income of between twelve and twenty pounds (Sally Mitchell, *Daily Life in Victorian England*, 2nd ed. (London: Greenwood Press, 2009), 33).
reached the pay-box.\textsuperscript{247} Although the audience for \textit{Faust} drew more heavily from some sections of society than others, the play was a success with all.

Another measure by which \textit{Faust}'s success can be evaluated is the discussion it fostered before and after its production. In some respects, \textit{Faust} was a success before it even opened. Irving managed to foster positive word-of-mouth before seating a single patron. His intention to stage \textit{Faust} drew commentary and criticism from the initial stages. Most of his intended audience were familiar with Goethe; many famous figures, such as W. S. Gilbert, who had attempted to adapt the work himself for his play \textit{Gretchen}, categorized the original as untheatrical.\textsuperscript{248} In anticipation of the opening, the \textit{Standard} dedicated an entire article to debating whether Irving could stage the unstageable, noting both the difficult philosophical content and slow pacing of Goethe’s original and the unsophisticated tastes of the London audiences, who would not support a production that lacked spectacle.\textsuperscript{249} Once the play was running and audiences had been able to experience it themselves, many critics and spectators debated whether Irving and Wills had succeeded in preserving the concepts of Goethe while packaging it in a format palatable to the London theatregoer. Many decried changes such as Faust proposing marriage to Margaret, the omission of Faust’s final salvation, and the cutting of favourite scenes.\textsuperscript{250} Others criticized Irving’s interpretation of particular characters, arguing that since Mephistopheles and Faust represent larger concepts such as diabolical evil and human fallibility, they must be portrayed with precision.\textsuperscript{251} But the most popular argument—and most pertinent to technologies of illusion—was the debate over whether spectacle and sophisticated philosophy were fundamentally incompatible.

Some writers viewed the combination pragmatically. Rather than note the inconsistencies of the adaptation, they believed, those of an intellectual bent ought to be grateful to Irving for popularizing a difficult subject matter. Their perspective is not unlike those who viewed the

\textsuperscript{247} Nash, “Irving as Mephistopheles,” 260.
\textsuperscript{249} “On Saturday Evening Next,” 5.
\textsuperscript{250} “Faust at the Lyceum,” \textit{The Times}, December 21, 1885, 10; ““Faust” at the Lyceum,” \textit{The Graphic}, January 2, 1886.
\textsuperscript{251} See, for instance, “London in January,” 263.
popularization of science with a similarly optimistic (if naïve) outlook: true, the information on offer is neither complete nor entirely accurate, but it is better that more people have a basic knowledge of the facts—and that perhaps some will be inspired for further individual exploration—than to do nothing to address widespread ignorance. Lyman H. Weeks, a reviewer for The Dramatic Year, articulates the synthetic position the most clearly: although on first attending Faust, one is tempted to see the spectacle and the drama as two separate elements, repeat viewings make it clear that they are harmonic parts of the same show, “each adding to and enforcing the effect of the other.”252 Although spectacular, Weeks argues, the setting and stage effects encourage intellectual growth rather than discouraging it, because they strive for realism, not sensationalism.253 In other words, these settings are not confined to being fictions of the real; they also work as fictions of the true, and in doing so, they help the audience to consider the dramatic fictions of the true more deeply. The Times goes so far as to suggest that one of the reasons Goethe is unplayable is because the stagecraft required to raise the supernatural effects from the absurd to the sublime has not been achievable until Irving’s production.254 This critic too sees fictions of the real as enabling rather than hindering fictions of the true. His message is more mixed than that of Weeks: he goes on to enumerate the differences between Goethe and Wills to “palliate” upset Goethe lovers255 and admits that the stunning Brocken scene, the most famous part of Irving’s Faust, in which Mephistopheles hosts a meeting of demons and witches amid flames and thunder on the Brocken mountain, is both likely to be the strongest contributing factor to the success of the play and philosophically meaningless.256 Other reviewers skirt the question of the role of spectacular effects in encouraging intellectual engagement with the drama by downplaying the differences between Goethe and Wills and denying that the spectacle has any effect on the intellectual gravity of the piece. William Heinemann writes in The Musical Times and Singing Class Circular that the only problem with the production is how it does not preserve the original ending of Faust ascending to heaven once he learns that happiness is being

252 Weeks, “Scenic Art in Mr. Irving’s Faust,” 42.
253 Ibid., 44.
254 “Faust at the Lyceum,” The Times, December 21, 1885, 10.
255 Ibid.
256 Ibid.
good to others—otherwise, the production is “admirable.” Brereton insists that Irving was able to completely preserve the spirit of Goethe in the production. Even the hyper-critical Joseph and Elizabeth R. Pennell, writing for Henry James’s *The Century*, a publication not known to be favourable to Irving, agree that since Goethe never specified a location or time for *Faust*, and the original legend is vaguely medieval, any setting that achieved a sense of the middle ages was suitable. This, they concede, Irving provided. Still other reviewers simply accept the impossibility of any faithful adaptation. *The Graphic*’s reviewer concurs with Gilbert that translating Goethe faithfully to the stage is an impossible task and praises the production for its entertaining effects that underscore the characters’ personalities. One *Illustrated London News*’s reviewer agrees, pointing out that Gounod’s opera ran into the same difficulties, though in a different review, another writer (or perhaps the same, articulating a change of heart?) maintains that Wills and Irving have improved upon previous adaptations. Even the reviewer for *Punch*, though quick to ridicule the opening-night difficulties and make fun of Mephistopheles’s appearances in clouds of vapour that “came up so frequently as to suggest the notion of the District Railway being underneath with rather imperfect blowholes,” conceded that the performance was nevertheless “Faust-rate” and revealed that he or she intended to see it again. On the whole, the positive sentiment seemed to follow the same lines as that of the reviewer who praises Irving—and by extension, Irving’s spectacular production—for bringing Goethe to “the masses.”

This sentiment was to a certain extent justified. One must be careful not to take such reports at face value; it could be that the public’s underlying interest in the Faust legend kindled their interest in the Lyceum show, but whether Irving’s production was the cause or the effect, it was

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259 Pennell and Pennell, “Pictorial Successes of Mr. Irving’s “Faust,”” *309.*
260 ““Faust” at the Lyceum,” *The Graphic*, January 2, 1886.
262 “The Playhouses. “Faust at the Lyceum,”” *660.*
263 ‘Nibbs,’ “The Latest Faust; Or, Wills's Smoking Mixture,” *Punch, or the London Charivari*, January 2, 1886, 4.
264 Ibid.
265 Ibid.
266 “About Mr. Irving,” *650.* Scare quotes in original.
true that following *Faust*, the public took a greater interest in the German writer. Over one hundred thousand copies of Goethe sold following the production—Irving himself joked about how the play had stimulated sales of the original text as well as “*the Mephistopheles hat, and the Margaret shoe.*” Audiences who might not have been mindful of or attracted to the original Goethe found interest in Irving’s *Faust*.

Despite this evidence that Irving’s spectacle had helped bring *Faust* to the consideration of many who had not encountered it before, another group of critics and audience members took the opposite viewpoint on the compatibility of special effects and intellectual depth: Irving and Wills had mutilated Goethe’s masterpiece, and the beauty of the spectacle not only could not replace the missing philosophical themes but actively cheapened what intellectual attraction remained. Even Laurence Irving notes that his grandfather lacked the respect for Goethe that he had for Shakespeare, content to contort the German writer’s words when he never would have dreamed of changing a syllable of the Bard. Ellen Terry remembered the production getting labelled as a “*distorted caricature of Goethe,*” though she wryly notes that German visitors seemed to be less disturbed than their English counterparts by the purported blatant desecration of German culture. She hints that the backlash against *Faust* was particularly severe only because it was so popular—if the majority had not been watching and enjoying it, the critics would not have felt the need to pick it apart. Irving’s constant critic William Archer felt the piece was a disservice to Goethe but there was unfortunately no surmounting the low level of public taste. After the play opened, Wills found himself in a duel of letters to the editor with an H. Schütz-Wilson in the pages of *The Times*, forced to defend, among other things, daring to produce a *Faust* that did not follow Goethe word for word, that watered down the title character, and that set the scene in Nuremberg instead of the much more appropriate Leipzig. Schütz-Wilson also criticized the

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271 Ibid.
spectacular effects of the Brocken scene, claiming it wasted time onstage for no appreciable dramatic result and fell short of the supernatural powers Goethe described anyhow.\textsuperscript{275}

Other audience members wrote Irving directly. Novelist Julian Sturgis told Irving that his portrayal of Mephistopheles watered down the manly virtues of Faust present in Goethe’s text,\textsuperscript{276} and F. Max Müller gently pointed out that the Lyceum Faust failed to present the ultimate moral message Goethe embodied in the redemption of Margaret.\textsuperscript{277} Many felt that the urbane wickedness and sly humour of Irving’s Mephistopheles did not represent true moral evil as Goethe understood it. Critics chastised the actor for not achieving Goethe’s intellectual devil,\textsuperscript{278} calling the spectacle a gratification of the vulgar over the artistic;\textsuperscript{279} they clamoured that the stage was vulgar and could never represent the ideas Goethe had intended to set down;\textsuperscript{280} and finally, during the 1902 revival, The Times’s reviewer announced that despite its broad appeal, it was time to stop pretending that Irving’s Faust was art.\textsuperscript{281} Another common complaint was that Irving had permitted literary heresy by having Faust propose marriage to Margaret, an addition that was pure Lyceum. Even Irving’s supporter Pollock admitted to the alteration.\textsuperscript{282} Punch referred to it darkly as the “marriage” motive,\textsuperscript{283} The Times called it “prudery”\textsuperscript{284} and when the offending lines were rumoured to have been finally cut, The Illustrated Sporting and Dramatic News conveyed its sigh of relief to its readers.\textsuperscript{285} One of the most vicious criticisms appeared in Henry James’s The Century. The writer, likely James himself, accuses Irving of substituting spectacle for dramatic content. He accuses the actors and actresses—even the otherwise vaunted Ellen Terry—of playing their characters shallowly and without depth of feeling. Wills’s script is “so meagre, so common, so trivial.”\textsuperscript{286} All in all, Irving has committed an unforgivable artistic

\begin{footnotes}
\footnotetext[274]{Ibid.}
\footnotetext[275]{Sturgis, letter to Henry Irving.}
\footnotetext[276]{Mueller, letter to Henry Irving.}
\footnotetext[277]{“London in January,” 262.}
\footnotetext[278]{Ibid., 264.}
\footnotetext[279]{One can infer these claims from the direct response to them in Hatton, “The Lyceum Faust,” 6.}
\footnotetext[280]{“Faust at the Lyceum,” The Times, April 8, 1902, 12.}
\footnotetext[281]{Pollock, Impressions of Henry Irving..., 39, 45.}
\footnotetext[282]{“Nibbs,” “The Latest Faust; Or, Wills's Smoking Mixture,” 4.}
\footnotetext[283]{“Faust at the Lyceum,” The Times, December 21, 1885, 10.}
\footnotetext[284]{“Drama,” The Illustrated Sporting and Dramatic News 24, no. 631 (January 9, 1886): 428.}
\footnotetext[285]{“The Acting in Mr. Irving’s “Faust,”” 312.}
\end{footnotes}
crime: he has “assumed that the great elaboration of a play as a spectacle is a complete expression of it.”\textsuperscript{287} James (or his writer) saw spectacle as fundamentally incompatible with artistic depth, not in the sense that a performance that had spectacle was necessarily inartistic, but in the sense that spectacle was forever external to profundity. There was no chance that spectacle might have deeper meaning in and of itself. From this view, the special effects were in direct opposition to the artistic aims of \textit{Faust}.

The debate over whether \textit{Faust} was high art or mindless spectacle extended overseas. Historian Madeleine Bingham suggests that the Americans were less interested in Irving’s production as an adaptation of Goethe and considered the play to be artistic,\textsuperscript{288} and while it may be the case that this was the difference in the overall trends between responses in the United Kingdom and those in North America, some reviewers raised the issue nonetheless. The critic William Winter praised Irving’s Mephistopheles for transcending Goethe’s;\textsuperscript{289} and Irving spoke at the New York Goethe Society on March 15, 1888.\textsuperscript{290} On the other hand, \textit{The New York Times} called Wills’s script a “feeble” interpretation of the original.\textsuperscript{291} If the debate was less widespread in North America, it was no less vehement.

### 7.4 Was Irving successful?

It is important to include public reactions to \textit{Faust} in the evaluation of its special effects, including the electric duel because Irving used technologies of illusion for two purposes. The first of these was to create beautiful images to appeal to the aesthetic sense of his audiences. Irving was well known for his sense of colour and composition, and every element comprising a scene came under his care. Stoker recalls an incident during the design of the famous Brocken scene, in which he and Irving were watching the grey-green set and Stoker commented that the scene felt drab. Irving dismissed the criticism: the scene would come together when staged, he said, and he proved right. The setting Stoker had thought drab was united by the crimson figure

\begin{itemize}
\item \textsuperscript{287} “The Acting in Mr. Irving’s “Faust,”” 313.
\item \textsuperscript{288} Bingham, \textit{Henry Irving and the Victorian Theatre}, 231.
\item \textsuperscript{289} Irving, \textit{Henry Irving: The Actor and His World}, 488.
\item \textsuperscript{290} Brereton, \textit{The Life of Henry Irving}, Vol. 2, 120.
\item \textsuperscript{291} “Mr. Irving’s “Faust” Again.”
\end{itemize}
Irving cut as Mephistopheles. Irving always had the overall pictorial effect in mind, and the primarily visual special effects like the electric duel figured into his onstage vision. Like the other elements of the production, they contributed to the stage picture Irving hoped to create. That this effort was successful is clear from audience reactions. Whether they saw Faust as great art or trivial spectacle, reviewers and letter-writers agreed that the show was visually stunning.

Even James’s The Century dedicated a whole article to praising the visual aesthetics of the show, and The New York Times, otherwise dismissive, admitted that “the scenic features,” including the scenery and the grouping of the supernumerary crowds, were excellent. Meanwhile, the actor-manager received gushing letters. Testimonials from audience members included: “I was astonished and delighted -- not only by the horrors, and weird effects, but by the lovely and holy picture of the concluding scene,” “Vous avez porté dans votre Faust, la science pratique et théorique de la mise en scène à son point le plus culminant,” and “could [the mise-en-scene] have been ten years I suppose it could not have been done better” (and this last from Gladstone). Evidently, Irving was successful in incorporating the duel into an appealing stage image.

However, as the above characterization of the debates surrounding Faust show, he was less consistently successful in the second of his goals: to incorporate technologies of illusion like the electric duel into the character and personification of evil Mephistopheles and use their effects to expand on his nature. Irving’s production of Faust demonstrates his focus on the Mephistopheles character in several ways. In correspondence between Irving and Wills during the adaptation of the play, it is clear that Irving asks for revisions that re-structure the play to emphasize Mephistopheles. Wills writes, “Your kind letter was an immense relief and delightfully pointed out what was to do - I want to work at once - In all I quite agree with you: -

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293 See Pennell and Pennell, “Pictorial Successes of Mr. Irving's “Faust.””
294 “Mr. Irving’s “Faust” Again.”
295 Gilbert, letter to Henry Irving.
296 Victor Mauret, letter to Henry Irving, June [18--].
297 Gladstone, letter to Henry Irving.
I have lovingly worked [crossed-out word] and diversified the character of Meph throughout,”suggesting Irving’s concern with the meatiness of the role in store for him. A number of Wills’s reports begin with a positive description of the latest scenario he has written for Mephistopheles and confidence in Irving’s ability to perform the part. Although it would be natural for a playwright writing to his employer to emphasize the suitability of a play for that employer’s personal gratification, the extent to which Wills focuses on Mephistopheles shows that he is at least aware that the character is Irving’s chief concern. Similarly, although of course audience members writing to Irving belong to a biased sample—those who not only enjoyed the play enough to write to its performers but also felt a sufficient connection with Irving to address him directly—the frequency with which Irving’s Mephistopheles is mentioned as a key feature of the play suggests the dominance of that character in the script. In addition, some writers continue to discuss Mephistopheles in a context not adulatory to Irving, discussing the devil as a character or offering their own insights into his motivation rather than praising Irving’s performance of him. For instance, Joseph Chamberlain muses on why Mephistopheles is so bad. This suggests a genuine engagement with the character rather than a polite attempt to offer praise. Others’ focus is more straightforward: one correspondent writes that Irving’s Mephistopheles is “the perfect conception of Goethe's marvellous hero if he may be called such - the centre figure of that wondrous drama he is anyway,” and another even laments, “the only thing, which rather vexed me, was that the play had become Mephistopheles, not Faust [...] This comparative ineffectiveness of Faust, the man, on the boards is probably inevitable. But I think that in your version it is made worse, instead of better.” Journalistic reviewers, too, commented on the anaemic portrayal of the titular character and the dominance of Irving’s Mephistopheles. One echoes the letter-writer’s complaint that Faust was “a play which might more fitly be called "Mephistopheles."” Among The Century’s complaints was the criticism that the dominant Mephistopheles (and his comic paramour Martha) took attention away from the meaningful romance of Faust and Margaret. In fact, it was obvious from the start that Irving intended

298 Wills, letters to Henry Irving.
299 Chamberlain, letter to Henry Irving.
300 Hawley Smart, letter to Henry Irving, [n. date].
301 Sturgis, letter to Henry Irving.
303 “The Acting in Mr. Irving’s “Faust,”” 313.
Mephistothes to be the focal point of the play. As the actor-manager of the Lyceum, Irving took the lead role in most productions. He seldom produced plays that did not have a main part suitable for him, and it was expected that he would star in every production. For instance, despite being too old for the part and his personality being more suited to that of Mercutio, Irving decided to take the titular male role in Shakespeare’s *Romeo and Juliet*.\(^{304}\) Even if it were doubtful that Irving intended to dominate the stage as Mephistothes from his interviews and writings, his visual design made it clear. Irving wore bright red as Mephistothes and designed the colouring of the entire rest of the production to set off his colourful figure.\(^{305}\) As one letter-writer to *The Century* put it, Irving was excellent at “making a picture of his own person, of his own figure and face: he is always in the right relation to the picture, which includes the whole stage; and the picture that he himself makes, by himself, is almost always fine.”\(^{306}\) He purposely set up the stage to direct the audience’s attention to Mephistothes. There can be no doubt that he intended the devil to be the focal point of the play.

With Mephistothes understood to be the main subject of *Faust*, Irving’s use of technologies of illusion becomes clearer: he employed them to illustrate Mephistothes’s personality—and therefore the nature of evil—to his audiences. Irving wrote of the character that Mephistothes was a unique mixture of human and spirit. He hoped to present to his audiences a persuasive evil with the personality of an urbane squire. His Mephistothes was sly, droll, mercurial, and, at turns, horrific. Irving saw his mise-en-scene as key to achieving this portrayal. He wrote, “It is impossible to represent such a creation [Mephistothes] in any adequate fashion without summoning picturesque aids to heighten the spiritual effect of the play.”\(^{307}\) By this, Irving meant that the emotions evoked by the aesthetic beauty he created were key to the audience’s visceral understanding of the Mephistothes he wished to convey, a demonic creature that preyed on the emotions from a position of supernatural power. In the *Faust* legend, he wrote, the “intense reality of life [is] overshadowed by the supernatural.”\(^{308}\) Representing that supernatural was therefore crucial to the success of an appropriate staging of the story, and since Mephistothes


\(^{305}\) Pennell and Pennell, “Pictorial Successes of Mr. Irving’s “Faust,”” 310.

\(^{306}\) “About Mr. Irving,” 650.

\(^{307}\) Irving, “An Actor’s Notes...,” 802.

\(^{308}\) Irving, “An Actor’s Notes...,” 802.
is the supernatural character, it was important to show his unearthly influences. Irving therefore gave Mephistopheles a repertoire of illusions: appearances in vapour, causing wine to burst into flame when poured on the floor, controlling electrical discharges and violent storms—and, of course, interfering in swordplay. While today, theatre directors might choose to represent these acts using other means, in Irving’s own time, when the conventions of the stage tended toward pictorial realism, representing these attributes through visual attempts at isomorphism was only natural.

With this in mind, it is possible to evaluate the success of the electric duel on its own terms: did it effectively represent the supernatural powers of Mephistopheles to the audience? As revealed above, there is no unique answer to this question. For some, the duel embodied the frightening supernatural evil with which the devil tempted Faust; for others, the duel demonstrated nothing but a creative use of the electrical fluid that distracted from the fundamental philosophical themes of the play. The key difference between these two views is whether the audience was willing to accept the duel as a representation of supernatural powers or as a portrayal of those powers. One might assume that audience members who understood how the effect was created would have taken the former view and those who did not understand this would have taken the latter. Though intuitively appealing, this explanation is not supported by evidence. No effort was made to hide the mechanism of the duel; in fact, considerable effort was made to popularize it. This is because the Lyceum staff understood that both responses to the effect required knowledge of its genesis. An audience can accept a representation only if it understands that what it sees is a representation and not the thing itself. Knowledge that the swords and their electric discharge are neither deliberate puzzle nor unexplained phenomena is necessary to their acceptance as representations of Mephistopheles’s supernatural powers. That it is not sufficient is evident from the contrary reviews outlined above. Whether individual members of Irving’s audience chose to enter into the tacit contract of representation with Irving and his company depended on a myriad of contextual factors, including each audience member’s expectations; her prior understanding of Faust; her emotional commitment to that understanding; her attitude toward special effects; and various other factors too numerous and ancillary to enumerate, such as whether he liked the other members of the party with whom he attended the theatre, what friends had told him of the production, or simply whether he was in a good mood that day. Negotiation of meaning with the audience is essential to any technology of illusion, and Irving was successful only sometimes
with this aspect of the electric duel. However, for such negotiation to become possible, it was necessary that audiences understand the mechanism by which the physical effect of the duel was produced, even if their understanding was simplistic or imperfect. Only once they understood that they were not intended to take the effect they saw as real supernatural powers could they agree or disagree to enter into collusion with the artists and view it as a representation of demonic abilities.

While the example of the electric duel is not as simple as that of Maskelyne’s Psycho or even Pepper’s Ghost, it is instructive. The success of technologies of illusion used in special effects depends more overtly on bilateral communication between artists and audience, a dialogue in which spectators have equal power to establish or reject a representation as the performers. In a sense, special effects like Irving’s electric duel make more apparent the dependency of all technologies of illusion on audience collaboration. The fallacious division between fictions of the real and fictions of the true attendant on more traditional illusions, such as those of conjurors, obscures the core audience-performer relationship predicated on willingness to give and take spectators’ attention and together construct meaningful representations. Whether the stage is set for dramatic theatre, a magicians’ show, or a popular scientific demonstration, the fundamental nature of performance—and illusion—remains the same.
Chapter 8
Conclusion

After exploring the cases of Pepper’s ghost illusion, Maskelyne’s Psycho, and Irving’s electric duel, it is clear that the intuitive model of technologies of illusion as deceptions perpetuated on audience members by performers, effective only so long as the trickery is successful, is insufficient. Instead, the historian of technologies of illusion, whether approaching cases out of interest in questions of history of technology, history of theatre, or history of magic, must adopt a perspective in which technologies of illusion play a role in a representational process between performers and audience members that is collaborative rather than antagonistic. Performers construct contexts that persuade their audiences to cooperate and to assign meaning to the effects onstage; managing audience expectations by exploiting socio-cultural paradigms is as important as designing a mechanism that is difficult to understand. As this dissertation has shown, the success of the illusion known as Pepper’s Ghost was partly due to Pepper’s ability to use ghostly narratives to intrigue his audiences and frame his efforts using the then-popular discourse of rational science versus Spiritualism. Similarly, Maskelyne’s Psycho maintained its popularity not just because Maskelyne took pains to hide its mechanism—pains that, as has been shown, were ultimately futile—but also because Maskelyne placed the illusion in narrative and scientific contexts similar to those that buoyed Pepper’s success with the ghost illusion. Audiences were willing to see Psycho as a thinking machine that exemplified scientific discovery and could participate in the staged interpersonal conflict of a whist game. The ultimate proof that an audience’s knowledge of the mechanism of an effect does not prevent that effect from evoking an emotional and intellectual response is the fact that no effort was made to hide the apparatus responsible for Irving’s electric duel; in fact, the Lyceum staff shared the secrets of the device with journalists. Although the electric duel was not universally successful, this partial failure should be attributed to reluctance among the audience to accept the relationship between spectacle and theme that Irving wished to convey, not its knowledge of how the effect was produced. The success of treating technologies of illusion as technologies that represent rather than technologies that mimic is evident in the fruitfulness of this approach in these three seemingly diverse cases that span popular science, secular magic, and theatre. This success implies new approaches to apply to similar cases and suggests new areas of study.
For example, the tendency of performers to continue to refine their apparatuses as they improve illusions through their production runs and the dependence of material technologies of illusion on non-material aspects of performance encourage a re-examination of the ideas implicit in identifying individual technologies used onstage. The three case studies of this dissertation raise questions about whether technologies of illusion can and should be identified with the apparatus used to produce certain effects. As has been shown, these apparatuses often changed over time. The swords, plates, gloves, boots, and battery used to produce Irving’s electric duel were surely modified over the run of *Faust*, if only to adapt the equipment to new theatres while the production was on tour; as seen in chapters four and five, Maskelyne modified Psycho’s mechanism and appearance over its lifespan; and the many different incarnations of the effect known as Pepper’s Ghost prompt the question first raised by its co-inventor Henry Dircks: to what extent did the ghost illusion consist of the central concept of an image on a semi-reflective, semi-transmitting piece of glass, and to what extent did it comprise the minor physical features that made the illusion workable and the crucial intangible features such as the construction of context? In addition, since technologies of illusion are as dependent on the performance strategies and representational techniques with which they are displayed as they are on the apparatus that comprise them, historians must decide to what extent these non-material aspects are intrinsic to the technology. Is a semi-reflecting, semi-transmitting sheet of plate glass the same technology as that used to present “A Strange Story” when instead of producing a “live” ghost, it mimics the visual language familiar from cinematic dissolves to melt the image one performer into another? The difficulty of defining the necessary and sufficient features of an individual technology of illusion has twofold consequences. First, it implies that historians studying technologies of illusion must address these issues and make explicit the grounds on which they will limit their studies to the evaluation of individual performances of illusions or attempt to tie together intuitively similar performances that span time and space. Second, on a larger scale, it suggests that the study of technologies of illusion, unique among technologies in that they are openly used to represent an incident that does not occur, may prove useful in exploring fundamental conceptual questions of history and philosophy of technology.

One of these questions is how historians should understand and define the relationship between technologies and their inventors. In the three case studies this dissertation explores, it is evident that it is difficult to award credit for the success of a technology of illusion to a particular
innovator or presenter. In the case of the ghost illusion, although it was clear that both Pepper and Dircks made important contributions to the final design of the ghost, there was no model for comparing and evaluating the conceptual, mechanical, and performative insights each made, even though innovations of all three types were essential to the success of the effect. There was less controversy over the origination of Maskelyne’s Psycho, but his initial partnership with Clarke raises the question of whether the design of the pseudo-automaton is fairly attributed to Maskelyne. Likewise, it is clear from the accepted theories of the illusion’s mechanism that Maskelyne cannot have developed the performance routine on his own; at the least, the member of his company operating Psycho must have built up the skill set enabling him or her to project a suitable impression of human intelligence and communicate effectively with Maskelyne during the presentation. Finally, when it comes to the electrical apparatus necessary for Irving’s duel, the debate over whether Maskelyne or Gouraud was responsible for its design and installation implies not only contemporary uncertainty regarding the facts of the matter but also historical uncertainty over the valuation of different contributions. The fact that the surviving information on the production of the duel focuses on the presentation of Irving and the other actors and tends to characterize the mechanism as though it sprang full-formed from the mind of its creator (whether Maskelyne or Gouraud) suggests that the historical agents who recorded it also lacked a coherent framework to assess the input of the various parties involved. While the study of technologies of illusion cannot necessarily solve the problem of assembling such a framework, it can at least bring it out into the open. The issues affecting priority, originality, and responsibility for a technology’s success are more visible in this area simply because technologies of illusion are already discussed within a conceptual framework where mechanism and effect are recognized as distinct from one another.

These insights suggest that further research on technologies of illusion is desirable, and there are many directions to pursue this subject, both related specifically to the three cases under study in this dissertation and also pertaining to technologies of illusion in general. While archival research has uncovered a wealth of data on the ghost illusion, Psycho, and the electric duel, there are yet more sources to be studied. In a short time, the absorption of the holdings of the former Theatre Museum into the Victoria and Albert Museum will be complete, and additional artifacts and texts will become available, including the surviving electric glove and boot. In addition, because the magic community values its history, texts, ephemera, and artifacts pertaining to
many technologies of illusion have become scattered across private collections. With more time, a researcher could gain access to these sources. As well, reconstructions of the complex mechanism of Psycho and the potentially dangerous electric duel apparatus could supplement historical facts with experiential knowledge. Together, these sources might reveal new knowledge into the three technologies of illusion.

This additional information could provide insight into some of the important questions beyond the scope of this dissertation. For instance, one might wonder: why did audiences eventually tire of each illusion? If the revelation of the mechanism behind each effect did not bore them, what did? How was each effect dependent on the exact combination of circumstances in nineteenth-century London? How did changes of environment necessitated by tours and new venues affect the performances? New sources might also help to answer the unresolved questions of the extent to which unnamed contributors were responsible for each illusion’s success: perhaps a new source might shed light on who designed the electric duel and how it was implemented. New information might settle the question of who operated Psycho from backstage, how the performance style was developed in collaboration with Maskelyne, and the implications of how this person’s presence was hidden from the public. Research with new sources might also help historians to identify the major demographic trends of audiences for each technology and to reconcile these trends with the success and presentation of the illusion. Researchers could also identify how each of the three technologies fit into the historical networks of technologies of illusion already in use—how, for example, did the development and use of the trapdoor on the English stage influence the sub-stage design of Psycho? How did the design of English theatres affect the positioning of the second stage for the ghost illusion? How did stage lighting technology shape the development of the electric duel? And how did other technologies of illusion set the expectations of the audiences for these three effects? The stories of the ghost illusion, Psycho, and the electric duel are not complete; despite the detailed investigation of previous chapters, there is much more to learn.

There is also more to learn about the interactions between the three fields in which each technology was situated in nineteenth-century London. This dissertation has shown many of the connections between Victorian popularizers of science, Victorian conjurors, and Victorian actor-managers, as exemplified by Pepper, Maskelyne, and Irving, respectively. It has noted their
practical similarities, such as their uses of technologies of illusion and the performativity of their occupations, and it has described some of their shared ideological commitments, such as their dedication to the improvement of their audiences, their ideal of knowledge through observation, and their implicit self-identification as rational men of science. These similarities manifested themselves in everything from the ways each performer established his authority onstage to the way each defined himself in contrast to Spiritualist figures like the Davenport brothers. Examination of the specific strategies by which lecturers, conjurors, and actors encouraged audiences to accept the effects of their technologies of illusion could shed light on the way practitioners of each field identified themselves in relation to the others. Further studies of other prominent nineteenth-century technologies of illusion in all three fields could paint an informative picture of the relationship between all three, shedding light on the relationships between the arts and the sciences, between popular and research science, and between performance and science against the backdrop of professionalization of science.

Because technologies of illusion have seldom received the full attention of historians, there are also many cases in other times and places to which the techniques outlined in this dissertation may be applied. Victorian England alone saw the success of dozens of other performers whose work is ripe for study: the famous “Wizard of the North” Professor Anderson; Pepper’s partner, Thomas Tobin; and those responsible for the effects at Harris’s Drury Lane pantomimes are just a few. Important nineteenth-century Continental figures who have yet to receive microhistoric academic scrutiny include Robert-Houdin, often accredited as the father of modern secular magic; the staff of the Paris Opéra, known for its awe-inspiring effects; and the various lecturers who presented von Kempelen’s chess-playing Turk. And this is just the nineteenth century in Europe; other regions of the world at other times are also under-studied. For instance, there is a dearth of research on contemporary technologies of illusion ranging from mathematical “magic tricks” in children’s how-to books to Hollywood special effects to the new ways the magic community has adapted traditional methods and developed original techniques to adjust to the new technological landscape in which video and audio recordings have usurped much of the territory that used to belong to live performance. Investigation of technologies of illusion could inform the study of many burgeoning fields, including the birth of modern cinema, the growth and decline of Spiritualism, and even the continuing conflict between the sciences and alleged
“pseudo-sciences.” Since technologies of illusion have been generally under-studied in academic circles, and there are many historical and contemporary cases ready for further research.

In the end, understanding these technologies is important not only for the reasons outlined above but also because their study can inform the research practices of historians of magic, historians of theatre, and historians of technology. Historians of magic can benefit from exploring how the historiography implicit in the other two fields changes the stories magicians tell about the history of their profession. While both academic scholars and members of the magic community tend to focus on the agency and creativity of influential magicians, case studies like those in this dissertation suggest that equal focus on audience members, social context, and behind-the-scenes workers is necessary for a complete picture. Similarly, historians of theatre can apply lessons learned from studies of technologies of illusion to expand their understanding of special effects technologies used from the mekane of ancient Greek theatre to the rotating stages, projection, and video techniques used today in some professional productions. By viewing the technologies of the stage as technologies in additional to accepting them as tools to further the drama, historians of theatre can draw a more nuanced picture of what is going on onstage when performers incorporate technologies of illusion into their productions. Finally, the study of technologies of illusion ought to inform the approach of historians of technology to their subject matter. Although technologies of illusion are unique in that they are technologies designed for the sole purpose of representing something to an audience, every technology incorporates some aspect of representation into its function. It is not enough, for instance, that an automobile is able to transport passengers from one location to another; the public must also perceive and accept that it can accomplish this task if the automobile is to be successfully adopted and used. Technologies of illusion therefore raise important questions for historians of technology such as: to what extent are all technologies representational? To what extent is a particular individual technology representational? Is it possible to apply the methodologies used for representational technologies used in explicitly performative environments, such as on stage, to technologies that may represent in environments in which representation is implicitly embedded in the user experience? The study of technologies of illusion can benefit all three of the disciplines under which it might fall by strengthening interdisciplinary ties and informing each with methodology and concepts borrowed from the others. The traditional accounts of technologies of illusion fail to account for the complex relationship between technologies, performers, and audiences;
treating technologies of illusion as technologies that represent not only allows researchers to deal with the intricacies of their use but also opens the doors for new fields of scholarship that benefit scholars in multiple fields.
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Fig. 1 – A page of Maskelyne caricatures from the January 28, 1893 issue of *Moonshine* magazine (“Days With Celebrities No. 528,” *Moonshine*, January 28, 1893, 37)

Note that several of the caricatures make reference to his attacks on Spiritualism, including one in which he strangles the serpent of “humbug”; another in which he challenges the Davenport brothers and Daniel Dunglas Home from beyond the grave; and a third in which Spiritualist ladies try to persuade him to admit that he accomplishes his own feats through supernatural powers.

Note also that Maskelyne’s performances are characterized as respectable entertainment in the caricature in the lower left corner, in which the stereotypical Englishman Mr. [John] Bull is proud to bring his children to Maskelyne and Cooke’s.
Fig. 2 – The cover of the *Penny Illustrated Paper*, showing an illustration the “Spectre” drama at the Polytechnic (Cover image, *Penny Illustrated Paper* 272 (December 15, 1866): 369)

Note the appearance of the ghost: a white skeleton draped in a white sheet. It appears to sink through the floor.
Fig. 3 – An illustration of the Polytechnic’s scene in which spirits tempt a young squire on the night of his vigil (Pepper, *Cyclopaedic Science Simplified*, 25)

Note that the ghostly characters are presented as semi-transparent even though strongly lit images of performers playing ghosts using the ghost illusion apparatus tend to appear more solid than the figures of the dimly lit live performers on the visible stage.
Fig. 4 – An illustration from the *Illustrated London News* of a ghost scene at the Polytechnic ("THE SPECTRE DRAMA AT THE POLYTECHNIC INSTITUTION," *Illustrated London News*, 481)

Note that the otherwise puzzling choice to place a pillar in the centre of the stage suggests that the piece is being used to hide the edge of a pane of glass. Since the pillar is between the two ghosts, this implies the use of multiple panes.
Fig. 5 – A video still from a recorded rehearsal of “Faust’s First Conjuration,” which took place in January 2012 at the University of Toronto (Video by the author)

The Spirit (Gabrielle Houle) torments Faust (Alex McLean) at his desk.
Fig. 6 – A model of the Pepper’s Ghost apparatus from January 2012 at the University of Toronto, previous to work on the reconstruction (Photograph by the author)

Both the hidden “ghost” stage and the visible stage are shown in this photograph. The ghost stage is on the left side, where the figure on the horse represents the performer playing the ghost. The figure in black represents the real performer onstage in front of the audience. The figure in pink represents a performer standing on the visible stage between the audience and the glass. The audience would view this scene from the approximate direction of the camera, though not at the same angle.
Fig. 7 – A grid of masking tape is laid down in preparation for painting a dark grid of lines at forty-five-degree angles to the audience on the stage floor in January 2012 at the University of Toronto (Photograph by the author)
The dark grid both hides the shadow where the glass lies on the floor and facilitates the attempts of the performers to coordinate the movements of the ghost performer’s image with those of the visible live performer.
Fig. 9 – Hanging the masking for the reconstruction of Pepper’s Ghost in January 2012 at the University of Toronto (Photograph by the author)

The masking is necessary both to absorb light spill and to prevent audience members from seeing the hidden stage and the supports for the glass.
Fig. 10 – The reconstruction of Pepper’s Ghost in January 2012 at the University of Toronto
(Photograph by the author)

In this image, the masking and the glass are in place. Cloths have been draped over the glass and
at its foot to prevent members of the production team from accidentally walking into it.
Fig. 11 – Dircks’s diagram of a cross-section of his ghost apparatus (Dircks, *The Ghost!...*, 46)

Note the inclusion of performers who appear to be in costume, acting out what seems to be a narrative.
Fig. 12 – Dircks’s diagram of a cross-section of his ghost apparatus as it would be implemented in a theatre (Dircks, *The Ghost!...,* 46)

Note what appears to be a set representing the façade of a house on the visible stage. The dress of the figures suggests they are acting out a family drama or a melodrama. Note also that although the diagram appears to represent many aspects of a theatre, including the curtains, no lighting instruments are visible, and there is no indication of whence the illumination on the performer playing the ghost is generated.
Fig. 13 – The ball-and-cup apparatus (Photograph by the author)

The blue-and-red cap can fit into the top of the stand to make it appear as though the stand holds another blue ball, or it can fit into the bottom of the red cap to make it appear as though the two are a single, solid, red piece.
Fig. 14 – A diagram of the ghost illusion apparatus as published in a general how-to book in 1889 (David, *Secrets of Wise Men, Chemists, and Great Physicians*, 101)

Note that although the optics of the image do not quite work out, the diagram captures the general practical principle of the apparatus.
Fig. 15 – Pepper’s 1869 illustration of the ghost-illusion apparatus at the Polytechnic (Pepper, *Cyclopaedic Science Simplified*, 24)

Note that by this time, the performer playing the ghost is standing upright. An angled mirror reflects her image onto the overhead angled glass.

Also note that the depicted audience member appears to be of middle- or upper-class stature, judging by her attitude and clothing.
Fig. 16 – An undated illustration of Maskelyne presenting Psycho (New York Public Library collection)

Note the figure’s “exotic” appearance and Maskelyne’s pointed distance from the automata. This image seems to have been drawn early in Psycho’s career: it depicts the glass cylinder as resting directly on the floor-cloth.
Fig. 17 – An illustration of J. N. Maskelyne with his four automata from *The London Illustrated News*. From left to right: Psycho, Fanfare, Labial, and Zoe (“Maskelyne and Cooke’s Automata,” 369)

This illustration is unique in that it depicts the upper box by Psycho’s left arm with a digit on display.

Note that the legs on Psycho’s pedestal do not appear to be anywhere near Pole’s suggested nine inches in length.
Fig. 18 – Undated programme for Maskelyne and Cooke’s show, from the New York Library Collection (Programme from “Maskelyne & Cooke, the Royal Illusionists”)

Since the programme proclaims it to be Maskelyne and Cooke’s “Sixth Year in London”, it is probably from 1879. Note the illustration of Maskelyne and Psycho in the lower right-hand corner of the left leaf.
Fig. 19 – Psycho, February 22, 2011 (Collection of the Museum of London; photograph by the author)

The cards in Psycho’s tray are not historical; they belong to the author and were placed there to give the viewer a reference regarding size and visibility.
Fig. 20 – Psycho from the back with its inner workings exposed as they would have been for Egyptian Hall and St. George’s Hall audiences, February 22, 2011 (Collection of the Museum of London; photograph by the author)
Fig. 21 – The cover of the August 1910 edition of the conjurors’ periodical *The Wizard* (Cover image, *The Wizard* 5, no. 60 (August 1910))

This cover features J. N. Maskelyne’s challenge to would-be imitators and a photograph of him standing beside the new and improved Psycho. While Maskelyne and Psycho appear to be roughly the same height in illustrations from the 1870s, this Psycho is clearly taller than its creator.
Fig. 22 – A political cartoon from Punch magazine ("Psycho à la Rus(s)e," 159)
Fig. 23 – Plans for the framework of the cabinet adapted from Maskelyne’s design by the author for Socratic Theatre Collective’s production of *Ismene* in April 2011, side view
Fig. 24 – Plans for the framework of the cabinet adapted from Maskelyne’s design by the author for Socratic Theatre Collective’s production of *Ismene* in April 2011, front and back views
Fig. 25 – Stills from the archival video of Socratic Theatre Collective’s May 2011 production of *Ismene* (Video by Dave Heppenstall)

In the top still, Erin (Laura Vincent), emerges from her hiding spot in the cabinet. She closes the doors behind her. The cabinet remains in full view of the audience, who see that no one enters it, but when she opens it again (in the bottom still), she finds Te (Lucas James) on the previously empty top shelf.
Fig. 26 – Maillardet’s writer/draughtsman, built in the 18th century (Collection of the Franklin Institute, Philadelphia; photograph by the author)
Fig. 27 – Illustrations of various scenes from Maskelyne and Cooke’s show (“Messrs. Maskelyne and Cooke’s Anti-Spiritualistic Entertainment at the Egyptian Hall,” The Graphic, February 16, 1878, 181)

In the centremost of the bottom three scenes, Maskelyne (costumed as a quack doctor) “decapitates” his partner Cooke as part of a sketch.

Also note that in the scene in the upper left corner, Psycho appears to be roughly the same height as Maskelyne.
Fig. 28 – Maskelyne (right) makes a spirit-figure emerge from his side (Maskelyne, “My Reminiscences,” 24)

Maskelyne undertook this feat in front of a large audience on October 1, 1906 in response to a challenge from Archdeacon Colley defying Maskelyne to reproduce the effect he had witnessed from a medium (Salisse, “John Nevil Maskelyne,” 429). The assistant on the left takes the position Colley claims to have had during his experience.
Vere’s version of Psycho relies on a gear train to keep the figure’s right arm in constant motion; the bellows (O) move a stopping and starting mechanism that either stays the arm or permits it to keep moving.

While contemporary illusionists recognize that Vere’s design is workable, prominent illusion-makers John Gaughan and Jim Steinmeyer agree that the illusion can be done with a far less complicated mechanism (Gaughan and Steinmeyer, *The Mystery of Psycho*..., 59).
Fig. 30 – An undated image of the electric duel between Valentine (left), Mephistopheles (centre), and Faust (right) in Irving’s Faust (Temporary collection of the Theatre Museum, London; photograph by Dr. Judith Fisher circa mid-1990s. Reproduced with kind permission.)

Two metal plates are visible under the feet of Valentine and Faust, and Mephistopheles appears to have his toe on the stage-right plate as well.

However, note that sparks appear to emanate from the clash of Valentine’s and Faust’s swords while Mephistopheles holds his own sword aside. This is counter to many other accounts of the duel and suggests that the illustrator was working from faulty memory or mistaken hearsay.
Fig. 31 – The illustration of the electric duel in the original Lyceum souvenir programme (Hatton, “The Lyceum Faust,” 28)

Although the image is not very clear, note that Mephistopheles’s (centre) right foot is very close to the right foot of Valentine, making it possible that both are stepping on a single metal plate to complete the circuit.

A close examination reveals the hilt of Valentine’s blade appears to be of a similar shape to that of the sword in the photographs that follow.
Fig. 32 – An electric sword alleged to have been used in Irving’s Faust, February 28, 2011 (Collection of the Magic Circle, London; photograph by Scott Penrose)
Fig. 33 – The electric sword with the overall shape visible (Collection of the Magic Circle, London; photograph by the author)

Although it is difficult to see without enlarging the photograph, the triangular points along the edges of the blade are visible against the white wall as an even serration.
Fig. 34 – Detail of the hilt of the electric sword (Collection of the Magic Circle, London; photograph by the author)

Note the wire coiled around the grip.