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A Media Archaeology of Technologies of Enchantment

by

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment.

The following external institutions were visited for research and consultation purposes:

National Portrait Gallery
National Science and Media Museum
The Bill Douglas Cinema Museum. University of Exeter

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Abstract

This thesis explores how an understanding of an immaterial dimension of human experience was expressed and experienced in the context of nineteenth century engagement with science and technology. Drawing upon methods of media archaeology, it presents examples of visual technologies where apparatus and images representative of scientific and technological objectivity appear to have been appropriated and modified for the purpose of experiencing this dimension, an experience this thesis calls enchantment. The thesis suggests that some period specific behaviours associated with these visual technologies are sophisticated and subtle mechanisms that contribute to the affective and cognitive experience of enchantment.

The flickering negative/positive of Daguerreotypes was matched by the uncertain and shifting understanding about the place, status and meaning of photography was part of a broader instability in science and theological thinking during this period characterised by preoccupation with the production and acquisition of material objects and of progress. Photography’s beginnings, and even how to name the process was subject to debate (Batchen, 1997) The thesis argues that studio portrait photography was a significant feature within this context due to the studio being a place where there was deliberate construction of an obvious instability, and perceptual and cognitive dissonance resulting in a synthesis of the technologies of the external physical world and the viewer’s imaginary world.
Discussions of the period viewers’ engagement with and experience of these images and associated technologies is often concerned with their materiality. The thesis contributes to this existing scholarship by re-evaluating them in terms of our desire to make apparent a dimension of the human which extends beyond the material. It does this through an examination of the cultural, social and economic context of visual technologies during the second half of the nineteenth century. The thesis presents focused studies of photographic portrait studios and the resulting photographs, Life Model lantern slide shows, phantom rides, and Hugo Münsterberg’s design for a psychotechnical experiment as he developed his film theory, published in 1916 as *The Photoplay: A Psychological Study*. Through these studies, the thesis shows that the immaterial dimension of engagement with these technologies during the nineteenth century is a quality that endures though studio portrait photographs and is accessible to us as we encounter them now.
# Table of Contents

Table of Contents .......................................................................................................................... 7

List of Figures .................................................................................................................................. 10

Chapter One: Introduction and Method .......................................................................................... 31

*Introduction* .................................................................................................................................. 31

*Contribution of the thesis:* ........................................................................................................... 47

*Method* ......................................................................................................................................... 49

*Chapter Structure* ........................................................................................................................ 60

Chapter Two: The Context of Enchantment in the Nineteenth Century ......................................... 63

*A crystal palace* ............................................................................................................................ 71

*Novel technology, displayed to disorientate* .................................................................................. 72

*Taking to the sky* .......................................................................................................................... 76

*Collective frightenings* .................................................................................................................. 78

*X-ray Imaginary* ........................................................................................................................... 80

*A reading nation* ........................................................................................................................... 86

*Institutes and institutions* ............................................................................................................. 91

Chapter Three - Life Model Lantern Slides .................................................................................... 97

*Chapter Three Introduction* ........................................................................................................ 98

*(i) Textual provenance, social, cultural, technological environment* ........................................ 104

*(ii) Production and modes of distribution* .................................................................................. 108

*Production* ................................................................................................................................... 108

*Distribution* ................................................................................................................................. 121
III. The conditions of their exhibition: ................................................................. 124

iv. The images as expressions of transcendence, a spiritual dimension. .......................... 135

The Angel’s Promise ........................................................................................................ 148

Chapter Four: Phantom Ride ....................................................................................... 162

Introduction .................................................................................................................. 163

Phantom Ride ................................................................................................................ 166

Stereoscopes as precursors to phantom rides .............................................................. 175

Phantom rides and railways .......................................................................................... 177

The railway and supernatural forces ............................................................................. 179

In a pastoral poem of 1846, the railroad itself is described as having wings: ............... 180

Balloons. Great Wheels. Ascending heavenward ......................................................... 181

The panicking audience and the “headlong rush into space” ...................................... 182

Chapter Five: Münsterberg - imaginary images ....................................................... 186

Introduction .................................................................................................................. 186

Biography and public persona ..................................................................................... 189

Psychotechnics and Psychophysics .............................................................................. 191

The Harvard Laboratory ............................................................................................... 193

The Motorman Experiment ......................................................................................... 194

The commission of the experiment ............................................................................. 194

Accounts of the experiment ......................................................................................... 197

Analysis of the design of the experiment ................................................................... 200

The Photoplay .............................................................................................................. 208

Chapter Six: The Portrait Studio Mise-en-scène - enchanted studios ....................... 217
List of Figures

Fig. 1. Postcard photograph of Mildred. Author’s collection.

Fig. 2. Photograph of period painted background in the collection of the National Science and Media Museum. Author’s collection.

Fig. 3. Photograph of Collodion workshop: the pose. Author’s collection.

Fig. 4. Photograph of the collodion workshop: materials. Author’s collection.

Fig. 5. Photograph of contemporary painted background in use. Author’s collection.

Fig. 6. Photograph of contemporary painted background. Author’s collection.

Fig. 7. Collection of Photographs for seminar. Author’s collection.

Fig. 8. Carte-de-visite photograph of moustachioed man. Author’s collection.

Fig. 9. Carte-de-visite photograph of moustachioed man. Reverse. Author’s collection.

Fig. 10. Carte-de-visite photograph of speckled lady. Author’s collection.

Fig. 11. Carte-de-visite photograph of speckled lady. Reverse. Author’s collection.

Fig. 12. Carte-de-visite photograph of floating bride. Author’s collection.

Fig. 13. Carte-de-visite photograph of floating bride. Reverse. Author’s collection.

Fig. 14. Carte-de-visite photograph of glowing child. Author’s collection.

Fig. 15. Carte-de-visite photograph of glowing child. Reverse. Author’s collection.

Fig. 16. ’He entered the House.’ Slide 4 of Dan Dabberton’s dream (story: York & Son, 18-32 slides, 1885) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021432.

Fig. 17. ‘He sleeps! he sleeps!’ Slide 6 of Dan Dabberton’s dream (story: York & Son, 18-32 slides, 1885) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021434.

Fig. 18. ”Our Father!” Slide 7 of Dan Dabberton’s dream (story: York & Son, 18-32 slides, 1885) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021435.

Fig. 19. ‘Even now in fancy, I can see her face’, Slide 4 of After 'while (song: Bamforth & Co., 18 slides, 1910) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5006263. Kirklees Museums and Galleries – reproduced by permission.

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Fig. 20. ‘How oft I've kissed her, and so often missed her’, Slide 5 of After 'while (song: Bamforth & Co., 18 slides, 1910) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5006264. Kirklees Museums and Galleries – reproduced by permission. Digital image copyright © 2006 Ludwig Vogl-Bienek / Media Studies, Universität Trier.

Fig. 21. Eleanor Vere Boyle [E.V.B.] Engraver unknown. ‘Though you'll not see me, mother, I shall look upon your face.’ Illustration for The May Queen. Alfred, Lord Tennyson in 1861 in Favourite English Poems (R. Clay & Co., 1862, London: Sampson Low, Available at: https://www.dmvi.org.uk/ Item Code: FEP013 70 mm x 95 mm / 2”24 x 3”24

Fig. 22. 'The Angel with the Book'. Engraving by Charles Wonds (worked ca.1800 - ca.1844), after John Martin. Plate on page 1296 of 'The Imperial Family Bible', published by Blackie and Son, 1844. Height: 16.6cm Width: 19.5cm. Available at: https://collections.vam.ac.uk/item/O692662/the-angel-with-the-book-print-john-martin/

Fig. 23. ‘The Young Lady's New Year's Dream.’ Illustrator: Adelaide Claxton Engraver: William Luson Thomas. Source Text: Anon., ‘The Young Lady's New Year's Dream’ 1862 in London Society (William Clowes, London: London Society), 2 (Christmas 1862), 91–92 [xmas no.] Available at: https://www.dmvi.org.uk/ 111 mm x 186 mm / 4”12 x 7”10

Fig. 24. ‘The Light is shining on me as I go!’ Slide 6 of Death of Paul Dombey (York & Son, 6 slides, 1893) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021374.

Fig. 25. ‘Visions so bright, angels of light’ Slide 7 of The sound of the drum (Bamforth & Co., 12 slides, 1900) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5004368.

Fig. 26. ‘Yet the angels they will lead me, when my time has come to go’, Slide 7 of The little log cabin (song: Bamforth & Co., 16 slides,1903) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5003202.

Fig. 27. ‘Vision of the Angels’ Slide 6 of The little old log cabin (song: Riley Brothers, 6 slides, 1896) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5018600.

Fig. 28. Yet an angel from its sphere, whispers comfort in our ear. Slide 10 of When the heart is young: new series (Bamforth & Co., 12 slides, 1905) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5009859.

Fig. 29. (Effect) Angels. Slide 9 of The little match girl (Bamforth & Co., 9 slides, 1890) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5009534.

Fig. 30. Slide 1 of The Angel’s Promise (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000791.
Fig. 31. 'Was I dreaming, mother, darling, as I lay asleep?' Slide 2 of The Angel's Promise (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000792.

Fig. 32. Slide 3 'I thought I saw the angels!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000793.

Fig. 33. Slide 4. 'I could not leave you, darling, because I love you so!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000794.

Fig. 34. Slide 5. 'Am I dreaming, mother, darling! but I see a glorious light!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000795.

Fig. 35. Slide 6. "Tis the light I saw in Heaven in my happy dream last night!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000796.

Fig. 36. Slide 7. 'So you'll weep not, mother, darling! I've forgotten all my pain' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000797.

Fig. 37. Slide 8. 'I feel a loving hand, and it seems to bear me gently' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000798.

Fig. 38. ‘For Thou, O Lord, has power to save’ Slide 3 of Rocked in the Cradle of the Deep. (Bamforth & Co. 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014325.

Fig. 39. Slide 5 of Rocked in the Cradle of the Deep. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, 5014327.

Fig. 40. ‘In ocean cave still safe with Thee’, Rocked in the Cradle of the Deep. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014329.

Fig. 41. Slide 6/7 of Rocked in the Cradle of the Deep. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014329.

Fig. 42. Slide 3 of Jessie's Last Request: a homely ballad for Band of Hope children, (Bamforth & Co.,1899. ? Slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5015469.

Fig. 43. Munsterberg's motorman apparatus. Photograph. Author's collection.

Fig. 44. Chicago Examiner Vol. 13 no. 42 p. 39 Chicago Public Library. Special Collections & Preservation Division Available at: https://www.chipublib.org/digital-collections/

Fig. 45. ‘Technical’ drawing of the motorman apparatus in response to Münsterberg’s description.

Fig. 46. Cabinet card photograph. Author’s collection.

Fig. 47. Carte-de-visite photograph. Author’s collection.
Fig. 48. Carte-de-visite photograph of man on stile. Author’s collection.

Fig. 49. Carte-de-visite photograph of man on stile. Reverse. Author’s collection.

Fig. 50. Carte-de-visite photograph of painted man. Author’s collection.

Fig. 51. Carte-de-visite photograph of painted man. Reverse. Author’s collection.

Fig. 52. Carte-de-visite photograph of standing lady. Author’s collection.

Fig. 53. Carte-de-visite photograph of standing lady. Reverse. Author’s collection.

Fig. 54. Carte-de-visite photograph of rustic couple. Author’s collection.

Fig. 55. Carte-de-visite photograph of rustic couple. Reverse. Author’s collection.

Fig. 56. Carte-de-visite photograph of lady at beach. Author’s collection.

Fig. 57. Carte-de-visite photograph of lady at beach. Reverse. Author’s collection.

Fig. 58. Carte-de-visite photograph of cloudy mother. Author’s collection.

Fig. 59. Carte-de-visite photograph of cloudy mother. Reverse. Author’s collection.

Fig. 60. Postcard of two boys. Author’s collection.

Fig. 61. Postcard of two boys. Reverse. Author’s collection.
Preface: Background to the research

The experiences described in this preface explain the background to this research and significant events during the research process that contributed to this thesis. Encounters with the portrait photographs in the archives of the Radnorshire Museum drew attention to their having a significance that seemed not to be fully explained in that context, and raised the question, why are we not able to throw these photographs away? Curiosity about the photographs led to a need to understand the experience of being photographed.

The following passage was composed for a writing style exercise and has been included here as a description of the circumstances which led to this thesis.

To begin at the beginning...

We had moved the entire contents of the Radnorshire Museum in mid-Wales into a light industrial unit that we shared with a manufacturer of Frozen Meals for the Elderly. The fluorescent strip lights and cavernous space of the building was an incongruous setting for the thousands of items, especially the originally personal and domestic ones, that had arrived at the museum over almost a century. Most of these items had not been ‘collected’ with any specific intention or strategy, rather, they were given to the museum by people who thought they were significant enough not to throw away. The curators seemed to have agreed, but many of the boxes, bags, envelopes, and packages had
not been looked at since their arrival at the museum, and their contents and provenance were unknown and, in most cases, untraceable.

The museum’s refurbishment, the reason for the move, was an opportunity to find out what was in the old and battered boxes and fragile yellowing envelopes and packages, and to catalogue and re-package them to archival standards. The most exciting and intriguing items were hundreds of nineteenth century photographic studio portraits. Some appeared in pristine condition as if they had always been packed safely away, out of the light, perhaps as personal and intimate treasures. Others were scratched and marked with thumb prints or faint ovals of wear, traces of frames and of gilt-edged cut-outs in album pages, or fading away into blizzards of chemical snowflakes, dust, and damp. A few albums mimicked heavy family bibles that were also in the museum’s care. Some with names inscribed evoking the weight of ancestry (if only we knew whose ancestors they were) and the weight of our responsibility in taking care of them.

The photographs spread as if shoulder to shoulder across the workbench, as if standing on ceremony waiting to be inspected, most were small cartes de visite or the larger size of cabinet cards, all tea-hued sepia or silvered greys, as alike as spot-the-difference puzzles. Gunpowder-on-glass, bitumen-on-tin, silver-salted and egg-white prints, once-upon-a-time much loved likenesses. Widows appearing black-veiled and beribboned in voluminous mourning gowns, smart lace-trimmed bonnets, collars, and gloves. Demure
young women in shades of grey damask, glazed cotton and crepe; shawls, flowers, feathers, frills and pleats; whalebone-corseted wedding-ring waists, their chins delicately resting on hands that showed off the rings their waists mimicked. Touched-in gold on buttons and lockets and touched-in eyes as if catching the light. Dapper young men standing to attention, proud in their Sunday suits, (closer looking revealed these as often shabby and ill-fitting, and their work-scarred hands gave away their truth.) Upright gentlemen wearing carefully groomed muttonchops, pinstripe trousers, waistcoats and touched-in gold watch-chains; top hats placed as if casually on a convenient chair.

China-doll babies on mothers’ laps and little cherubs all curls and ringlets “watch the birdie!” as they lean on their father’s knee. Sailor-suited boys (not allowed to get dirty) wish for the seaside forty-mile-distant, but instead get distempered grey clouds and cliffs, and chalky, white-tipped grey waves lapping against grey sands.

Paper-mache plinths and pillars balanced on shaky foundations belie the material mass of those they mimicked, potted ferns perch precariously on flimsy bamboo tables —just a touch of the orient. Fringed and tasseled velvet and tapestry drapes frame monochrome landscapes of gardens, terraces and balustrades, waterfalls and ravines, while cork bark stiles and rickety fences offer a convenient pause for couples in love.
Farmers and schoolteachers, bank clerks, clergy and gentlemen, all jumbled together from a multitude of visitors, and among them local people, their individuality difficult to discern from the homogenous style. Family groups of two, three and four generations together, sweethearts and honeymooners, and mothers with sons, or fathers with daughters. Patrons of The Pump House, the Metropole, the Guidfa and Bryncoed hotels and guesthouses, sipped the waters at the Rock Water Wells then strolled along Middleton Street to Villiers, Roberts, or Sharples, who took their likenesses and names and gave them numbers and anonymity in return.
I began to look out for studio portrait photographs in charity shops and market stalls. Significant among these photographs is one of a young girl: Mildred, who looks to be around eleven years old, is standing half turned towards the camera. She holds open the pages of a book lying flat on the top of a barley-twist-legged side table. Unusually, as most of the portraits with which the thesis is concerned are anonymous, we know her given name, and the date, 25th February 1930, is written in ink on the front of the image.
The strikingly curious feature of this photograph is the setting in which Mildred and the table have been placed by the photographer. A painted background canvas depicts a broad terrace edged with a flower-covered decorative balustrade that zigzags from edge to edge across the centre of the image. Behind the balustrade is a pastoral landscape of fields, trees, and a distant mountain under a cloudy sky. But the terrace is cut in two by a dark line, the shadow beneath the weighty bottom edge of the canvas on which the balustrade and landscape is painted, and instead of stone, Mildred, in her school pinafore, shiny shoes and knee-high socks, and the polished table, stand on a smooth linoleum floor covering. She stands in the costume of her everyday life in the centre and foreground of the image, yet three-quarters of the photograph is taken up with painted scene. Mildred appears to inhabit a part imaginary and part material reality, just as did hundreds of thousands of people before her through ninety years of commercial photographic studio portraiture. Mildred’s photograph too is caught up in an enchanted imaginary.

As the initial reading of primary and secondary sources progressed, it became evident that to gain insight into the experience of the subjects of these photographs when they had their likenesses made and how this contributed to the quality of the resulting images, I needed to experience a studio space. As an example of the serendipity that has enriched this research project, I chanced upon a description and images of a nineteenth century glasshouse studio still in daily use for portrait photography. Owner and photographer Tom Reeves, great-grandson of Edwards Reeves who began his
business making carte de visite portraits from wet collodion on glass plate negatives in the eighteen-fifties, welcomed my interest and I was invited to visit.

Reeves’ glasshouse studio has remained largely unaltered since it was purpose built at the rear of the premises in 1858. A fully glazed wall faces east onto a small garden surrounded by brick wall. A now bricked-up archway is visible as a gate in photographs in Reeves’ archive, (taking photographs outdoors was not uncommon) and the skylight roof faces north-east, the narrow wooden glazing bars maximise natural light entering the studio. A floor to ceiling drop of opaque glass at either end of the glazed wall functions to soften the side light falling onto the subject. The nineteenth century ironwork mechanisms for suspending and manipulating muslin screens across the sloping glazed section of the roof are still in place and contemporary electric lighting complements the natural light, but an ‘ancient’ electric light fitting is attached to the wall and, we discovered, is still connected to power.

Clients enter the studio premises from a busy street through a door in the centre of a glazed double fronted reception and display area. Photographs hang on the walls and in the windows as they have always done. Standing outside and looking in was an opportunity to see, and for some of the sitters, an opportunity to be seen, either as a photograph or as they discussed their requirements in the reception area. The way to the studio, or operating room as is it was frequently described in period texts, is along a corridor and through a glazed waiting area, also hung with photographs, to an arched door set into the wood-panelled wall that forms the background for many portrait
photographs. So, as the client enters, they see directly in front of them the camera on its stand, the glazed wall to their right, and around the edges of the room, a variety of chairs, side tables, potted plants, and other ornamental objects. Among them are scattered a variety of cast iron posing stands, spotlights, and reflecting screens.

An iron bar is fixed along the top of the wooden panelling where it meets the slope of the ceiling. A long iron rod perforated with holes hangs from either end. This mechanism holds the wooden poles from which the painted canvas backgrounds hang behind the sitter. It is a relatively simple task to change one background for another by standing on a stool, rolling up the canvas around the pole and unhooking the metal brackets at each end. Then replacing it with another in the appropriate holes for its drop to the floor. A photographer working alone could manage this task, but an assistant would be needed for larger and heavier canvases. The studios that could accommodate such large canvasses were likely to have several staff. In Reeves’ studio, a painted background made prior to the First World War is still in use. It depicts the corner of a panelled room with wainscoting and floor, a vase of flowers stands on a window seat below a latticed casement. So, in use, a painting of a panelled wall hangs in front of the panelled wall of the studio. An overlong heavy red velvet curtain hangs from rings on a pole fixed to the wall above the metal rail of the background mechanism. This hides the corner of the studio where wood panelling meets the glazed wall. It can be pulled to hide the edge of the painted image and for this background, the painted window — an example of the merging of real and painted interior landscape.
The painted surface of the background is cracked and marked, especially towards the lower edge where it would have brushed against the floor and been vulnerable to being accidently kicked or stood upon. The edges of the fabric panel are unhemmed, but the sized and painted surface has acted like a glue binding the threads together. The painted surface extends to the edges of the fabric towards the top where it is fixed to a wooden roller, but roughly one third of the way down it is degraded and worn, and the fabric edges are frayed. It seems likely that this is due to the photographer and his assistants holding and pulling the background to straighten it in use. A manufacturers name is stencilled onto the reverse of this painted background.

In this studio the sitter is not confronted by the painted background, the dominant feature in the space, until they have entered and turned around. The opposite although darker (as the roof above is not glazed) end of the room facing the subject as they enter might also have been used for staging portrait photographs. At the time of my visit, this space was cluttered with photographic equipment, furniture, a battered wooden plinth of the type ubiquitous in its presence in nineteenth century portrait photographs, and boxes of items and ephemera necessary for a busy commercial operation. A large woven rush mat covered the varnished floorboards where the subject would pose. Patterned rugs are visible in many of the images in the studio’s archive. Period instructions to photographers suggest these can be used to good effect to contribute to depth and perspective in composition.
The darkroom opens to the glazed studio and although the door closes tightly the odour of the chemicals would have been part of the nineteenth century sitters experience.

The aim of the visit was to try to gain some understanding of the impact of the painted background, the largest object in the studio space, upon the experience of the sitters. Although backgrounds and props appear in so many photographic studio portraits very few have survived, and even fewer still in the daylight studios in which they were used. The experience of examining this and another background in use in the studio was quite different from an earlier visit to the National Science and Media Museum (NSMM) to view three painted backgrounds listed in their catalogue along with items of studio ‘hardware,’ all weighty and cumbersome material of iron, wood, and brass. There was a marked contrast between a formality of the process of requesting and viewing items in a national institution's collection and the serendipitous encounters in a provincial museum and a working photographic studio.

At the time of visiting the NSMM one of their three painted backgrounds was hanging in an open gallery space, in a 'mock up' of a nineteenth century photographic studio where it was being (ill)-used in a game of hide-and-seek by school children. The other two backgrounds were brought out from the museum’s store on a stretcher-like trolley by the curator and an assistant who, once they had donned white cotton gloves, carefully removed the protective packaging and slowly unrolled the canvases onto three large worktables pushed together for the occasion. The theatrical formality and exaggerated restraint of revealing the backgrounds at the NSMM contrasted with the encounter with
painted backgrounds as they are used during the day-to-day practice of a busy commercial portrait studio.

Another provincial high street studio, W.W. Winter’s Photographic Studio in Derby, was an altogether grander operation. During the 1870s its elaborate façade advertised the patronage of the Prince Edward VII and the Princess of Wales and as ‘The Alexandra Rooms’ the premises offered two waiting rooms and studios. The largest on the first floor was lit by six tall arched windows and a skylight. Period images of the studio show a gallery hung floor to ceiling with paintings. Winter’s on-site services included re-touching, gilding and framing, and documents in the studio’s archive detail a staff of 26 in 1890 growing to 43 in 1910. Reeves and Winters were established to serve populations growing both in size and affluence, Reeves in a market town, historically a hub for trade via river, road and railway, and Winters in an expanding industrial city of railway workshops and foundries, a transport hub and a place that immigrants settled. Despite these differences, visiting the studios and examining period sources and images point to similarities in their operation and their clients’ experiences. Together these studios and their contents are the remainder of a widespread and continuity of practice and represent the primary experience of photography for many people in the nineteenth century. The next move in the research journey was to experience the process of creating a portrait photograph from both the photographer’s and sitter’s perspective.
A wet plate collodion workshop with a ‘pop-up’ darkroom inside a municipal building, with all the health and safety measures such an event entails, seemed a long way from the nineteenth century experience I wanted to understand from the sitter’s perspective. I focussed upon the reactions and responses of the other participants as we prepared, developed, fixed, washed and varnished the photographs on glass plates. Period accounts of studio practices indicate that sitters in the nineteenth century were unlikely to have encountered the activities of the darkroom. However, numerous descriptions of the ‘mysterious nature’ of photographic processes were produced in the popular press so some sitters at least would have been aware of the chemical complexities of creating an acceptable likeness.

Fig. 2. Collodion Portrait Workshop: pose
During the workshop each of us made the photograph of another, allowing for observation of the reactions of several people as they experienced the process, and as they each saw their own portrait photograph for the first time. Each of us stepped onto the rug that marked the posing space to be subject to time and light, stillness and concentration, and to be constrained by camera apparatus, reflectors and lights, and the scrutiny of the photographer. The sitter's immobility contrasted with the photographer's movement stepping back and forth to adjust the camera and the sitter's pose; to alter a position by just a touch to tilt the chin, turn the head, or position a hand, then, the sitter once again instructed to be still as the photographer retrieved the prepared plate from the darkroom, inserted it into the camera and checked the pose again. We had a headrest to steady ourselves as those who posed in nineteenth century studios would often have had too, but bright electric light substituting for daylight meant a shorter time...
motionless for us. We counted eight seconds for our exposures, however, the intense concentration on being still meant it seemed much longer. This experience intuited the significance of the temporal dimension of having one’s portrait photograph made, to the quality of experience this thesis aims to understand.

Edward Reeves and his descendants kept records of the names of the people whose photographs they took, as did all commercial establishments because re-printing photographs was an additional part of their business. The relationship to other names recorded, the pose or accessory was often noted too. Each record is numbered to correspond with the number of the negative from which ‘copies may be had,’ as the sitters were informed on the reverse of their photographs. The Daybooks (in the collection of the National Portrait Gallery) that were kept by Camille Silvy at his Porchester Terrace Studio in London from 1859 to 1868, follow the practice of recording their names and a reference number to identify each of his sitters’ negatives, but rather than only noting the pose and setting he pasted a photograph into each record. In terms of this thesis’ aim to understand the significance of the painted backgrounds and props to the experience of having a portrait photograph made, the visual record in Silvy’s Daybooks is significant as it allows us to see changes over time in the practices of one studio. The daybooks contrast with the experiences of the photographs in the museum and of those circulating in flea markets, auctions and private collections that are jumbled, scattered, and gathered together according to individual interest or whim.
To more fully understand an experience that cannot be fully replicated now, a range of sources and approaches have been explored. It has been possible to view magic lantern shows as part of two research symposium in large lecture theatres at the University of Plymouth and the University of Exeter, and at an event advertised to the public in the more intimate space of a gallery at The Royal Cornwall Museum in Truro. The academic events focussed upon demonstrating and explaining the apparatus and operation of a variety of optical lanterns (at Exeter, a scientific lantern was used to show microscope slides and optical effects). The museum event was presented by a professional lanternist ‘as it would have been’ to entertain of a mixed audience of adults and children. The lanternist accommodated the limited knowledge and experience of a lantern show of some in the audience with a brief historical overview and some initial explanation and demonstration of how the biunial lantern and mechanical slides worked. These lantern exhibitions provided some insight into the roles of the lanternist and lecturer, the lantern apparatus, the audience’s participation in the entertainment and their pre-disposition towards its contents, and the ‘event’ of a magic lantern show. These experiences have been complimented by reading period texts, including instruction manuals, catalogues, and reports of lantern shows or exhibitions in provincial newspapers in the United Kingdom.

**Painting a background according to period instructions.**

In order to more fully understand the materiality of the backgrounds I followed the step-by-step instructions from a period journal. This involved obtaining suitable canvas and stitching two panels together with the seam parallel to the floor so that when it was
rolled up the bulky seam did not cause damage. The canvas was sized with rabbit skin glue then after sketching the design, it was painted with layers of black, grey and white poster paint, with a little red to provide a warm tone, to give a matte finish.

Fig. 4. The painted background in use.
Fig. 5. The painted background in use (2)
Chapter One: Introduction and Method

Introduction

This thesis will explore some of the cognitive and affective dimensions of nineteenth and early twentieth century photographic image-making technologies and the resulting images. It will do this through an examination of (i) Life Model lantern slides, (ii) Phantom Rides, (iii) Hugo Münsterberg's design for an experimental apparatus at the

Fig. 6. Photographs from the author’s collection illustrating the mise-en-scène of photographic studios.
time he was beginning to develop a psychological theory of the Photoplay,¹ (iv) the mise-en-scène of photographic portrait studios. The thesis suggests that these share a continuity of experience designed to promote the participants’ active engagement with an immaterial dimension of human experience. It will draw upon the methods of media archaeology and the anthropology of images to show that in addition to their materiality and their visual content they have an immaterial dimension. This dimension contributes to a quality that can be traced back to the circumstances of their making and the imaginative and emotional investment into them by those who engaged with them. This thesis describes the experience of these images as one of enchantment.

The nature of the problem concerning nineteenth and early twentieth century photographic studio portraits is their enigmatic quality and the ‘troubling’ nature of their insufficiently explained significance. The thesis contributes to the existing scholarship by examining a dimension that is neglected in ocular-centric analysis and the assumed ocular-centric engagement of the participants in the activities. It joins with the discussion of a spiritual dimension of photography and the moving images of film, which runs alongside its apparent objectivity, which has been discussed by some scholars of film studies. Gunning, (2007); Krauss, (1978); Punt, (2000) and Blassnigg, (2007) have explored the imaginary and spiritual dimensions of the cinema experience at the turn of the nineteenth century. Hugo Münsterberg's work on the imaginary dimensions of

¹The outcome of his research was The Photoplay: A Psychological Study, published by D. Appleton and Company. New York & London, in 1916
human experience played out in the narrative films of the 1910s also contributes to this thesis’ exposition of technologically enabled enchantment.

This thesis will draw out one explanation for the reason many nineteenth century studio portrait photographs are so compelling from the many rich ideas already considered. To understand more fully what was happening in the portrait studios it has been necessary to step outside of the histories of photography and to explore other media forms. The thesis will draw upon written and visual texts, lantern slides, moving images and experimental psychology. These different image forms share affective and cognitive dimensions that appear to have been enhanced to satisfy the period audience’s desire to express an immaterial dimension of human experience. The thesis argues that this dimension, as a quality of enchantment, endures in the studio portrait photographs and contributes to the difficulty of throwing them away.

The mid-nineteenth century public’s perception of photographs was coloured by their understanding of the objectivity of positivist science, from which assumptions of photography’s truth emerged. At the ‘Great Exhibition of the Works of Industry of All Nations’ in Hyde Park, London, from May to October 1851, photographs were exhibited in the galleries devoted to philosophical, musical, horological, and surgical instruments. In the Reports by the juries on the subjects in the thirty classes into which the exhibition was divided: Exhibition of the Works of Industry of All Nations, the uncertain status and potential directions of development of photography was noted.
Before going further, it would be well to enquire into the utility of the photographic process as regards its application to art and science, —and, indirectly to literature, […] A process by which transient actions are rendered permanent, and enables nature to do her own work, or in other words, which causes facts permanently to record themselves. (Reports by the Juries […], pp. 243–244)²

Images described as created by ‘the pencil of nature’³ soon gave way to the idea that these were created by ‘men of science,’ a science which explained natural phenomena. Fox Talbot suggested his process might be used for portraiture as just one among many other applications such as architecture and botany, the reproduction of prints and manuscripts, and for creating visual inventories. Talbot’s positive/negative process was central to the evolution of photography into a mass medium.

Photographic technology and photographic form evolved through the trial and error of many experimenters into forms that were not anticipated. At the same time, the experience and use of photography was modified by photographers and the public. Early photographers drew upon the experimental methods and material positivity of science which reinforced ideas of photographic objectivity. However, paradoxically,

2. Reports by the juries on the subjects in the thirty classes into which the exhibition was divided: Exhibition of the Works of Industry of All Nations, 1851. London: Clowes, (1852). [Online] e-rara. Available at: https://www.e-rara.ch/zut/content/structure/5968280

3 William Henry Fox Talbot (1844-1846) The Pencil of Nature. London: Longman, Brown, Green & Longmans. The Pencil of Nature was published in six fascicles during the period of June 1844 to April 1846. It included an introduction that described the history and chemical principles of the process and 24 salted paper prints from paper negatives, each one accompanied by a brief text.
photography was also credited with the ability to make visible a previously invisible supernatural world and to discern and make apparent the moral character of the sitter (Linkman, 2000). The science of photography was also subsumed into nineteenth century aesthetics of representation, evident in choices of pose and accessories of portrait photographs. The thesis suggests that the persistence of excess material in the images, the props, accessories, and painted backgrounds, offer something that the portrait alone could not provide. Traces of these forms persisted in studio portrait photographs, whose key features remained broadly unchanged until the nineteen thirties, evidenced by the photograph of Mildred, which is discussed in the preface.

The thesis concerns a particular affective quality identified in the portrait photographs that has endured and affects how we respond to them. The term enchantment has been chosen for this affective quality as it encompasses a spectrum of encounters with technologies that appear to have been adapted to demonstrate an immaterial dimension of human experience. Some, for example, phantom rides, achieve this by way of allusion to a transcendence of spirit, others, through depictions of visions and supernatural phenomena, such as the angels in Life Model lantern slides. The thesis suggests that this immaterial dimension is also expressed in studio portrait photographs, in which photography brings together matter and spirit. In addition to explaining these technological images through social, cultural, and ideological means, our interactions and relationships with them fall within a kaleidoscope of experiences that, when examined through the lens of enchantment, show the fullness of the human imagination.
In this thesis, enchantment is not used in the commonly applied adjectival sense of attractive, charming, or delightful, these fall short as expressions of the imaginative transformation and transportation that this thesis aims to understand. To be enchanted is to experience a certain quality of feeling that is ambiguous, elusive, and ephemeral. It is an experience that disrupts our habitual and uncritical responses to encounters with objects and events and alerts us to their richness and their significance. This thesis draws upon a broader scholarship including philosophy, psychology, ethics, and New Materialism in its interpretation of enchantment. Enchantment has a period and cultural specificity and contemporary understanding of enchantment in relationship to the visual technologies of this period are often situated within the disenchantment story of Max Weber and the modern condition. This compounds the problem of how to understand enchantment in terms that do not assume naivety and a lack of critical ability on the part of the viewers, which is typical of post hoc interpretations, and has been one of the challenges of the thesis.

It also seems a too simplistic explanation that the nineteenth century public was so determined to portray themselves as the natural inhabitants of painted domestic interiors or a syncretic mix of classical and romantic rural landscapes, themes that dominate in surviving photographs, that their critical ability was suspended. Nor can these elements be satisfactorily understood as devices of illusion or parody. Instead, the thesis suggests they were all too aware of the representational dissonance of the studio mise-en-scène, but willingly complicit in its production. At the very least, they
acquiesced to the constraints and demands of the complex technological systems of which photography was part. This thesis aims to reveal the extent to which the subjects understood and were able to engage with the process of creating the photographs, and the opportunities afforded to them to participate and be seen to participate in a technological process. Not only during the process of having their photographs made, but through the display and sharing of the photograph, an event that could be repeated time and again. In particular, the thesis explores what the painted backgrounds and props, settings and poses contributed to the mise-en-scène in which the portrait photographs were created. It suggests that the broad technological systems in which they were constructed and used were consensual and collaborative in their attempt to produce an affective experience of enchantment.

Despite nineteenth century science’s efforts to explain supernatural experience in accordance with its conceptions of reality, expressions of a spiritual dimension of human experience persisted through the technologies of photography, the projection apparatus of optical lanterns and the moving images of film, that were initially claimed by science. The action of the mechanisms that produced the images and their operators were visible to and very present in the same space as the audiences in a variety of forms that became embedded popular culture. That the audiences knew how the images were produced does not seem to have detracted from experiences of them as intimations of a supernatural or spiritual dimension. These experiences, in post hoc interpretations, seem to contradict the rationality of nineteenth century science and industry.

In terms of period, the thesis is concerned with experiences of images that were created or mediated by novel technical arrangements or familiar ones such as magic lanterns that were brought into novel uses within the technological systems of the late nineteenth and early twentieth century. Here, technological systems are understood as transformative and holistic social constructions rather than discrete categories of apparatus and media. (Williams, 2013, p. 379) The thesis explores several image-making technologies, their imaginary dimensions, and the extent of representational licence in their imagery. The photographs, illustrations, imagination, and hybrids of these were created or facilitated by technologies that revealed the ontological and epistemological instability of images and of the world they were assumed to portray as real.
The intention of the thesis is to present an additional perspective to understanding nineteenth century studio portrait photography through investigation of the cognitive and affective framework in which having a photograph made took place. It will do this within the context of the technological, social, and economic histories of image-making technologies and the cultural and historically contingent understanding of matter and matter's other dimensions. These are variously described and explained during the period as supernatural, transcendent, spiritual or spiritist, and psychic experiences and are gathered here under the rubric of enchantment which as the discussion below will show, brings together matter and spirit through photography.

Photographic portrait studios provided the nineteenth century public with one of their first experiences of photography and of having a photograph taken of themselves. Initially, this was an opportunity for the upper middle class “inhabitants of Cubitopolis-on-Thames, a sorting-box in the midland counties, or a curacy in a clay county” (*Leisure Hour*, 1859, p.156), then, within a decade or so, for a broader working population. The activities that took place in photographic portrait studios, whether purpose-built glasshouse, converted attic skylight room or fairground booth, were as much part of a techno-scientific spectacular as the exhibition of scientific apparatus and industrial machinery, fairground illusions, moving images and cinema.

It might be considered that there is an excess of material in many of these portrait photographs, that the portrait studio intrudes upon the portrait. The fullness of the sitter
is strived for through efforts to portray their character for instance, and through visual
clues to their status. Additions to the photographs: colour, retouching, framing, and
embellishments of embroidery and hair for example, are not just meant to attract the
viewer’s eye but also to be touched or held close to the body. These can be understood
as compensating for the photograph’s inadequacy to fully represent the sitter, that is,
the fullness of their experience and of the viewers experience of them. This excess,
then, might be understood as pointing to its immaterial dimension, that the additional
elements within the image, those that required the collaboration of the participants, are
a rational response to its ontological instability.

In the context of photographic practices, the second half of the nineteenth century is
commonly characterised as overtly materialistic. Industrial processes enabled mass
production, acquisition, and the display of material commodities. The Crystal Palace
Exhibition of 1851 and other similar events in the US, UK and Europe, for example,
were primarily concerned with the display of objects and the machines that
manufactured them.

The Daguerreotypist, Jabez Hogg emphasised the materiality of photographs in his
description of the Daguerreotype process as “the photographic delineation of objects
upon metallic plates” (The Practical Manual of Photography […], 1845, p. iii) [my italics].
The focus of the scientific and photographic press was initially upon the chemical and
physical processes and the vagaries and requirements of the equipment. The
materiality of the resulting photographs, fragile surfaces on metal and glass, was
emphasised by their being embedded into the cases and frames necessary for their protection. But although their materiality was prominent and alluring, the flickering negative/positive elusive image of Daguerreotypes on a mirror-polished silvered surface of a copper plate evoked another dimension, as Dickens described in the March 19, 1853 issue of *Household Words*.

A thousand images of human creatures of each sex and of every age—such as no painter ever has produced—glanced at us from all sides, as if they would have spoken to us out of the hard silver. Here a face was invisible: there it burst suddenly into view, and seemed to peep at us. Beautiful women smiled out of metal as polished and as hard as a knight’s armour on the eve of battle. Young chevaliers regarded us with faces tied and fastened down so that, as it seemed, they could by no struggle get their features loose out of the very twist and smirk they chanced to wear when they were captured and fixed. Here a grave man was reading on for ever, with his eyes upon the same line of his book; and there a soldier frowned with brow inanely fierce over a rampart of moustachios. The innumerable people whose eyes seemed to speak at us, but all whose tongues were silent; all whose limbs were fixed (although their faces seemed in a mysterious way to come and go as the lights shifted on the silver wall) what people were these?  

Dickens’ text points to how the immaterial dimension of technology, that seems to have been evoked by the “faces who seemed in a mysterious way to come and go,” is emphasised to contemporary viewers through the fading, spotting, scratches and thumbprints, and the marks of degrading chemicals, revealed in the mise-en-scène of nineteenth century studio portraits.

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Dickens Journals Online. The University of Buckingham. Available at: https://www.djo.org.uk/
<table>
<thead>
<tr>
<th>Fig. 7. Moustachioed Man. Albumen print on card mount. 4 1/2 x 2 1/2 inches.</th>
<th>Fig. 8. Moustachioed Man. Albumen print on card mount. Reverse. 4 1/2 x 2 1/2 inches.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig 9. Speckled Lady. Albumen print on card mount. 4 1/2 x 2 1/2 inches.</td>
<td>Fig. 10. Speckled Lady. Albumen print on card mount. Reverse. 4 1/2 x 2 1/2 inches.</td>
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The photographs that were the catalyst for the research presented in this thesis and described in the preface were considered within the context of the museum archive as material objects, as chemical emulsions affected by light, carried by or embedded into
metal, glass, and paper. Protocols and procedures stipulated they receive specific treatments according to their material constituents. The constraints of the objectivity and formality of the museum’s catalogue meant that other dimensions of the photographs were not accommodated. Our conversations though, while concerned with their material condition, did consider other dimensions, the emotions they evoked, and their evoking of imaginary and spiritual dimensions, but these were not recorded. Although the rules and descriptive standards of public archives might be understood as a way of dealing with the unsettling nature and ambiguous status of these photographs, their catalogue records have many gaps, for example, the individual and social biographies of the sitters and the photographs, when they were acquired by the museum and from whom. This thesis is concerned with other gaps in our understanding of the photographs, those dimensions which arise from porous boundaries between the material world and its other, and of the instability of the novel technical processes that produced them.

Interpretation of the nineteenth century public’s experience of studio portraiture is inevitably partial when it is filtered by the photographs. This thesis looks beyond the images to investigate what the sitter saw while they had their portrait made —to consider their whole experience. It offers an additional perspective to scholarship informed by empirical research into photographic studios that is sometimes associated with studies of production, consumption, transaction and exchange. These lead to socio-politically informed explanations characterised by reference to commerce, enterprise and material gain (Edwards, S., 2006; Batchen, 2005). These and others find a correspondence between the visual elements of the photographs and a certain sort of
ideological, social, and cultural categorisation in which technology is a means to the production of financial and social success. But this thesis suggests that technology was also the means to access an immaterial dimension of human experience.

The immaterial dimension of the experience of portrait studio photography, its capacity to enchant, is often discussed in period and contemporary literature in terms of the notion of the portrait photograph’s capturing and carrying a trace of the subject’s presence. The notion of the trace as a tangible enchantment was ‘locked in’ to the photographic objects of Daguerreotypes, ambrotypes and tin types where a trace of the light reflected from the subject onto the photographic plate created a unique image. These photographs were often sealed under glass into cases and frames to protect the fragile and delicate emulsion that by capturing the reflected light appeared to provide a direct link between the photograph and its subject. As Sontag explains more than a century after the first Daguerreotype portraits were made, “[a] photograph is not only an image (as a painting is an image), an interpretation of the real; it is also a trace, something directly stenciled off the real, like a footprint or a death mask” (1977, p. 154). Yet these portrait photographs have an enigmatic quality that discussions of their indexical nature, their age or scarcity, or their status as documents seem not to fully explain. The notion of the photograph as a trace, that it has some sort of material connectivity to the sitter, is discussed in the literature of the early period of photography as though this connectivity has priority over its adequacy as a representation. As a likeness the sitter could be recognised, but there are questions of fidelity, of how close a
photograph must be to the viewer’s perception of the person who has been photographed.

It is not merely the likeness which is precious... but the association, and the sense of nearness involved in the thing... the fact of the very shadow of the person lying there fixed for ever! It is the very sanctification of portraits...

(Elizabeth Barrett Browning, letter to Miss Mitford, 1843, in Ruby, 1995, p. 49)

Describing photographs as carrying a trace of the sitter is a way to name the immaterial connection between us and them. This thesis suggests that this connection is, in part, a consequence of the participation of the subject and viewer in bringing to light the photographs’ imaginary dimension. The trace of the sitter is for Elizabeth precious and expressed as a quality that she describes as sanctification.

We have miniatures in our possession, which we have often held, and gazed upon the eyes in them for the half-hour! An electric chain seems to vibrate, as it were, between our brain and him or her preserved there so well by the limner’s cunning. (Walt Whitman, Visit to Plumbe’s Gallery. July 2. 1846, in Rabb, 1995, p. 21)

The notion of their being a thread (or an “electric chain”) which somehow connects the sitter with the viewer persists, even though this link speaks of loss (Punt, 2009; Batchen, 2003; Prosser, 2004; Green Lewis, 2001). Yet, at the same time the portraits re-present loss exactly as a consequence of photography’s ‘fixing for ever’ a moment in time which immediately becomes the past (Fox Talbot, 1839, in Green-Lewis, 2001, p. 562). Keller describes a photographic afterlife in which the subject of the photograph lives on through the image (2016, p. 49), while, for Ruby, “photographs promise a
materialist realization of eternity” (1995, p. 60). Green-Lewis draws upon accounts of the announcement of Louis Daguerre’s invention of a process of creating a durable image to argue that “the process [...] of fixing the image signalled the beginning of a world in which there would be no passing away, or rather, no unmarked passing” (2001, pp. 561–562). But photographs have an internal contradiction between presence and absence. This is explained by Prosser who notes that we “treat photographs as if they had a kind of presence,” but then goes on to explain that “[they] are not signs of presence but evidence of absence.” (2005, p. 1)

The majority of the nineteenth century studio portrait photographs that exist today are prints made from glass plate negatives. The negative image is the one that can claim the status of capturing the light that touched the sitter, of carrying a trace of the sitter in its chemical surface. As Edwards, E. (2012, p. 2) drawing on Beltung (2011) notes, photographs confuse “the distinction between person and thing, subject and object, photograph and referent,” but the period literature has offered no evidence that this uncertain status impacts upon the perception of their carrying a trace of the subject. Photographs have been described as time machines that in some imaginary way allow access to the past, that the past is somehow locked into and preserved by the chemical surface that carries the image.

In some respects, in its effort to account for individual and collective responses to portrait photographs, but without the intense personal and biological connection, the
thesis grapples with the same challenges as Barthes (1993 [2006]) as he attempted to describe and explain the subjective experience of a particular enigmatic quality of photographs. *Camera Lucida: Reflections on Photography* (1980 [1981]) emerged from his desire to find a photograph that evoked the essence, the ‘truth’ of his mother, an experience of the sensation he named punctum. In the context of this thesis his description of the term for the experience of ‘being alerted to’ and ‘a sharp bringing to attention’ of a quality of what might be considered as and otherwise ordinary photograph, has features of the experience of enchantment that will be explored in Chapter Seven. While Bathes’ description of punctum as ‘unexpected,’ and “that accident which pricks, bruises me” seems to resonate with Auden’s words “we are not free to choose by what we shall be enchanted.” (1970)

Contribution of the thesis:

This thesis aims to align the interpretation of studio portrait photographs within the established academic discourse towards the immaterial dimension of our experience of them. It will also enrich existing scholarship by pointing out the importance of this immaterial dimension to understanding encounters with the production of visual technologies and of the resulting images. This move allows studio portrait photographs to be read as examples of the significance of our ‘inner world’ (Münsterberg, 1916) and

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the immaterial dimension of human experience that was challenged by the pursuit of scientific rationality in every aspect of nineteenth century life.

The thesis will show that the photographs represent the participants’ contribution to and investment in the images and how they modified the apparatus of scientific objectivity to present a reality that accommodates the spirit. In this way, it will offer insight into otherwise puzzling elements of the portrait mise-en-scène so as they become more intelligible. One of the significant features of these photographic studio portraits is the similarity of the setting: in many cases it is impossible to tell where they were created. Studios across the world, including Japan, where access to the ideas and practices of the western world was limited until the latter part of the nineteenth century, used the props, backgrounds, and accessories that might be found in the establishment studios of Europe and the US.⁷

The assumed veridical representations of studio portraits were deliberately manipulated. If we look at them as contiguous with those of other technologies of the period, we find there is a continuity between them. As examples, the discussions below will consider the technical arrangements of the syncretic images of Life Model slides, the experiential

images of phantom rides, and Hugo Münsterberg’s schematic ‘images.’ The thesis suggests that we can make sense of the photographic portrait studios if we consider them as one of a constellation of experiences and forms of visual media, and that the activity of the participants in these studios was a complex interaction between technology, technological structures, and the imagination. In this way, the thesis begins to explain the extent of photographers’ investment and the behaviours of the sitters as active and sophisticated participants in the construction of a space in which the immaterial dimension of human experience can be expressed. The thesis suggests that by thinking about studio portrait photography as a way of bringing matter and spirit together as an immaterial dimension of the photographs we can begin to resolve the enigma of their syncretic mise-en-scène.

Method

The thesis offers a critical re-interpretation of the evidence that will complement existing accounts and theories. It will do this by employing an externalist perspective towards research into history (Punt, 2015, following Reed, 1998). It takes the view that the

8 Reed, E.S. (1998) From Soul to Mind: The Emergence of Psychology, from Erasmus Darwin to William James, New Haven, CT: Yale Univ. Press.

Punt (2006, 2018) refers to Edward Reed’s work into the separation, during the eighteenth and nineteenth centuries, of scientists from artists in their mutual attempts to understand the human
design, construction and uses of visual technologies were informed by the engagement of the public, who were not passive, credulous or naïve, but involved and active participants in the debates and the application of the technologies in practice. This perspective offers a “framework in which to understand the role of the imagination as a user-led determinant of the meaning of technology” (Punt, 2016), their potential and what they would eventually settle down as in everyday use (Gunning, in Thorburn and Jenkins, 2003, pp. 39–60).

Physical and material domains, the exterior world, what we can see, touch, hear, have an ontological priority over internal, spiritual, imagined domains. (Fellows, 2010, p. 95) The post hoc interpretations of historical research need to accommodate the necessity of using features of the external world to draw conclusions about the internal world of the subject, or object of their enquiry. We can’t fully understand the experience, but we can look for clues in the external: what was produced, how it was produced, used, cared for, its longevity. These clues will help us explore phenomena that disrupt this priority to try to understand portrait photographs in the way that the nineteenth century subjects and viewers did.

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psyche. And to the separation of rational science from irrational spiritual phenomena by the establishment of the Society for Psychical Research in 1882.
There is often a tendency in the literature to give preference to images and overlook or diminish the importance of other evidence. The methods employed by this thesis try to bring this other evidence into play to provide a richer understanding. Images are the focus of each chapter, but other aspects are incorporated. Photographic studio portraiture situated the subjects in syncretic landscapes that were constructed in a hybrid private-public space of the studio. These methods allow us to take a closer look at what they contributed to the experience of having one’s portrait made and of the resulting images and to provide additional insight into their imaginary dimension, by engaging directly with the objects visible in the photographs, the backgrounds, props, ornaments and furnishings, the portrait studio, darkroom, and with photographers working in this setting.

For this thesis, an externalist media-archaeological approach offered a means to critically review phenomena that may have been subject to ideological and disciplinary bias in research. It does this by recognising the inevitability of contingent, partial, and provisional accounts of histories. It is appropriate for dialogues between contemporary and period experiences of media and relationships between media forms. These have sometimes been “an uncomfortable, messy and less sure-footed affair that [has cast] its net wide” (Punt, 2018, p.136). However, this approach to the social and cultural histories of visual media technologies and the still, moving, and imaginary images they produced, is less restrictive than investigatory methods which suggest an inevitability of progress from simple or naive towards the complex or sophisticated. The research methods of media archaeology lend themselves to serendipitous encounters that reveal
traces of disappeared, forgotten, and overlooked media forms (Zielinski, 2006). Kluitenberg (2006) and Punt (2000) talk about media archaeology’s relevance to investigations of failed and imaginary technologies—a discussion which is especially useful for this thesis. The methodological strategies described above together create a ‘thick’ description, ‘or web of meaning,’ where the object or phenomena of concern is studied in its context. (Geertz, 1973, Punt, 2000).  

While recognising that technologies developed in fits and starts, this thesis will show a somewhat erratic continuity between media forms, such as lantern slides and portrait studio photographs, stereoscopes, and phantom rides. Drawing upon methods of New Historicism and expanding their application to these media forms, the thesis will endeavour to interpret them in their social and cultural contexts, those in which they were made, by whom and how they were received, experienced, and engaged with. This approach acknowledges the behaviour we are investigating as valid in its time, and meaningful for the participants.

9 These are linked to New Historicism (a context focused method associated with Literary Criticism) Geertz presented his theory for realigning the methods of anthropologists towards interpretation of context rather than depending purely upon observation in his 1973 essay ‘Thick Description: Toward an Interpretive Theory of Culture’ in The Interpretation of Cultures, New York: Basic Books.
The discussion draws primarily upon material from the UK and US due to their shared characteristics and language, and Anglo-American concerns with the social and cultural aspects of media. Primary source material includes photographs and photographic objects, some enhanced by various other materials such as hair, embroidery, dried and wax flowers, by their owners. A wide range of printed material has been consulted, including books, periodicals and trade almanacs, and ephemera such as business documents and catalogues, plus material and apparatus associated with photography, printing, and the moving image. Instruction manuals were imported from the US and the continent when translations were available to English language readers and vice versa. Excerpts or entire articles in one journal were published widely across others, for example, the journal, *The Photographer’s Friend*, published in Baltimore in the 1870s included texts from H.P. Robinson’s *Pictorial Effects in Photography* of 1869. In the US, syndication and telegraphy meant information, editorial comment and gossip was distributed rapidly through the daily newspapers to small towns across the continent. Period texts and secondary literature are drawn from these English language sources. Access to original period texts is limited but electronic forms have been used extensively and the work of this thesis is enriched by digital reproductions of nineteenth and early twentieth century photographs, lantern slides, and film.

\[10\] This was especially pertinent to Hugo Münsterberg’s celebrity status and the disseminations of his work and ideas that will be discussed in Chapter Five.
A review of the literature found that histories of photography were published as early as the 1840s. These tended to focus on technological changes, photographic types, or noted inventors and producers. Numerous instruction manuals concerned with technical apparatus and processes presented and updated technical innovations.\footnote{For example,}{\bf Robert Hunt,} (1854) *The Manual of Photography, 4\textsuperscript{th} Edition. Revised & Illustrated with Numerous Engravings.* London and Glasgow: Richard Griffin and Company, Publishers to the University of Glasgow.
\footnote{For example,}{\bf Robinson, H.P.} (1869) *Pictorial Effect in Photography: Being Hints On Composition And Chiaroscuro For Photographers.* London: Piper & Carter.
\footnote{For example,}{\bf Sir William J. Newton,} 1853, *Upon Photography in an Artistic View, and its Relation to the Arts.*
\footnote{For example,}{\bf Robinson, H.P.} *Photography as a business.* Bradford [Eng.] Percy Lund.
\footnote{For example,}{\bf John Werge,} (1890) *The Evolution of Photography: With a Chronological Record of Discoveries, Inventions, Etc.*
\footnote{For example,}{\bf W.H. Fox Talbot,} (1841), *The Process of Calotype Photogenic Drawing.*
\footnote{For example,}{\bf Frederick Scott Archer} (1851) *The Use of Collodion in Photography.*
\footnote{For example,}{\bf Oliver Wendell Holmes’} (1859) *The Stereoscope and the Stereograph,* and (1863) *Doings of the Sunbeam.*
\footnote{For example,}{\bf Later editions drew heavily upon the contents of the earlier ones with additional information, typically presented in themed chapters concerning topics such as photographing outdoors, designs for glasshouses, taking portraits using electric light, and the aesthetic qualities of photographic images. These publications reflected the continuity of interest yet unstable distinctions between amateur and professional.}

Much of the secondary literature concerning nineteenth century photography is also gathered into distinct themes\footnote{For example,}{\bf For example:} or repeats the formats of those of the nineteenth century,
recounting chronological structures of ‘developments’ in processes and apparatus, and analysis of individual and notable photographers and photographs. These comprehensive general histories of photography have been complemented by exhibition catalogues and texts that approach the subject from specific perspectives. The 150th anniversary of the so-called birth of photography in 1989 prompted a flurry of exhibitions and associated catalogues and publications. Scattered among these are a handful of texts concerning studio portraiture that have provided insights into their social and

cultural contexts. While this body of scholarship sheds some light onto the material practices of nineteenth century portrait studios, the affective and imaginary dimensions of the studio experience that imbued the photographs appears to have been neglected.

Instruction manuals, journals and periodicals produced for the industry during the nineteenth and early twentieth century were a mix of comment, instruction, and gossip, often from anonymous contributors. In the popular press for a general readership, photography made frequent appearances as cartoons and in editorial comment.

Where portrait studios are discussed in the period literature the focus is most often upon the photographer’s management of the apparatus and process, and the design and arrangements of the studio premises. The sitter was treated as just one of many


14 For example, *Punch* and *The Illustrated London News* in the UK, and *Harper’s Weekly* in the US.

15 As an example the following is from the first of a series of articles: “Large glass houses, as a rule, are not advantageous, their only benefit being that they enable the photographer to take large groups; but a small, well-lighted studio is infinitely superior. Make it with plenty of north light, with a dead wall to the south, and all worked with blinds. These should be made of calico,
things the photographer needed to manage. Where the studio backgrounds and props have been considered in the scholarship the discussions have almost exclusively been drawn upon their appearance in the photographs. In this sense, they are viewed through a filter of time and culture, apparatus and process, the camera lens, and the chemical surface of the photograph.

There is a limited written documentary record of the studio experience from the perspective of the sitter, and even less about their encounters with painted backgrounds and props. The visual record is vast, but although the sitter’s experience is recorded in every photograph it is a partial record, capturing only a few moments of the event: “the objects and people pictured in photographs are but shards of the past.” (Berger, 2015, p. 2)16

This thesis has drawn upon rare opportunities for the author to engage with these material artefacts in a studio space. Few backgrounds from the thousands that were

black or white, with rings sewn on the long way of the blind on each side; then stretch two pieces of wire, slip them through the rings, and fasten up on the spot you wish it. Thus, by means of a stick pushing the blind up or down the wires as you choose, the light may be adjusted at your pleasure.” (1. Operating Department, by Lindsay Howie, British Journal of Photography, March 24. p.139)

16 Martin Berger draws upon Georges Didi-Huberman’s description of photographs as historical ‘fragments.’
made and used during eighty years of commercial portraiture have survived the passage of time.\textsuperscript{17} The insights that have been gained through these encounters would not have been possible from photographs or texts alone. The photographs act as an opaque screen through which the studio mise-en-scène, as it was experienced by the participants, is only partially visible. Much of it is, intentionally, outside of the image frame, unprinted or cut away from the printed image, but occasional glimpses of the wider scene are sometimes visible in glass plate negatives or where a less than careful trimming of the photographic print has occurred. The photographs are necessarily partial and contingent records of an event. They allude to a bigger picture offstage. One not visible to the viewer.

Close visual analysis of a small representative selection of photographs of the many that have been examined during the research has been undertaken to identify common themes and notable differences. For example, a comparison of portraits made at Camille Silvy’s studio in Porchester Terrace in London, with those made in provincial studios across the UK, shows the same tropes and themes are present throughout the spectrum of commercial operators. Investigation of the rich visual and literary culture of the participants as a mix of melodrama, social comment, religion, nostalgia, and familiarity with the classics, has shed light on some otherwise puzzling features in the studio mise-en-scène.

\textsuperscript{17} Only ten have been found extant in the UK during the research for this thesis.
In the context of media archaeological approaches which recognise the multi-temporal and spatial histories of media technologies, (Parikka, 2012) it can be seen that the meanings of photographs are transformed as they move across space and time. As Edwards, E. (2012, p. 222) points out, photographs are “specifically made to have social biographies” that are tangled up with other objects and human, individual and collective, social and cultural engagement with them. That photographs operate within different value systems is brought to light by considering their social biographies. They have an active materiality and agency that arises from the intersections of experiences and imaginings of their social biographies.

The methods employed to develop this thesis evolved as the project progressed through reflection and curiosity. Each stage of the research journey found gaps in existing explanations. These resulted in questions that required a particular approach to answer them. Each stage resulted in reflection and questions about how best to find the answers, so each directed the enquiry and informed the next steps. This has been a phenomenological process led by intuition, conjecture, and curiosity, of weaving personal experience into the research and of being open to new ideas and opportunities. These subjective responses to the material have been complemented and contextualised by scholarship. This anthropological approach (Edwards, E., 2012; Ruby, 1981) accepts the tangibility of immateriality in human experience and accommodates the researcher as part of the ‘world’ researched. These methodological approaches form a thread running through the thesis. However, each chapter draws
upon a distinct body of scholarship and period material, so the literature review is
distributed into the various chapters.

Conclusion

The terms immaterial, transcendent, supernatural, spiritual, psychic, mystical, and
others similar were used often interchangeably across the secular, scientific, academic,
and popular literature of the period, and in the context of scientific display and
entertainment. The thesis follows the practice of the period and uses the terms as they
were used during the period in their various contexts.

For ease of reading, it is necessary to differentiate Hugo Münsterberg’s book, *The
Photoplay: A Psychological Study*, from the genre of early film of the same name.
References to the book are italicised as above and the full title is used. References to
the Photoplay or Photoplays as the genre of film are not italicised.

Chapter Structure

Chapter two will explore the context in which the nineteenth century public expressed
an immaterial dimension of human experience through their engagement with novel
media technologies that were presented in the arena of science. The chapter will draw
out several themes that are key to discussions of the specific media and mediating
experiences of Life Model slides, phantom rides, the moving images of Photoplays, and
the psychological apparatus that Hugo Münsterberg designed to promote active
engagement with an imaginary world. These will be more closely examined in each of
the following chapters and together with Chapter Two will contextualise the discussion of photographic portrait studios in Chapter Six.

Chapter three will argue that magic lantern shows were events where the nineteenth century public could represent and experience the immaterial dimension of technology through the technical arrangement and pictorial allusions of Life Model lantern slides that mediated contact with the spiritual. This genre of lantern slides was an especially popular form of religious and moral education embedded in entertainment during the last two decades of the nineteenth century and into the twentieth, when they evolved into secular stories and songs. The chapter will show how these images offered an invitation to the audience to become co-producers in their own experience. In this sense it will reveal a continuity with studio portrait photography that was familiar to the period viewer. The chapter will thicken descriptions of the experiential dimension of magic lantern shows by considering the transcendental quality of an experience in which the audience were co-producers. In this sense it will show how there was a continuity of engagement and experience with the transcendental experiences of cinema that will be examined in chapters four and five and photographic studio portraiture that will be discussed in Chapter Six.

Chapter four will move the discussion from the partially animated hybrid images of Life Model lantern slides to the moving images of film in the 1890s and 1900s, with a particular focus upon the phenomenon of phantom rides. It will suggest that in the context of the challenges to perception and cognition presented by the actual motion of
the railways and the perceptual motion of the moving image, phantom rides enabled viewers to be carried into the scene through which the camera moved, that is, to take the position of the camera: a move away from being an accessory to the event to being its core.

In Chapter five, an immaterial dimension of technology will be explored through Hugo Münsterberg’s design for an experiment to test the suitability of motormen for the work of driving electric streetcars. It will do this in the context of his work developing a psychological theory of the Photoplay. The experimental apparatus was a mechanical device that he employed to manipulate human perception by not only coordinating hand and eye but also through an imaginary scene in which the operator felt himself to be active. The chapter will continue the discussion of the affective and cognitive dimensions of phantom rides through Münsterberg’s stripping away of clues to the reality of the task, in his experiment to create an ‘as if’ experience.

Chapter six will examine the syncretic mise-en-scène of nineteenth century photographic studios and the multi-layered experience of having one’s portrait made in their mixed realities. The chapter will explore a seemingly paradoxical combination of the scientific realism of the camera technology with the anti-realism of the painted backdrops and paper-mache props, and the affective and cognitive dimensions of the sitter’s experience. The discussion will further the argument this thesis makes for an immaterial dimension of engagement with technology, of material’s ‘other,’ by showing how the mise-en-scène of the studios is an example of the photographers and subjects’
creative collaboration in a modification of the technological process of having one’s photograph taken, one that enabled the emergence of these intangible qualities.

Chapter seven will set out the reasons for the use of enchantment in this thesis as a means of expressing the continuity of cognitive and affective dimensions of the experience of having one’s portrait made in a photographic studio, and of the studio as a place designed and modified for this experience to occur. The chapter will offer insight drawn from philosophy and New Materialism into the spectrum of experiences this thesis describes as enchantment. The chapter will also present enchantment as a legitimate object of study that can be explored and evaluated on the same terms as other phenomena associated with visual media. It will do this to illustrate the continuity of the media experiences examined in chapters two to six, that present the immaterial dimension of human experience through media technologies.

Chapter Two: The Context of Enchantment in the Nineteenth Century

The thesis suggests that the nineteenth century public expressed an immaterial dimension of human experience through their engagement with novel media technologies that were presented in the arena of science. This chapter will draw out several themes that are key to discussions of the specific media and mediating experiences of Life Model slides, phantom rides, the moving images of Photoplays, and the psychological apparatus that Hugo Münsterberg designed to promote active engagement with an imaginary world. These will be more closely examined in the
following chapters and together with this will contextualise the discussion of photographic portrait studios in Chapter Six.

It is widely acknowledged that photography did not develop in isolation. (Batchen, 1997; Nead, 2007; Leonardi and Natale, 2018). Photography’s place in the cultural, social and scientific landscape of the mid-nineteenth century was uncertain and subject to a continual emergence of new forms and meanings. These were shaped by a period characterised by a broad public awareness of disruption to the apparent certainties of science and theology, and a mixture of antipathy and curiosity from the sciences towards the supernatural. Photographic portrait studios were a significant feature in this volatile technological landscape. They reflected the uncertain and shifting understanding about the place, status and meaning of photography as it evolved through the engagement of participants to represent and express an immaterial dimension of human experience.
Fig. 11. ‘Floating Bride’ Carte-de-visite. Albumen print on card mount. 4 1/2 x 2 1/2 inches. Author’s collection

Fig. 12. ‘Floating Bride’ Carte-de-visite. Albumen print on card mount. Reverse. 4 1/2 x 2 1/2 inches. Author’s collection
Among photography’s forms, the hybrid images of Life Model lantern slides and the moving images of film evolved alongside other novel technologies, including the electric telegraph, phonograph and telephone, electric light, stereoscopy, and X-ray imaging, to name but a few. Reflecting the uncertainties described above, the categorisation of these novel technologies, for example, X-ray, was in some cases and initially incorrectly, based upon similarity of appearance and action, and assumed continuity of action and consequence (Pamboukian, 2001). The nineteenth century press reported widely on psychic experiences, manifestations of supernatural beings and dimensions, and on matters of secular and religious spirit for both a general readership and in periodicals and journals for special interests. They appeared alongside accounts of
scientific and industrial processes that were explained in detail for a lay audience. The increasing accessibility of printed material meant face to face contact was no longer necessary to learn a new skill or engage with debates about the meaning and possibilities of novel technologies. A supernatural dimension was portrayed in popular culture as ghosts, spirits, and angels, imbuing the spectacular and mundane of nineteenth century life. The association of the imaginary of media technologies (Punt, 2000) with ideas of spirit, transcendental and supernatural dimensions was acknowledged during the period. The fuzziness of definition and categorization of these technologies created conditions of enchantment, in which individual and collective imagination had room to work.

In June 1853, *The Illustrated London News*, regretted that ‘the matter-of-fact people of the nineteenth century’ were ‘plunged all at once into the bottomless deep of Spiritualism.’ It continued: ‘Railroads, steam, and electricity and the indubitable wonders which they have wrought, have not proved powerful enough to supersede and destroy that strong innate love of the supernatural which seems implanted in the human mind.’ (Noakes, in Bown et al, 2004, p. 25)

Even the *British Journal of Photography* published stories of supernatural encounters. In the March 3 issue of 1876, Part One of a serialised story, ‘The Three Portraits’ told by a contributor named as Mark Oute, told of mediums and ghostly manifestations. The narrator explains how he came to acquire them.

On one of these rambles, and in one of the dirtiest of these windows, I came upon a leather case in which lay three brooches fitted with old photographic portraits. They lay quite loosely in the case as if for convenience to keep them together, and not as if the case had been made for them. The pictures were
useless except as specimens of the art in days gone by. Having a love for curiosities of this kind I took a fancy to them, and for a few shillings bought them, and that is how I became possessed of the three portraits.

His possession of them turns out to be a linguistic premonition of the supernatural events that follow. The same issue contains an account of a photographer who does believe in spirit photography. Another, published August 11 of the same year, included Part One of the fictional tale ‘Odic Force, Or What?’ It begins with “Do you believe in Ghosts, Mr. D.?” Mr. D. is a photographer who believes ghosts are a figment of the imagination but then encounters the ghost of a lady whose portrait photograph has mysteriously appeared on his retouching bench.

Science might have appeared to have primacy over theology in making sense of the world, but this did not mean scientific methods and conclusions went unquestioned and unexamined (Luckhurst, 2002). Scientists’ personal and religious views were not necessarily a determination to prove or disprove but to explain and understand so called supernatural or psychic phenomena. Luckhurst’s work on telepathy (2002) revealed the uneasy relationship and often fractious interaction between the natural sciences and psychical research in the late nineteenth century. Psychic phenomena, such as telepathy, psychokinesis, and animal magnetism, had a significant place in late nineteenth century culture (Punt, 2006; Blassnigg, 2007; Noakes, in Bown et al., 2004; Leonardi and Natale, 2018; Sconce, 2000). This persisted in the face of scientific ‘evidence’ and developed into novel forms that highlighted blurred and shifting
boundaries. A lack of consensus and unresolved debates implied the evidence one way or the other was inconclusive.

Scientific disciplines were themselves in a state of flux politically, structurally, and socially. There was cross-fertilisation of knowledge and ideas from diverse domains of science and faith and an atmosphere of unpredictability about just what science might reveal. Illustrated lectures and demonstrations offered a source of income for ‘scientists,’ particularly chemists, who could also find an income through commercial activities. The was little financial support from academic institutions, access to laboratory space was limited, and many were privately funded enterprises. There were few structured academic pathways and limited engagement with them until the end of the nineteenth century. (Luckhurst, 2002, pp. 18–19)

Paid academic and institutional posts were rare until the latter quarter of the nineteenth century, (Lucier, 2009; Luckhurst, 2002; Punt, 2018) so scientific authority derived from a mix of the expertise of gentleman-scientists of independent means and enthusiastic lay-people, and through the hierarchy of competencies and day-to-day practices of those who applied the science for their livelihoods as chemists, mechanics, instrument

\[18\] Such as Sir William Crookes (1832–1919). A celebrated chemist who, in 1897, was elected to the position of president of the Society of Psychical Research. His family’s businesses and his own professional activities as an experimental scientist, editor, author and lecturer provided an income and the means to operate his own laboratory.
makers, and allied trades. So, as Luckhurst (2002) points out, while science had a broad reach, its disciplinary and ideological instability left gaps in which new sciences such as psychical research could develop and could find an audience for whom the immaterial dimension of an increasingly material-focussed world was being revealed and acknowledged.

Visual technologies informed the metaphors and analogies of literature (Baker, 2013; Bown et al. (eds.), 2004) where this immaterial dimension had a history of representation in literature and theatre as ghosts, phantoms, apparitions and various other ethereal, immaterial and supernatural agents. Indeterminate powers, auras, and miasmas appeared to be hovering around uncertain boundaries between matter and its ‘other,’ to appear and disappear. These were sometimes invisible, but tangible and substantial forces. That most of these could only be sensed or seen in very particular and contrived circumstances, and invariably in darkness, does not appear to have detracted from their credibility but elevated the status of those who could summon them.

The nineteenth century is characterised by visual spectacle and performative and graphic intersections between scientific and technological developments, and popular culture (Punt, 2000; Alberti in Fyfe and Lightman, 2007). Scientific, technological and

19 Gentlemen preferred to retain their designation as natural philosophers rather than be called scientists. (Punt, 2018). This indicates an uncertainty about their alliances and professional identity.
entertainment contexts were not separable and so this thesis considers these as a unified whole in order that the nineteenth century public's engagement with them can be more fully understood. It will be seen that all were shared encounters, the experiences facilitated by close proximity with others, whether in theatre, lecture hall, exhibition, or fairground.

A crystal palace

_The Great Exhibition of the Works of Industry of All Nations_ in the Crystal Palace at Kensington that opened in 1851 was a catalyst and tremendous showcase for technological spectacle. It offers a starting point for examining this period, which is characterised by technological spread as much as technological advance. Science, technology, entertainment and imagination converged for this event, which appears to have been primarily concerned with the display of materiality. The artefacts were installed in the cavernous spaces of exhibition buildings that evoked the architecture of industry and religion but with the transparency and visual insubstantiality of glass. The glazed and vaulted roofs of the new railway stations had much in common with the exhibition building, not only visually but as locations where the public could engage with technological advances as passengers, or by just observing the spectacular sight of steam locomotives and the entertainment of watching the crowd.\(^{20}\) So, the exhibition

\(^{20}\) See, for example, William Powell Frith’s, _The Railway Station_. Oil on Canvas. 1862 [Online] Available at: [https://artuk.org/discover/artworks/the-railway-station-12825](https://artuk.org/discover/artworks/the-railway-station-12825)
and the railway proved to be a catalyst for further expansion, dissemination and expectation of what technology might offer. Playful engagement and the invocation of a superhuman experience were offered to the public through the spectacular technologies of telescopes, microscopes, and rollercoasters and many others. Using the Crystal Palace exhibition as a starting point, the following discussion will draw out several themes, including flight, speed, time, and their spiritual or transcendental dimensions that are key to discussions in the following chapters.

_Novel technology, displayed to disorientate_

Six million people, a third of the British population, visited the Great Exhibition at Kensington, from royalty and the expanding middle classes who could afford the higher priced entry fee during the first three weeks, to agricultural and factory workers, and domestic servants, for whom the financial sacrifice was considerable even when the price for entry had been reduced to one shilling. Special trains were arranged for the sole purpose of bringing people from the provinces to the capital — from the North to the newly opened Kings Cross station — a spectacular steel and glass construction. The journey was a significant part of the event for these visitors, just as it was fifty years

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Thomas Cook, who later arranged excursions to the cemeteries and battle grounds of the Great War in Northern Europe, offered Exhibition Packages which included the cost of rail travel and the entry fee to the exhibition, with the option to include accommodation if desired. The Railways Act of 1844 increased accessibility to rail travel by requiring rail companies to run 3rd Class carriages. These were often open to the elements.
later for those who travelled on trams and street cars to participate in the novel
experiences of watching moving pictures of trains arriving in stations and of phantom
rides, \(^{22}\) the focus of Chapter Four.

Speed is a form of ecstasy the technical revolution has bestowed on man. [...] when man delegates that faculty of speed to a machine: from then on, his own body is outside the process, and he gives over to a speed that is noncorporeal, nonmaterial, pure speed, speed itself, ecstasy speed. (Kundera, M. trans. Asher, L. (1997) in Wittmann, M. trans. Butler, E. (2014) p. 121)

The exhibition offered an imaginary of flight (its association with transcendence will be explored in Chapter Four) and of a new reality of space, distance and time collapsing on the surface of the earth and the heavens, through telescopes, from air balloons, and as aerial view maps of London from above. \(^{23}\)

\(^{22}\) Not least because travelling in close proximity to strangers was for many still an unfamiliar experience. This was mediated by the provision of cheap reading material produced especially for train journeys, and this material in its turn mediated the readers’ expectations of, ideas about, and desire to engage with technology.

\(^{23}\) For example,


Online exhibition: Over 1200 maps and plans of the capital: a fascinating collection brought together by the Victorian designer, Frederick Crace. The British Library
An art sensibility was embedded within industrial manufacturing, machines and products, and the Crystal Palace exhibition. At the time it was by far the largest of scientific and technological spectacles and overtly presented the artistic merits of technological practices alongside fine art and artisanship. Its patronage by Queen Victoria defined the event as an edifying spectacle. Exhibits included items for domestic and personal use through to those of the gigantic industrial scale that seemed to be especially admired by the nineteenth century public. These included a steam hammer and hydraulic press, a locomotive and carriages, domestic appliances and carpets, tapestries and silks, knitting machines and dental floss, an ivory throne, stuffed animals and birds, agricultural and domestic machinery, printing machines, velocipedes, porcelain, precious metals and minerals, fountains, telescopes, eyeshades, and prosthetics including an artificial nose made from silver. Photographs, photographic equipment, frames, cases and sundry related items were also exhibited in the category of philosophical, musical, horological, and surgical instruments.

2. *A Balloon View of London, as seen from Hampstead, Exhibiting 8 square miles shewing The Great Crystal Palace, all Public Buildings, Railway Stations, Parks, Palaces, Squares, Streets &c.* BANKS, John Henry - Published by London: Published as the Act directs, May 1st, 1851. by Banks, & Co, 4 Little Queen Street, Holborn. n. d. [c. 1852]
Photographers and their intellectual admirers and critics had been embroiled in fraught discussions about photography’s artistic merit and status as either art or science from the start. Jabez Hogg, ophthalmic surgeon, photographer, and sometime journalist, in his *Practical Manual of Photography*, (1845, p. 27) was concerned to encourage aspiring portrait photographers to consider the *artistic effect* [italics in original] of their arrangements of pose, costume and lighting. The imagery and text used by commercial photographers in their advertisements and on the reverse of carte de visite and cabinet cards indicates they followed these inducements, if not in practice, then in their aspirations toward the status of artist. Many of the photographic societies that emerged from the common interests in photography of the men of science and those who applied science for a living, and the institutions that supported and disseminated their work, emulated those of the arts by following their structural conventions of affiliation and membership and by holding competitions and exhibitions of their members’ work. Detailed reports of these events were included in their journals in a similar manner to the *Reports by the Juries* […] of the Great Exhibition, which included descriptions of photographic processes, a feature also typical of the educational leanings of leisure reading material throughout the period. An inclination towards artistry is indicated by the juries’ report which noted their disappointment at the narrow range of uses the entries displayed “other than such as please the eye or administer to personal feelings. As regards [photography’s] application to an infinity of useful and instructive purposes, we have literally nothing!” They continue with a long list of applications for which photography could be used (1852, p. 279).
Taking to the sky

the balloons went up, and the aerial travellers stood up, and the crowd outside roared with delight, and the two gentlemen who had never ascended before tried to wave their flags as if they were not nervous, but held on very fast all the while; and the balloons were wafted gently away… (Dickens in Sketches by Boz.)

A Fire Balloon was exhibited at the 1851 exhibition and an aerial map of London, which depicted the exhibition buildings and surrounding area ‘as if from a balloon’ was published for sale on the opening day. Manned balloon flights were an entertainment in Vauxhall Gardens during the decade prior to the exhibition and accounts of superhuman experiences of aeronauts were widespread in fact and fiction.

24 Sketches by Boz was a collection of anecdotes written for ‘The Monthly Magazine’ and then ‘The Evening Chronicle’ during the 1830s, then published in book form in 1849 as Sketches by Boz: Illustrative of Every-day Life and Every-day People.

25 The first of Thomas Baldwin’s illustrations in Airopaidia (1786) is circular, as if the viewer is looking straight down at the earth from a great height. As cultural historian Lily Ford, notes, it has a representational similarity to an eye. Ford, L. (2016) “For the Sake of the Prospect” Experiencing the World from Above in the Late 18th Century. Published online July 20. 2016. Available at: https://publicdomainreview.org/essay/for-the-sake-of-the-prospect-experiencing-the-world-from-above-in-the-late-18th-century
money or nerve, could not take to the sky in a balloon could experience flight and speed, a sensation of being detached from the earth, at the numerous fairs and amusement areas of expositions in Europe and the US. Panoramas, Dioramas and Cycloramas offered a bird's eye view of landscape to their audiences and according to the commentary in the press were successful in creating the illusion. Technologies in the form of fairground rides and sideshows offered an experience that could be likened to that of air balloons. Great Wheels, roller coasters, chair-o-planes, Gallopers, and carousels provided the perception of movement produced by external forces and outside of the subject's control. The riders were carried smoothly and at speed into the air with no means to stop until the end of the ride, an experience that can be likened to the bodily and emotional response to a train ride (Schivelbush, 1986) and can in some respects be interpreted as predecessors of phantom rides.²⁶ From their elevated position the riders could observe those still on the ground, who were also entertained by watching the antics of those on the ride.

The Sea on Land, in a less exhilarating experience than the Steam Yachts, treated their riders to the rising and falling of the swell of a simulated sea by machinery beneath the hulls of the replica boats that they sat in. Sails and rigging and painted waves were

²⁶ Until the 1860s these fairground rides were propelled by horses and human muscle power. The riders of Velocipedes (bicycle roundabouts) powered themselves by pedalling. During the 1860s fairground entrepreneurs began to use steam engines to power their rides. These engines were decorated and displayed as part of the spectacle.
intended to contribute to a sensation of ‘actually’ being at sea in stormy weather. In much the same way, the ‘travellers’ of Hale’s Tours of The World in the early 1900s, which incorporated phantom rides into the experience, sat in railway coaches that were bumped and rattled by machinery under the carriage floor to feel as if they were really moving through the scenery shown on the screen at the front of the carriage. This is a contradiction to the initial novelty of travelling by train, that was in part due to its detaching the traveller from the uneven surfaces of the ground by the rails. And of phantoms rides which offered a similar sensation of disconnection from the earth.

Steam powered Tunnel Railways,\textsuperscript{27} began to feature among fairground rides during the 1890s followed, in the early 1900s, by electric powered Scenics (some featured ‘motor cars’ on a track.) These rides incorporated smoke and steam, theatrical devices also used by Hale’s Tours of the World, to increase the illusion of travelling under the English Channel or past waterfalls, snow-capped mountains and valleys in Alpine landscapes.

\textit{Collective frightenings}

Phantasmagoria, fairground ghost shows and ghost rides, and séances, provided collective frightenings that involved concentrated engagement on the part of the participants during the experience and mutual reinforcement through shared

\textsuperscript{27} Many of these rides offered the stronger members of the party an opportunity to protect, comfort and reassure the weaker, the tunnel offering the opportunity for a kiss, such as the one featured in G. A. Smith’s film \textit{A Kiss in a Tunnel}, 1899.
recollection. Calling up spirits of the familiar dead was one thing—these were hopeful and anticipatory events—but phantoms were also depicted as harmful, threatening and uncalled for, even arising as miasmic afflictions from within individuals of unfortunate constitutions, and these more likely among the poor (Walters, 2019). The periodical press depicted Jack the Ripper as a phantom materialising from the miasma of the slums. Just as miasma was thought to float across the blurred boundaries of the built environment, the rhetoric around it spread across the uncertain boundaries of natural science and the so-called pseudo-sciences,28 whose instruments and methods were promoted as the means to reveal and explain miasmic phenomena such as bodily emanations, Odic forces and lights, auras and magnetism, in the same way that microorganisms were being revealed by microscopes. (Walters, 2019, p. 596)

Suggestions that such phenomena could materialise from the atmosphere, was presented alongside fictional tales of phantoms and ‘factual’ explorations of natural and supernatural phenomena. The accompanying illustrations portrayed these as barely

28 Brewster used the term pseudo-science and described the results of his early experiments with society medium William Home as tentative evidence of a ‘Psychic Force.’ This suggestion was contrary to the public opinions of the scientific ‘establishment’ who stated that science could explain these natural phenomena.

The term pseudo-science was in common use during the latter part of the nineteenth century. It had then and has still derogatory connotations. (https://plato.stanford.edu/entries/pseudo-science/)
material human forms, semi-transparent, ephemeral, insubstantial and unstable. Ghost stories were also presented as ‘true accounts’ framed in discussions of ‘how it might have happened’ where ‘science’ offered theories and explanations for folklore about the supernatural and superstitions, ghosts, phantoms and psychic ability. Some writers, including Dickens, appear to have promulgated the notion that auras and lights could be scientifically explained as caused by ghosts and spirits arising from graves. (Henson, 2000)

X-ray Imaginary

In 1868, an item in the Table Talk column of the July 18 issue of Once a Week\(^2^9\) begins “A novelty in photography is promised us. Pictures visible only in the dark; portraits that must be taken into the coal cellar to be admired” (p. 56). The author goes on to describe a process that uses compounds of phosphorus upon a plate in the camera “which light excites to phosphorescence wherever it falls,” explaining how the subsequent image is invisible in daylight but “when carried into utter darkness, develops itself with an earthly glow.” In December 1895, Wilhelm Conrad Röntgen used apparatus including a Crookes Tube to make a photograph of the skeletal shadows of his wife’s hand.\(^3^0\) The

\(^2^9\) Once a Week was a periodical illustrated by wood engravings. It was intended by its publishers, William Bradbury and Frederick Evans, who also published Punch, to appeal to the middle-class readers of Dickens’ All the Year Round, a text only publication. Once a Week was published as a weekly low-cost paper and as a bi-annual gift book from 1859–1880.

\(^3^0\) The chemist and physicist Sir William Crookes was also a researcher of psychic phenomena.
image evokes now the apparitions of phantasmagoria. If the interior of the living body could be made visible in varying degrees of transparency by invisible rays of light emanating from a machine, then perhaps so could other invisible, previously only imaginable phenomena also be brought to light? Following a tradition of reception and response to techno-scientific novelties, including photographic apparatus and processes revealing phenomena that were not visible to the naked eye, X-rays, (as Röntgen called them) were received as an entertaining phenomenon, and a potential cure for physical ailments or for a practice that would now be called medical aesthetics (Pamboukian, 2001; Nead, 2007). The language of magic and the supernatural that was commonly applied to photography, stereoscopy and electricity was also applied to X-rays as was often the case for novel visual technologies during the period.31 These mechanisms had an apparitional value (Crary, p. 258) to which imagined properties were ascribed. X-rays made it possible to see through something 'solid', revealing interiors through its radiance, and auras that are redolent of those of the spirit world revealed by mediums.

31 The New York Times ran an illustrated article describing the means to make ‘Photographs through Flesh’ (NY Times, 30 Jan 1896).
Another similar in the Scientific American, Sept 29, 1900, titled ‘Penetrative Quality of Light as Tested by Photography,’ by J.W. Kime, M.D. includes an image of a “negative made by rays of light passed through the human body.” another of “prints [ of buildings] taken by rays passed through the hand.” and another purportedly illustrating the method.
As Pamboukian (2001) points out, X-ray photographs were encountered in the context of the viewer’s familiarity with the see-through bodies of spirit photographs and, as Warner (2006) notes, photographs disseminated the spirit mediums’ accomplishments. But because radiation could not be seen or felt, it represented a type of phenomenon whose cause and effects could not be observed in a traditional, empirical manner. The ‘pencil of nature’ of photography morphed into ‘invisible pencils’ of x-rays “registering all our actions or even thoughts – or what’s worse, the desires that we don’t dare think.” (Panek, 2004, in Kairschner, 2008, p. 374)

The discussion above draws photography into a technologically driven disembodied realm. In Chapter XIV of David Brewster’s Application of the Stereoscope to Purposes of Amusement the reader is told how “the photographer might carry us even into the regions of the supernatural. His art, as I have elsewhere shewn, enables him to give a spiritual appearance to one or more of his figures, and to exhibit them as ‘thin air’ amid the solid realities of the stereoscope picture” (1856, p. 205). He goes on to explain exactly how to create semi-transparent figures in photographs, an explanation widely available through the popular press to readers who, despite knowing how they were created, found them entertaining, nonetheless. As Liggens explains, “For the sceptical late Victorian, spirit photography might have seemed unviable, but the circulation of such images and the discussions they generated suggests a willingness to believe that ghosts could be captured by modern technology” (2019, p. 375). The appearance of ‘spirits’ in photographs was not always deliberate. Apparitions evoking an immaterial realm that existed alongside the positivist realm of science sometimes appeared
unexpectedly on photographs, when a previously used glass plate was not cleaned sufficiently well to remove all traces of the chemical emulsion holding the negative image. Traces of that image would then appear when the new exposure was developed.\textsuperscript{32}

The immaterial dimension of technology is made explicit in the spectacle of the weighty material products of science and industry, the locomotives for example, that are considered in the discussion in Chapter Four were described as having marked spectral qualities. Understanding of a human experience of an immaterial dimension that were expressed in terms of supernatural phenomena, filtered through many aspects of nineteenth century experiences of media, in the imagery of religion and science, natural philosophy and the emerging discipline of psychology, in literature and in theatre. In the period imaginary of the supernatural, angels appear to morph between ephemeral

\textsuperscript{32} A visitor to the museum in Llandrindod Wells told of seeing the traces of photographs on the glass of cold frames and a greenhouse. They had, he explained, come from the stores of a local photographer whose business had closed many years previously to replace broken panes. Pavel Büchler writes of a friend’s account of her Norwegian grandfather’s recycling of glass plate negatives to repair broken windows during the war. ”But even after she had stripped off the gelatine emulsion with alcohol, faint traces of the images still remained on the surface of the plates. They were invisible in daylight, but in a certain light during the polar night, the faces of the people photographed years before appeared like ghostly reflections etched into the small window panes.” (1999, unpaged)
insubstantial beings, as befits their linguistic association with breath — ‘spiritus,’ from the Latin, and embodied and earthly forms, as evidenced in their depictions in Life Model lantern slides.\(^{33}\) This instability of angels’ form reflects that of science and theology, and of matter and its other, though the novel technical arrangements that enabled their portrayal. Angels, as Blassnigg explains, “can be regarded as epiphenomenon of the interstices between matter and spirit” (2007, p. 9). The period audience is reminded of their mutable forms through the many guises in which they appear as a frequently occurring and enduring motif signifying transformation. They are seen in advertisements on the reverse of cartes de visites and cabinet cards, in catalogues and pamphlets to illustrate those of suppliers to the photographic trade and on posters and handbills for magic lantern and moving image shows. They are invariably depicted as at one with the camera or projector though their proximity to it: in some they appear to be operating it.

Although many scientists appeared to be reluctant to apply their scientific methods to an examination of supernatural phenomena raising questions about their status or engage in discussions about them, others were, which contributed to spiritualisms uncertain status and so the uncertainty about associated phenomena. The metaphysical claims of

\(^{33}\) This imagery persisted in the moving pictures of film, for example, in Méliès’ 1904 film, *Détresse et Charité*, (in the US, *The Christmas Angel*, in the UK as *The Beggar Maiden*) and as Clarence Odbody, a 200-year-old angel who has yet to earn his wings, in the 1946 film *It’s A Wonderful Life*. Dir. Frank Capra.
spiritualism (or spiritism as it was known in the period) that emerged in the 1840s as an organised belief system, were deemed to be inappropriate for an intellectually developed humanity. Yet, the so-called supernatural and psychic manifestations of mediums persisted throughout the period and found their way as visual illusions into magic shows via analysis of their methods (Gunning, 1995; 2007). Spiritualism, science and magic had their own mechanisms of proof, but science and magic were working towards the same goal, to disprove supernatural influences that mediums professed. Science wanted to explain the as yet “unrecognised force[s] and intelligence,” that Henry J. Horn, describes in his introduction to Strange Visitors, (1869), and magicians wanted to evidence their own remarkable skills. The magicians Maskelyne & Cook, Robert-Houdin (and others) reproduced the mediums’ techniques as secular séances as part of their acts, and Georges Méliès incorporated pseudo materialisations into the performances at his restored Théâtre Robert-Houdin during the decades either side of 1900. All the while contributing to imaginary of other dimensions. Around the turn of the nineteenth century, the immaterial dimension of human experience that was made apparent as disembodied voices, telekenesis, and telepathy, was challenged by explanations of ‘mind in body’ offered by those working in the emerging discipline of psychology who were accepting of these phenomena as compatible with a positivist view. While psychologists drew upon the techniques and processes of magic shows, they with stage illusionists and magicians challenged the claims of mediums (Drayson, 2018, pp.152-153). The persistence of activity throughout the period that was concerned with revealing and understanding the many forms of an immaterial dimension of human experience might be understood as an endeavour to find meaning
in the ‘hard cold facts of science’ and technologically created illusions. Just as entertainment is justified by aligning it with the moral and intellectual improvement of science, so magic is rationalised. (See Brewster, Natural Magic)\textsuperscript{34}

\textit{A reading nation}

The Crystal Palace exhibition took place at a time that the contemporary writer Wilkie Collins called the age of periodicals.\textsuperscript{35} The mid-nineteenth century press catered to an increasingly literate population. It reflected and commented upon every aspect of public and private life, influenced public aspiration and expectations and contributed to the education of the poor and working classes at a time when state funding for schools was limited and they were largely dependent upon charitable grants. Printed reading material in the form of novels, poetry and short stories became widely accessible and a popular leisure activity and form of education for children and adults of all classes. The publishing industry capitalised upon and contributed to the increasing literacy of a broad spectrum of society as printing and disseminating reading material became cheaper.


Social reform, private philanthropic, and religious organisations increased access to schooling for even the poorest children through the Ragged Schools. Access to reading material became possible through public subscription and circulation libraries, reading rooms and institutes. The reduction of taxes on advertising, newspapers and paper during the 1830s and 1850s meant literature became increasingly affordable and accessible, so much so that a man can be seen reading in his bed in ‘A night refuge for the London poor’ in an 1859 engraving from *The Illustrated Times* (in Briggs, 1989, p 105). Sales of illustrated monthlies boomed in the decades either side of 1900. The Penny Press, weekly magazines illustrated with monochrome images very often included a serialised story peopled with characters with whom a working-class readership could identify. Stories featuring encounters with the supernatural phenomena of phantoms and ghosts were popular (Liggins, 2019) and reflected a broader fascination with all things ghostly towards the end of the nineteenth century. The accompanying illustrations invariably depicted the reaction to ghosts as fright, flight

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36 The Ragged Schools movement evolved from Sunday Schools during the late eighteenth century. Their aim was to teach the poorest and destitute children to read. By the mid-nineteenth century, several hundred Ragged Schools existed in London and throughout the UK.

37 In America and the UK engravings (Lithographs) of portrait photographs of celebrities or ‘Illustrious Men’ were produced by photographers/publishers with accompanying biographical information on a subscription basis. (Hargreaves, 2001, p. 36) Subscription to special collections of portraits and biographies continued and became widespread when it became possible to reproduce copies of photographs.
or collapse, although the trope of male hero protecting a weak swooning woman is not always apparent in these images, which often show strong men and policemen recoiling in fear. These stories were interspersed with society gossip, answers to readers’ questions, and editorial comment upon a diverse range of topics. News and commentary of specialist interest were presented with explanatory illustrations for a lay audience and operated alongside public lectures and demonstrations of science and manufacturing processes. This dissemination of information contributed to the mutual intelligibility between producer, operator and audience.

Museums and exhibitions produced catalogues and guidebooks that often included floorplans and codes of behaviour. Variously motivated philanthropically minded individuals and organisations published ‘advice books’ that explained how to navigate the sites, both physically and as a cohesive narrative. They sought to inform the lower-class visitors’ reactions and help them to assimilate and understand ‘correctly’ how and what to think about the (assumed to be) otherwise confusing and overwhelming impact of the sheer mass and diversity of objects on display (Fyfe, in Fyfe and Lightman, 2007). This wide dissemination of new understandings and visualisations of physiology and psyche occurred at the same time as changes to the social and economic order, development of industrial systems of production, capitalism,

38 Alberti (in Fyfe and Lightman, 2007) talks about the disconnection experienced by visitors to museums when they could no longer touch the objects on display.
consumerism, and the expansion of the middle classes. The display of scientific and technical apparatus included telescopes, microscopes, and chronophotography which explained movement too rapid to see with the naked eye. Later in the century, time lapse photography exposed otherwise imperceptible changes, in plant growth for example. As noted above, industrial processes, urbanisation, telegraphy, and railways disrupted experiences of space and time and with the completion of the Westminster Clock in 1857, then the most accurate timepiece in the world, time itself became a spectacle, to observe, listen to and marvel at.

A ‘suspension of disbelief’ filtered out of literature and characterised discussions of entertainment, the fiction no less enchanting when its means of production was understood. “The world behind the scenes," even for the oldest, most blasé playgoer, has a sort of indistinct enchantment; while its strange mysteries and complicated and ingenious system of devices which regulates every action and movement, excite the curiosity and wonder of less accustomed visitors” (Fitzgerald, 1881, p. 1). Fitzgerald not

39 These activities took place in the context of the challenges to perception and cognition presented by the actual motion of the railways and the presented motion of the moving image of film.

40 The clock’s accuracy was tested by comparison with chronometers at the Greenwich Observatory.

41 Coleridge formulated the term in 1817 to describe a literary device that incorporated elements of truth into fictional worlds in such a way the reader would accept the whole as possible.
only explained how theatrical illusions are created and speculated how they might be improved, but also explored the audience’s perception and the affective dimension of the various mechanisms and devices as a sort of immersion. “The audience has a kind of power of being present in a sort of supernatural way, and are, as it were, in company with the figures” (Fitzgerald, 1881, p. 35). Much of the period commentary that supports this view is drawn from advertisements and the hyperbole of accounts in newspapers.

The ‘all-embracing view’ of Panoramas and Dioramas promised immersion in an illusory space long before the machine-driven moving panorama rides of the late nineteenth century. As such they are more closely aligned to theatre in which the viewer is integral to the performance (Sternberger, 1977). The fabrications involved in the illusion included sculptural elements, such as the facades of buildings placed in front of the painted landscape and real and artificial props that matched the scene. These additional features dictated the viewer’s impression of their proximity to the view. A soundscape was sometimes added to enhance the effect of ‘being there.’ The viewer’s impression of was carefully manipulated by lighting. Both light and sound directed the viewer’s attention and physical movement through the real and pictorial space. Sternberger explains that for the viewers, the illusionistic virtuosity was part of the experience and that testimonial from visitors confirming that the “art of deception was done for its own sake and not ... to deceive” (1977, p. 7). A feature that predates the syncretic realities of Life Model slides and portrait studios.
As a legacy of the Great Exhibition, the land at Brompton on which it stood was bought with the profits to become The South Kensington Cultural Quarter, (as Prince Albert named it) and a selection of exhibits were collected into a Museum of Manufactures, a Science Museum and a Natural History Museum. These with The Polytechnic Institution in Regent Street and other similar institutions, were involved with the communication to the public of previously restricted knowledge (although a working-class audience were still not able to attend some events, The Royal Institution Lectures for example.) It was the largest and showiest in its Crystal Palace, but the 1851 exhibition was not the first of such ventures, similar although smaller were held during the 1830s and 1840s in Mechanic’s Institutes and other venues around the country. These were advertised as events where the working classes could partake of “rationale and agreeable relaxation” while viewing “Models of Machinery, Philosophical Instruments, Works in Fine and Useful Arts, Objects in Natural History and specimens of British Manufacturers, &c. &c.”. The Adelaide Gallery, just off the Strand, was opened in 1832 by the Society for the Illustration and Encouragement of Practical Science. It exhibited models of machinery and philosophical instruments, delivered illustrated scientific lectures and other science-based entertainments such as inhaling Nitrous Oxide ‘Laughing Gas.’ The Institution also hosted promenade concerts. In these, not only were the audience participating in performative dimensions of technology but were also part of the entertainment as they were at the sideshow of fairgrounds and later, as participants of actuality films. Participation included conversation, discussion and debate, not only in publications but also in drawing rooms, working men’s clubs, mechanics institutes and lecture hall and
museum. (Secord, pp. 23-60, in Fyfe and Lightman, 2007). Reports of lectures and demonstrations, including those given by mediums and trance speakers, appeared in the press, including literary scientific journals primarily aimed at a middle-class readership. These included The Quarterly Review, Blackwoods, The Cornhill Magazine, and The Fortnightly Review. Followers of spiritualism had their own publications including The Spiritual Magazine and The Journal of Mental Science.

In 1839, both the Adelaide Gallery and The Polytechnic exhibited photographic equipment and images, experimented with photographic processes, and incorporated demonstrations and illustrated lectures on Daguerre’s and other processes, and associated apparatus, into their repertoires. Photographic portraiture soon followed. Richard Beard opened a glazed studio on the roof of the Polytechnic in March 1841\(^2\) followed in the summer of that year by Antoine Claudet who began making Daguerreotype portraits at a studio on the roof of the Adelaide Gallery, so beginning a dialectic between the portrait studio and scientific spectacle.

As noted in Chapter one, from the outset there was widespread and long running debate, and often heated arguments, about photography’s status as science or art. Its initial demonstration and display in ‘scientific’ institutions seemed to favour the former.

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\(^{42}\) Claudet opened a studio at the Colosseum in Regent's Park (1847–1851) and then at 107 Regent Street (1851–1867), known as the 'Temple of Photography.'
Frederick Scott Archer announced a collodion on glass process (importantly, determined to be patent free) in the monthly journal *The Chemist* [...] in 1851, and many commercial portrait photographers mimicked the poses and settings of the subjects of oil paintings and described themselves as artists. Some though also aligned themselves with science, for example, Poate & Co. of N°.2. Pembroke St. Portsmouth advertised his business as a Photographic Institute.

Knowledge of photographic processes was rapidly disseminated through public lectures, demonstrations and publications and through an existing network of educational opportunities accessible to all classes of people. Commercial photographers supplemented their incomes by training others. Equipment was copied, home-made from instructions, commissioned from local craftsmen, specialist instrument makers and opticians. Manufacturers supplied chemicals, lenses, silvered copper plates, coated papers etc. Supplies and apparatus were commonly imported as were instruction manuals that were translated for an eager readership of enthusiastic experimentalists who met informally to share developments and their own successes and failures. These meetings evolved into photographic societies with rules and constitutions who discussed and promoted photographic art through exhibitions and competitions. To begin with, these societies circulated reports of meetings, events and

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43 Full Title: *The Chemist: A Monthly Journal of Chemical Philosophy, and of chemistry applied to the arts, manufactures, agriculture and medicine, also record of pharmacy.*

44 Edinburgh 1842, London 1847, both informal clubs. Leeds 1852, a formal society.
members’ activities. Correspondence was encouraged. As societies formalised under umbrella organisations, they joined the burgeoning publishing industry.

A visual culture emerged during the first half of the nineteenth century that questioned and re-evaluated the pre-nineteenth century Camera Obscura model of vision in which light transmits images into the eye through the transparent membrane of the lens. This created a tension between outward and inward observation, between the observable external world and the internal world of imagination (Flint, 2009). It recognised the subjectivity of vision determined by the internal factors of an individual’s physiology and psyche, and the external factors, broadly, society and culture, more specifically, subject to manipulation and new forms of stimulation in an urban and industrial environment and ‘entertainment.’ Reflections were no longer fragmented by the small and distorting squares of window glass prior to development of plate glass in the 1830s. Shop windows and, as ‘Boz’ describes in his ‘Sketches’ (Chapter XXII), the window glass and mirrored interiors of gin shops became affordances for the novel experience of multiplying the onlookers and situating them amongst the objects and images looked at. Portrait photographers extended this public reflection by displaying the reflections of their sitters as prints in their windows and cabinets outside of their premises.

The Great Exhibition may have intended to demonstrate the products of progress, order, empire, and self-assessed superiority, but retrospectively demonstrates the merging of popular visual and performance culture, and a certain playfulness—prisms,
soap bubbles, Laughing Gas, with science and industry. In contemporary terms, the exhibition was a multimedia experience, and in its strategies for engaging attentive spectators it can be understood as a forerunner of the techniques that Gunning (in Crary, 1999, p. 25) described as characteristic of early cinema. This and the other science-as-entertainment events described above, offered the people of all social classes the opportunity to widen their visual experience on a grand scale, learning how and what to see; an opportunity to participate and be seen to be participating. One ubiquitous and collective form of participation was the Magic Lantern Show.

Painted glass lantern slide shows were an inexpensive and familiar entertainment to the nineteenth century public. Its success in part to its versatility and relative ease of use by non-specialists in a domestic market. The slides carried hand painted images on glass, a form that continued alongside the printed coloured transfers (decals) from chromolithographs transferred onto the glass slides. Photographic positives on glass began to be included in the repertoire too. Together their low cost contributed to the mass domestic market. Lantern exhibitions were typically given by itinerant showmen who travelled a circuit with seasonal and topical shows. In much the same manner as the Raree or peep show entertainers, lanternists acted as Master of Ceremonies, told stories and jokes and encouraged audience participation by directing their responses and leading the singing. Where the peep show operator had to manipulate the lighting, animate objects, and switch the images inside the peep box, the lanternist operated the lanterns, changed the slides, and manipulated levers and latches to create effects such
as ships rolling on rough seas, the sun setting and moon rising, and ice-melting from streams as winter turning to spring.

Scenes from the 1851 exhibition at the Crystal Palace were added to lantern slide show programmes. Brightly coloured painted interpretations of key events included Queen Victoria’s carriage procession on the opening day, the exhibition building’s interior with its eight metres high glass fountain which scattered sunlight from its water droplets, and views of the glasshouse across parkland and the lake. As examples of the practice of using one format as the basis for production in other formats, these slides included hand-coloured photographs or engravings taken from photographs. A merging and borrowing of technological form were a feature of the images that are described in this thesis.

‘Scientific’ instruments and operations, such as those demonstrated at the Polytechnic, photographic studios, magic lantern and cinematograph shows, all feature the display of technical apparatus attended to by a skilled operator. Initially, explanation of the apparatus was as much part of the event as the display of the ‘moving images.’ Blassnigg (2007, p.163) also points out that Gunning’s notion of the audience’s ‘astonishment’ is a significant aspect in “a broad spectrum of sophisticated engagement

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and interaction.” In addition to demonstration, a multitude of publications provided explanations of ‘how it works’ through text, diagrams and images. So as Blassnigg (2007) and Punt (2000) have explained, the appeal and popularity of these events was not due to an assumed naivety of an audience who were in awe of the mystery or complexity of the apparatus and the illusions they produced, but to sophisticated engagement and interaction with them (Blassnigg, 2007, p.163).46

Chapter Two has drawn out several themes that appear to have preoccupied a broad cross-section of society during the latter half of the nineteenth century, that are key to the discussions of the specific media and mediating experiences that follow in Chapters Three to Six. These themes, representations of identity and ideals and the properties of material and matters of the spirit, found expression through some of the novel media technologies that were initially presented in the arena of science. Yet, through a collective imaginary of their potential, and engagement with their design and modification in use, the nineteenth century public expressed an immaterial dimension of human experience.

Chapter Three - Life Model Lantern Slides

46 Blassnigg (2007, p.163) also points out that Gunning’s notion of the audience’s “astonishment’ is another aspect in a broad spectrum of sophisticated engagement and interaction.”
Within the last few years much interest has been infused into so many stories, poems, etc., by showing scenes, and so forth, illustrative of the argument, and photographed direct from the animate, in place of, as heretofore, the inanimate. By the grouping of living figures to portray the sense spoken, at once makes the story natural and more realistic, and therefore slides from Life Models are most popular. (*Optical Magic Lantern Journal and Photographic Enlarger*, OMLJ p. 23).

Chapter Three Introduction

Expressions of an immaterial dimension of human experience took many forms and are found across secular and religious settings during the last decades of the nineteenth century. Chapter three will show how living figures were integrated with fictions replicating some aspects of studio portrait photography. The chapter suggests that magic lantern shows were events where the nineteenth century public could represent and experience the immaterial dimension of technology. It focusses on the pictorial allusions of Life Model slides that mediate contact with the spiritual. These lantern slides were an especially popular form of religious and moral education embedded in entertainment during the last two decades of the nineteenth century and into the twentieth when they evolved into secular stories and songs. The chapter will show how these images offered an invitation to the audience to become co-producers in their own experience. In this sense it will reveal a continuity with the studio portrait which was familiar to the period viewer.

Following Chapter Two, which sets out the context for the particular experience of enchantment through engagement with the visual media of photographs and projected still and moving images, this chapter will thicken descriptions of the experiential
dimension of magic lantern shows by considering the transcendental quality of Life Model lantern slides. It will show a continuity of engagement with the transcendental experiences of cinema that will be examined in Chapters Four and Five and photographic studio portraiture that will be discussed in Chapter Six.

Life Model lantern slides commonly presented an immaterial dimension of human experience through the spiritual beings of Christian belief, and as this thesis suggests, their cognitive and affective dimensions are similar to those of studio portrait photography through their integrated combination of photographic and graphic techniques, syncretic realism and idealised forms. In the imaginative use of photography and painting, and the magic of projection, they go beyond the capability of academic painting and factual photography to create “a new mode of vision” (Olive Cook, 1963, p. 101).

Images have been projected from lanterns from the fifteenth century but their potential and the elegance of form that allowed for the sophisticated presentations discussed in this chapter was a product of nineteenth century refinement and technological achievement. The discussion below will show how these Life Model slides are among a family of experiences whose technological arrangement was designed to draw the audience into a world that was familiar to their daily experience, one which contained an immaterial dimension. The primary experience of lantern slides for the period audience was of an immaterial form of the material artefact.
To understand how this effect was achieved the chapter will, (i) examine the slides and their textual provenance, who commissioned them and for what purposes, (ii) their production and modes of distribution, (iii) the conditions of their exhibition, (iv) the images as expressions of transcendence, their spiritual dimension. The slide sets *The Angel’s Promise* and *Rocked in the Cradle of the Deep* will be analysed as examples of the representation of a religious and secular spiritual dimension of human cognition. *Dan Daberton’s Dream* and *After ‘While* will be analysed for their portrayal of dreams, thoughts and memories.

The public were familiar with the mechanisms that allowed Ghosts to fade in and out of the shadows or Speaking Heads and Floating Cherubs to suddenly appear and disappear. The author of *The Magic Lantern: How to Buy and How to use it*, wrote in 1866, “The days of witchcraft and sorcery are happily past; and when in this nineteenth century any phenomenon savouring of the inventions of romantic fiction gains the public ear, explanatory suggestions, based on known principles of science, are immediately forthcoming, and the mystery is soon solved.”

As a novel use of these mechanisms, the genre of Life Model lantern slides present through melodramatic representations of

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47 (A Mere Phantom, 1866, p. 98) At a cost of 1 shilling. See pp. 78-79 in *The Magic Lantern: How to Buy and How to use it*. By “a Mere Phantom.” 1866 (when 5 shillings were roughly 1 day’s wages for a skilled tradesman.)
visions and notably, of angels,⁴⁸ spiritual and transcendent beings in the same plane as
the daily experience of the human characters of the slide’s stories and, by implication,
the audience. In some respects, they can be likened to spirit photographs through their
expression of a supernatural dimension of human experience. As the slides from After
While and Dan Dabberton’s Dream illustrate, these images could depict a multi-
dimensional world and collapse space and time, presaging the visual effects of the
Photoplays for which Münsterberg developed a psychological theory.

⁴⁸ Martha Blassnigg - Prologue: The image and the angel (2007)

“Accounts of apparitions of angels whether experienced or imagined, and their appearance in
allegories and art rarely claim authenticity for features such as form, colour, shape or texture
that can be confirmed in a scientific, physical sense of a materialised existence.
Angels seem to exist in the multi-sensorial perception of the beholder alone. Angels, like
images, are not representations of a 'real', yet the perception of them cannot be considered as
pure illusion. Since it can be argued that the difference between an image created through
ordinary perception and extra-sensory perception does not differ in kind but merely in degree
within a wider sensory spectrum, angels can be regarded as an epiphenomenon of the
interstices between matter and spirit, beyond their various interpretations as for example as
messengers, guardians, photonic fields or forces.”
This chapter draws upon digital presentations of lantern slides from *Lucerna*,\(^{49}\) period accounts of lantern exhibitions in city and provincial newspapers, industry journals, catalogues and instruction manuals pertaining to the manufacture and various uses of optical or magic lanterns. An increasing richness of academic scholarship concerning magic lanterns has been stimulated in recent years by the large projects: *A Million Pictures; B-MAGIC: The Magic Lantern and its Cultural Impact as a Visual Mass Medium* in Belgium, and *Heritage in the Limelight: Magic Lantern in Australia and the World*.\(^{50}\) Life Model lantern slides and the temperance movement have featured within

\(^{49}\) Lucerna (http://lucerna.exeter.ac.uk) is an online resource on the magic lantern. The Lucerna project is part of the Million Pictures project and is a collaboration between lantern researchers from:

- **College of Humanities**, University of Exeter, U.K.
- **Screen1900**, Media Studies, Universität Trier, Germany
- **Institute of Media Studies**, Philipps-Universität Marburg, Germany
- **Screen Archive South East**, University of Brighton, U.K.
- **The Magic Lantern Society**, U.K.
- **Kent Museum of the Moving Image**, U.K.

\(^{50}\) *A Million Pictures* is a collaborative research project between researchers from Utrecht University (NL), University of Exeter (UK), University of Antwerp (BE), University of Girona (ES),
these projects. Early research by Olive Cook published in *Movement in Two Dimensions* (1963)\(^{51}\) and by scholars and enthusiasts of The Magic Lantern Society, UK from 1977 has been consulted.

The media-archaeological approach of this thesis is concerned with examining artefacts, to discern how they were used, the user’s intentions, the influences upon their form and function and the users’ experiences of them. The period audience’s primary experience of lantern slides though, was of the immaterial form of the image, the Lichtbild or luminous image (Vogl-Bienek, 2016). As explained in the introduction to this thesis, part of the problem of understanding the images that are the focus of this chapter is that we tend to prioritise images in our examination of what was a larger context. This discussion will draw upon other aspects of the reception of these images by the period audience in order to more fully understand their experience of them.

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University of Salamanca (ES) as well as twenty Associated Partners. [https://a-million-pictures.wp.hum.uu.nl/](https://a-million-pictures.wp.hum.uu.nl/)


The optical or magic lantern was an instrument of entertainment and science, and lantern exhibitions were a ubiquitous nineteenth century entertainment operating across high and low cultural spaces. Through a multitude of genres, presentation styles and venues, they appealed to all classes and interests. Life Model slides do not appear to have been a widespread form of lantern image earlier than the eighteen-eighties, although Life Models in historic, comic, and sentimental tableaux were presented as stereograph cards, an industry predating that of Life Model lantern slide manufacture. Scenes depicting a secular and religious spirit world of ghosts, angels, and phantoms were listed in the catalogues of stereograph manufacturers, including The London Stereoscopic Society, whose catalogue in 1858 listed over 100,000 items.

Lantern slide manufacturers and distributors offered a similar breadth of subject matter. London distributor Wrench & Son produced an 'Illustrated catalogue of magic, optical and dissolving view lanterns, lime-light apparatus, etc.' for the 1892-93 season that included 'Lantern slides manufactured by York & Son illustrating The telephone,'

52 A set of seven slides illustrating a recitation titled Diogenes and the Boys of Corinth (one of a number of Diogenes stories illustrated by lantern slides) is listed in Pumphrey's catalogue for 1872-73. Pumphrey Bros. Birmingham, England, were photographers (and also rubber manufacturers.) http://lucerna.exeter.ac.uk/set/index.php?language=EN&id=3005272
microphone, phonograph, and new inventions of 1878,’ magnetic curves and spectrum analysis, along with groups and ideal pictures (life model slides of children acting out the activities of adults or playing scenes from day-to-day life, e.g., Minding baby, The doll’s tea party, The Amusing Letter, etc.) Newton & Co.’s catalogues could extend to over a thousand pages listing 200,000 or more magic lantern slides. These publications sometimes included the texts of lantern readings or summaries of them, but the majority were published in compilations, such as Bamforth's *Short lantern readings: no. 28* (Holmfirth: Bamforth & Co., 1899), pp. 8-10. These were a mixture of poems and prose, religious, temperance, social and comic themes, from which the organiser of a temperance, mission or Sunday school meeting, could create a bespoke program.

Manufacturers sold slides both directly to the public and to organisations who commissioned subject matter for their specific purposes. Charitable, temperance and evangelist groups aimed their activities toward the lower classes; a diverse spectrum of the population from ‘respectable’ working men and their families, to ‘unfortunates’ who were poverty stricken and destitute as a consequence of their moral lassitude or misfortune. Lantern shows were often organised by middle-class philanthropists or working-class members of the church, chapel, mission, or other organisations to which they belonged, to educate and persuade in the guise of entertainment the working poor, unemployed, and inhabitants of workhouses and orphanages (Crangle et al., 2005; Cook, 1963). A characteristic of these slides is the lack of movement between classes: each character fulfils the role prescribed.
Magic Lantern exhibitions are part of a history of screen practices, including peep media and diorama where the painting is subject to lighting for its changing effects. These share the characteristic of a physical separation from the viewer who cannot touch the image. In addition, the viewer’s engagement with the images is mediated by the separation of the image space by its framing from the mundane surroundings. The separation is created by the manipulation of natural and artificial light, by the physical constraints upon the viewer, and by variously concealing and revealing parts of the image in turn. Life Model lantern slides illustrate both objective realism and a subjective imaginary other dimension by combining the scientific objectivity of photographs with the artificiality of tableaux vivant and painted angels and spirits. The transparency of the material and the cone of projected light from apparatus to screen seems to invoke an immaterial dimension of human experience.

Dellman (2019), describes lantern slides as oscillating between the material form of the image, that is the glass slide enclosed within the apparatus, and its immaterial form, its appearance through projection on the opaque material of the screen. Citing Vogl-Bienek (2016, in Dellmann, 2019) she describes two forms of the projected image, its luminous form, Lichtbild, (Glasbild is the glass image, the slide) and the image the audience sees as lines, shapes and colours upon a screen. The cone of light is a frequently used pictorial device and as a schematic code in images of lantern exhibitions and moving picture shows, when it is used to show the connection between the operation of the
apparatus and the image on the screen. Period illustrations indicate that the large vertical image on wall or screen is produced by the apparatus standing on a table in the centre of the room. The illustration for *Hoppety Bob’s Christmas Treat* (about a magic lantern show for children in a London slum) in *The Sunday Magazine*, 1 January 1869, (MLS. no. 22. March 2020, p. 7) shows the screen full face, as if the viewer is standing behind the audience. The connection between the lantern and the screen in this illustration is made where the lantern cuts into the circle of the bright image on the screen. In the polluted and smoky atmosphere of lantern show venues and later, cinemas, this visible shaft of light, illuminating dancing particles of dust and tobacco smoke, is another significant immaterial form of the image which is a prominent part of the audience’s experience. These different forms of lantern image have different temporal dimensions too. The cone of light carrying the image as a fugitive form and as it appears on the screen are ephemeral and unstable, its material form as a painting or photograph on glass persists over time. Within this discourse, the light’s potential to transcend the inanimate material presence of industrial machine technology has a plausible relationship to the potential for enchantment. This light passes through the glass of the slide and the lens to carry the image to the screen in the same manner as the light of God in the Annunciation passes directly through the wall to fall onto Mary in

53 See a collection of these images at

https://www.luikenwaal.com/newframe_uk.htm?/inh_diversen_uk.htm
The Annunciation with St Emidius, painted by Carlo Crivelli in 1486. The light is a thing in motion and figures as an intangible connection. If it is blocked then what it reveals through the supernatural qualities of heavenly light, disappears.

(ii) Production and modes of distribution

Production.

Crangle (1996, in Jakobs, 2021, p.165) identified three basic elements of slides:

Location (the attempt to establish a realistic physical space, either a counterfeit using quasi-theatrical or other scenery, or less often a ‘real’ location); props (attempting to create or reinforce a physical or social location through the presence of material objects, either by association, or by attaching a kind of iconic status to the objects); and characters (almost always human figures, positioned singly or in groups in relation to the location and props to represent social situations).

Life Model lantern slide images are integrated combinations of monochrome photograph, drawing, and painting or colouring on glass, covered for protection by a second sheet of clear glass, just as were the fragile surfaces of the flickering positive/negative images of Daguerreotypes. The two are separated by a black paper mask, typically leaving a square aperture, but sometimes round, oval etc. for effect (as

54 Carlo Crivelli, The Annunciation with Saint Emidius, 1486, egg and oil on canvas, 207 x 146.7 cm (The National Gallery, London)
used in *After 'While* below.) These three layers are held together and sealed by gummed paper tape folded around the edges. The slides are labelled with a title or a line from the text that it illustrated and, if one of a set, a number indicating its position in the sequence. Often, another label states Copyright or carries a trademark\(^5\) and sometimes the name of the manufacturer or distributor is stamped onto the paper tape.

Prior to the use of photography and as an alternative to photographs, lantern slide images were hand painted and varnished, the varnish contributed to their luminosity. Unlike printed coloured transfers (decals) from chromolithographs, that were commonly used for toy lantern slide strips. Photographic slides were coloured by hand, sometimes with the use of stencils, and additions to the images might be painted onto the photograph, for example, the angel wings of the Life Model in Slide Seven of *The Angel's Promise* below. The quality of the colouring ranged from accurate, skilful and sensitive workmanship; York & Son’s slides for *One Winter’s Night* and the view of St Paul’s Cathedral from the garret window in *The Flower Sellers* \(^6\) are fine examples, to crudely applied blocks of one or two colours. The opacity, saturation, luminosity and transparency of the pigments and the constraints of the colour pallet influenced the

\(^5\) York & Son was notable among these for its snake and branched staff trademark. Example see The Flower Sellers (six slides) Lucerna Magic Lantern Web Resource, *lucerna.exeter.ac.uk*, item 3000795. Accessed 5 March 2022.

affective potential of the images and emotional responses to them. The dyes and inks that were applied to the image surface were selected for these qualities when magnified and in the variable light of projection.  

Both monochrome and coloured versions of slides were produced. Single colour tones might be produced during the manufacturing process by inserting a filter or ‘tinter’ slide in front of the image. Sometimes sets were adapted or abridged, or alternative versions were created by different authors who often worked closely with the slide manufacturers. Slide sets were occasionally given alternative titles and the number of slides in the set might vary. They were reproduced and re-photographed, often by more than one manufacturer. For example, *Dan Dabberton’s Dream* which was produced by York & Son.1885. It consisted of 18 slides to illustrate the story, plus 12 additional slides to illustrate songs if required. Slide sets adapted images, stories and texts already familiar to the audience who would have recognised the iconography associated with suffering, childhood, death and salvation, for example. New readings based upon familiar themes were created in addition to the variety produced by publishers, lanternists and lecturers, who adapted and annotated slide readings to suit the location and audience.

57 A discussion of the pigments and carriers and methods used to colour lantern slides, and the industry that carried this out, is beyond the scope of this study but has been extensively examined elsewhere. Numerous manuals and instructional articles were published for commercial manufacturers, and for a domestic market. Kits were also produced.
At a public exhibition of lantern slides in City Hall, given by the Brechin Photographic Association, a series, “Greenland’s Icy Mountains,” were taken during a voyage in a Dundee Whaler. Mr. A.R. McLean Murray, High School, read the descriptive lecture, supplemented by descriptions of his own, in a manner which left nothing to be desired. (Report in the Society Meetings columns of OMLJ. Dec1. 1890)

The industrialised replication methods of photography contributed to the development of a mass market for lantern slides through and associated lower manufacturing costs. Jakobs suggests that the pictorial conventions of Life Model slides were informed by the manufacturers’ desire for economy of production (2021, p.165) which contributes to an explanation for the repeated use of the backgrounds to illustrate different locations within a narrative, and explains the practice of re-using slides, and of inserting documentary slides into fiction.

The popularity of Life Model slides grew rapidly from the 1880s as did their production by an industry reputedly dominated in England by two manufacturers: Bamforth & Co. and York & Son. James Bamforth established a photographic portrait studio in Holmfirth, Yorkshire, in 1870. He began manufacturing magic lantern slides during the 1880s and by the end of the century production had reached an industrial scale. Alongside the production of lantern slides, the company published pamphlets of slide

58 Olive Cook (1963) remarks that there were at least 28 in London alone.
readings and lectures to accompany the images. Bamforth posed his appropriately costumed models against painted backgrounds and among a mix of real and purposely made fabricated props, or by painting the setting onto the glass slide around the models in just the same way that features of portrait photographs on glass were elaborated and coloured. York & Son began producing lantern slides and stereographs in 1862, initially selling sets of views of London, of Cambridge, and Oxford, and images of statuary and architecture. By the nineteen-hundreds their catalogues list eleven categories and of these Life Models appear in seven: religious and moral, temperance, pathetic, fairy stories, comic, illustrated songs and miscellaneous. (Henry, 1984, *New Magic Lantern Journal (NMLJ)*) Both Bamforth & Co. and York & Son produced slides for temperance organisations, including The Band of Hope Union.

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59 For example, *Jessie’s Last Request: a homely ballad for Band of Hope Children* is listed in *Short lantern readings: no. 28* (1899), as one of a compilation of poems and prose, religious, temperance, social and comic themes.

60 In eighteen fifty-five The United Kingdom Band of Hope Union was formed to bring together hundreds of Christian based groups that had formed during the previous eight years to educate children about the perils of alcohol and promote abstinence. In Britain, by 1901, around 3.5 million children were members in nearly 30,000 local societies in Britain. (https://www.hopeuk.org/about-us/history/)
While many studio portraits include accessories indicative of an increasingly material focussed world and fanciful furniture on which to display them, some of their features, and those of Life Model slides seem to point away from nineteenth century realism to idealised forms that were informed by Northern European modes of representation recognisable to the participants in the technological arrangements of portrait studios and Life Model lantern slide shows, of phantom rides and film. This mutual recognition of form might be understood as part of an unspoken agreement between the participants about the nature of the activity in which they were all engaged and as their collectively agreed notions of a complex reality.

Media forms shared a common imagery. Stories and songs illustrated by Life Model lantern slides are reminiscent of the illustrations in the weekly papers and gift books, and the life modelled scenarios of stereographs. These offered a familiar mix of sentimental and melodramatic action. This borrowing from other media forms was a widespread practice across the industry (Henry, 1984, NMLJ). As described above, the Life Models typically posed in front of painted backgrounds and the scene was enhanced by props. A period account of a visit to Bamforth’s premises describe lumber rooms containing a multitude of items from which the scene could be decorated. Painted backgrounds of domestic interiors feature windows, fire-grates, over-mantels, bookcases, and framed pictures. Public house interiors feature shelves of bottles and framed mirrors. Other interiors include notices setting out the rules, to indicate the painted scene is a workhouse or night shelter. Urban exteriors include street furniture, gas lights and kerbstones, and posters advertising gin. Exterior views mix and match
the perspectives sometimes showing streets disappearing into two different vanishing points or have mismatched dimensions and multiple horizons. Images, backgrounds and props, and partial images from composites were used repeatedly in the same set and in other sets. Olive Cook (1963, p.103) describes the impression that some of these give as dreamlike and surreal, an impression that might also be applied to many portrait studio photographs.

Models sometimes posed ‘on location’ especially for scenes set in villages and churchyards. The real setting somehow contributing to the unreality of the image as a whole. Bamforth photographed scenes in his local area and in especially designed areas of the garden of his home and studio. The eighteen slides set illustrating the

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song *As I stand by the Old Church Door* (1908) includes examples of photographs made 'on location,' documentary slides from other sets, illustrations and composite images (Lucerna Magic Lantern Web Resource, item 5000869). The consistency of colouring throughout the set somehow both offers a sense of cohesion and as the same time heightens their unreality, however, they have an internal logic that will be examined in the discussions below.

Period accounts of both Bamforth and York’s working practices describe how characters in the stories depicted on the 'Slides from Life Models’ were played by acquaintances, friends and relatives of the photographers. They were sometimes chosen for their similarity in class, work, and domestic circumstances, to the intended audience. York & Son’s stage manager, a Mr E.T. Green, “late of the Royal Polytechnic” visited local public houses to persuade drinkers to pose (*OMLJ*. Sept. 1895, in David, H. 1984, *NMLJ*). He is also credited with working on the models’ imaginations so that they can better express their character’s circumstances. While on a visit to Bamforth’s Holmfirth studios in October 1902, the interviewer recognised in a local hostelry “an old


acquaintance in the ‘Village Beauty,’ whom we have many times admired on screen” noting that James Bamforth said he “made of the neighbours for models.”

On the occasion of our visit the poem The Farmer’s Fright was being illustrated, and some of the scenic effects were striking and elaborate. It is needless to say, that the view, as seen from the camera, contrasted greatly with that obtained when one is looking on from the screen dock. From the camera all appeared round and solid, but from the side one could not help smiling at seeing a stout man (the farmer seated on a scenic horse about half an inch in thickness and built up at the back with a species of shelf, in order to give a little more comfort than could be obtained when a heavy man is sitting on the edge of a scene half-an-inch in thickness.

Jakobs (2013) explains how photography’s association with realism contributed to the creation of the new genre of lantern images of Life Model slides. The focus of the photograph, the human figure, is embedded within an image that does not pretend to be anything other than a theatrical illustration, borrowing from photography’s assumed presentation of reality to allude to the entire image as truth. Photography’s association with truth is not necessarily countered by the theatricality and obvious staging of Life Model slides. If truth is portrayed fancifully then the truth of the message they illustrate (salvation from suffering) might also be reinforced.

Life Model slides like photographic studio portraits use recurring motifs, where the portraits situate the sitters in drawing room, library, or terrace, the life models in lantern slides inhabit bare attic rooms or hovels with empty fire grates and a mattress on the floor. The generality of the image mise-en-scène and of characters portrayed encouraged the audience’s contemplation on the potential of finding themselves in a
similar situation. “The slides only needed to provide versions of the world and of the individuals within it that might be recognised by almost anyone attending the lantern show: abstract representations of locations, characters, and movements were preferable, since these did not so easily yield up interpretations that were ‘just’ about somebody else.” (Kember & Crangle, 2018, p. 124)

Discussion in the academic literature suggest there were alternative motivations of the charitable organisations that organised lantern shows to those of charitable philanthropy: that they were either given by middle-class philanthropists to promote moral and respectable behaviour, and the prevention of activities that did not conform, or they were given by the working poor who were seeking to improve the lot of their peers.

Special Service at Toxteth Workhouse. With permission of the Guardians, a special sacred musical service was given on Sunday evening, in the large dining hall of the Toxteth Workhouse, to the aged inmates, by the members of the Liverpool Central

62 The children who featured in many of the stories were, however, given names.

63 The OMLJ proposed a scheme, The Lantern for Suffering Humanity, to manufacturers and its readership who, the editor suggested, could provide the equipment and exhibition skills to give “an occasional pleasant evening in the form of a lantern entertainment to convalescent patients in hospitals.” In addition, “young exhibitors could use these events to acquire experience in the conducting of exhibitions before larger and perhaps more critical audiences.” See The Art of Projection, Lantern Services for the Mission Room and Church. (Pictorially Illustrated.) (Internet Archive)
P.S.E. choir, conducted by Mr. Peter J. Lawrence. [...] Miss Cissy Smith gave two recitals, 'Billy's Rose' and 'The Road to Heaven,' Miss Edith Dawes sang solos, 'Ora Pro Nobis,' and 'The Star of Bethlehem.' The choir rendered several anthems and hymns, the inmates joining heartily in the singing. The interest in the service was greatly enhanced through the recitals, solos, and hymns being illustrated with the oxy-hydrogen limelight lantern. [...] (The Liverpool Mercury, 8 January 1896, p. 6)\textsuperscript{64}

At these events, the audience were the entertainers, providers and participants, and the hymns, collective singing, prayer, recitation, food and drink, were given by “folk like us.” (Kember and Crangle, 2016). Magic lantern entertainments were considered an effective medium of persuasion, and the addition of music in the form of choirs, musicians, and harmonium accompaniment, to accompany images of the destructive effects of drunkenness, of immoral behaviour and of poverty, were an alternative to the piano in public houses. Recitations and songs were reminiscent of music hall and variety theatre in style, even in their religious and temperance evangelism. Band of Hope Union song sheets included parodies of music hall songs and drawing room ballads. Illiteracy was not necessarily a block on participation. Schools taught children to sing by rote and repetition in performances enabled participation as well as embedding the message in the lyrics. Choirs and concerts were an integral part of the temperance movement and temperance song sheets were published at a price affordable to the lower classes by general music publishers, suggesting an extensive market for them. (Scott, 1989, [Landow, 2012]) The lanternist mediated the message played out on the

\textsuperscript{64} Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 7006247. Accessed 12 February 2022.)
slides, and the broader message of the event, the organiser or promotor’s intention, through his technical skills manipulating the apparatus to create the desired effects and his management of the audience and his showmanship. Typically, lanternists would work with a lecturer or master of ceremonies or, if none were present, would take on a dual role.

Viewing lantern slides was a collective experience just as were the other image forms this thesis considers. Lantern shows took place in a range of venues, from theatres and auditoriums accommodating several hundred people, through mission halls, workhouses, ragged schools and institutes, where the viewer would sit among people with whom he was associated or familiar. Period accounts indicate that at many of the events where Life Model slides were shown the lantern was operated by a member of the congregation (as was the lecturer.) The expectation and atmosphere of the event contributed to the collective enchantment of the slides of angels and visions in just the same way that the expectation and atmosphere of a spiritualist séance contributed to the affective dimension of the knockings and movement. Religious missions, social welfare and poor relief were frequently connected to nonconformist churches and chapels, their buildings outnumbering those of the Church of England. In *The Angel’s Promise*, one of the painted angels is miraculously transformed into a young girl draped in white (although with painted wings) to hold the hand of the dying child in the story. These angels of the luminous images of lantern slides might be interpreted as allusions to the angels in the glowing stained-glass windows of Anglican churches. The affective
quality of stained-glass windows could only be experienced by those who were inside of the church, both literally and metaphorically, a quality which needed to be promoted and experienced through other means by nonconformist congregations and those outside of religious communities.

Lantern shows address a lack of connection between the Anglican church and the working classes (Bottomore, 2002). Nonconformist churches used them to raise funds for charitable causes and missionary work, and to convert or affirm temperance. Gospel Missions, The Salvation Army, which began as the Christian Mission, and others, combined philanthropy with evangelism. The Band of Hope Union, whose fifty-year Jubilee was celebrated in 1897, provided meetings that were “lively, child-centred and involved much singing.” Band of Hope lantern slides illustrated stories setting out the damaging effects of alcohol on the children’s bodies, health, and lives. Lantern show entertainments were presented at Sunday School Teas, benefits for the elderly of the parish, and inner-city congregational missions. Hundreds of notices in local newspapers give accounts, in varying detail, of these charitable events and the responses to them.

THORNTON HOUGH., Tea and Magic Lantern Entertainment. — On Friday evening last the Rev. J. W. Aldom, MJL, the vicar, invited the members of the Band of Hope and the school children of the parish, numbering more than 150, to a tea and magic lantern entertainment. Ample justice was done by the young folk to the good things provided for them by the liberality of friends. The magic lantern entertainment, under the able management of Messrs. Grylls, was very successful and fully appreciated both by the old and young who were present. A cordial vote of thanks to all who had in any way contributed to the tea and entertainment was proposed by the vicar and heartily carried
by acclamation. After the singing of the National Anthem, oranges were distributed to the children, and thus a very pleasant evening was brought to a close. (Cheshire Observer. Saturday, Jan. 28, 1888. Vol. 36. No. 1851. p. 3)

Many of the stories illustrated by these slides are set in urban environments. However, lantern shows were not only an urban phenomenon as much of the literature suggests through a focus upon charitable concerns to improve the lives of the urban poor. Independent charitable missions could hire lanternists, lanterns and slides and umbrella organisations such as the Band of Hope Union distributed slides. The Good Templar Lantern Mission operated several vans that contained temperance propaganda material, and lantern equipment and slide sets, including specially commissioned Good Templar and temperance slides, that were shown outdoors under an awning as the light faded in the evenings. A period account describes their travelling vans as “used mainly for visiting villages where temperance teachings may not be popular; in spreading temperance teachings and in ongoing work.” (OMLJ. Vol. 2. No. 27, p. 138)

Distribution
Multiple strands of distribution worked in collaboration. The slide manufacturers worked with agents and commercial distributors and acted as agents for others, for example, in Ivens Catalogue of 1906, York & Son advertised their status as sole agents for Wilson & Co. of Aberdeen. The Band of Hope Union and other similar umbrella organisations, and lanternists and lecturers were in direct contact with their audiences to whom they distributed slides directly. Lantern slide and equipment manufacturers and distributors typically offered catalogues sent on receipt of a stamp. Showrooms offered potential
purchasers the opportunity to inspect the slides in viewers that could be held up to the light (Cook, 1963, p. 93). In addition to the commercial manufacturers and distributors, temperance organisations, philanthropic societies and missions produced their own catalogues. There were two main modes of distribution, for sale and for hire. Walter Tyler, of Waterloo Rd., London, SE. for example, offered new and secondhand lanterns, apparatus and “upwards of 120,000 Slides lent on hire at moderate rates.” G.E. Wood, also of London, offered “80,000 Slides on Sale or Hire.” for teaching “Literature, Geography, Botany, Electricity, Biography, Mythology, Astronomy, Art, Politics, Magnetism, History, Geology, Physiology, Light, Bible History &c. &c. [plus] printed lectures for each set.”

Just as the photographic studio trade was seasonal, so was the lantern trade. Whereas lantern exhibitions were dependent upon darkness, studio photography was dependent upon daylight. Just as photographers discussed in their trade journals best methods of screening and manipulating the light in glasshouse studios, lanternists shared ideas for blocking daylight from their venues. Newspaper reports indicate that philanthropic lantern shows were clustered around Christmas and given as a treat alongside a Christmas meal. Life Model slide manufacturers prepared canvases, props, and engaged in the essential ancillary activities of the trade during the darker months and photographed the slides during the lighter ones. (OMLJ. December 1890. H Hughes and Son.) York & Son’s Optical Lantern Slides list of “New Things for this Season.” suggests a seasonal trade (OMLJ, Vol 2, No. 19. December 1, 1890) although the repetition of titles in the catalogues across the period indicates that novelty was not a
necessity. Some manufacturers used agents and others sold directly to the public, some used both options. Theobald & Company, London, for example, sold and hired lanterns, equipment and slides including mechanical effect slides, (“over 2 million in stock”) and provided “lantern entertainments all over the Kingdom at Popular Prices.”

Manufacturers and distributors of lantern equipment and slides list several genres of Life Model slides reflecting their textual provenance. Each had a distinct function: Pathetic Sets, Religious and Moral Sets, Temperance Sets, Fairy Tales, Illustrated Songs, Groups and Ideal Pictures (Washing Day, Curling Dolly’s Hair) and Miscellaneous (Marley’s Ghost, Hop Picking in Kent, and Off to Klondike), Ghosts and spirits, Popular fiction and comic sketches. These follow the genres of stereoscope photographs (that were experiencing a resurgence of popularity during the 1890s) that used Life Models for their humorous and moral stories. Pathos and sentiment characterise stories that feature children where, often, they are seen to be helping one another, or one sacrificing their own comfort for another more deserving, (The Christmas Treat), or one who wants to learn about Christian stories questioning another who goes to Sunday School, for example, The Road to Heaven, a slide set produced by both Bamforth and Co. and York and Son between 1887 and 1891 (Lucerna Magic Lantern Web Resource, item 3006854). Catalogue descriptions sometimes promoted their entertainment value. In Ivens Lantern Slide Catalogue (2006, p. 149) the slide reading Ten Nights in a Bar-Room, (Price. 6.d.) and In His Keeping, (Price 1 Shilling) are both described as “A Thrilling Temperance Story.”
III. The conditions of their exhibition:

This section will explore the operation of lantern apparatus and the manipulation of slides, the collaboration of lanternists with lecturers and the audience, the physical environment, the light sources for projection and the screen. It will show how these were all elements of the technical arrangement of the lantern show and that some aspects are continuous with phantom rides and portrait studios within a broader imaginary. These Life Model lantern slide shows were not experienced in isolation but alongside other imagery that provided clues to their meaning as part of a textual continuity within a broader technological and supernatural imaginary.

“The magic lantern is not a complicated instrument. It consists of a light source, a transparent image-carrying slide, and an enlarging lens, disposed in that order in a line ... so that their combination would throw a greatly enlarged image of a transparent slide onto a wall, a piece of cloth, or even a cloud of smoke” (Rossell, pp. 17-18, 2008, in Jakobs, 2013). The light of coal gas, lime, and electric arc lamps, which contributed to increasing industrialisation were commonly used for lantern shows, including those which used Life Model slides. In these, the physical and a symbolic light worked together to create an affective experience. These lights, that enabled the mass production of material, were used to show the golden-haired angels who symbolise a spiritual and transcendent dimension of human experience. Workplaces lit by oil lamps and candles only provided light for an area sufficient for an individual to work. Gas light and electric arc light were practical methods of lighting the large spaces of industrial
buildings. These light sources were gradually supplementing and replacing candle, oil and later, paraffin lamp light in domestic and public buildings, and the kerosine used in lanterns. Lighting distributed from a central source mirrored the centralised control of communal working on factory production lines and large-scale manufacturing, enabling work to take place in the hours of darkness, according to the demands of production and profit. This developed through the early eighteen-hundreds out of playful experimentation (Schivelbusch, 1995, p.16) and persisted as a component of the spectacle and entertainment, and the immaterial dimension of lantern shows. The ambient light in a coal gas lit venue was yellowish, unstable, flickering and directed upwards towards the ceiling. Translucent, coloured and frosted glass shades and globes diffused even incandescent gas light. Electric light was rare and unlikely to be in use to illuminate urban mission halls and schoolrooms until the nineteen-twenties, and later in rural areas. Limelight required a supply of oxygen and hydrogen gas distilled from burning coal and stored in cylindrical tanks or bells, which gradually rose and sank, or telescoped as the gas was used. Town Gas was piped, sometimes through windows and doors from neighbouring buildings, as a lantern illuminant as a replacement for the hydrogen, but whichever method was used, the apparatus and activity required to successfully operate a lantern using limelight would have been a cumbersome and noticeable, though familiar, presence in the room (Punt, 2009). Town Gas, when used as a light source, produced an odour, and both lime and gas light made a hissing noise. In an instructional piece about the correct use of regulators, the author advises “Roaring or hissing of gas jets is an annoyance to be avoided when at all possible, and to obtain the maximum light with silence is the aim of lanternists” (OMLJ, December 1890, p. 64).
In addition to boxes of slides, apparatus included the moisture proof glass tubes in which lime blocks, that were susceptible to dissolving in damp atmospheres, were stored until required. Bellows-like containers or bags that contained the oxygen and hydrogen gases were placed on the floor beneath or adjacent to the lantern stand.\(^{65}\)

The size and quality of the projected image were subject to the constraints of the light source and the dimensions and furnishings of the room, the constraints of the lantern apparatus, the lenses and focus mechanism, and the lanternist’s skill in compensating for these variables. A brighter light meant a greater distance between the lantern and the wall or screen was possible, so creating a larger image and allowing the lantern to be used outside of small and domestic settings. A long distance from a small screen could be accommodated by professional lanternists who had a selection of lenses. A description of the projected image from a borrowed and inexpensive lantern at a charity lantern show for slum children is given in *Hoppety Bob’s Christmas Treat*. A story by A City Missionary in *The Methodist Magazine Devoted to religion, literature and social progress*.

\(^{65}\) A jet of oxyhydrogen gas is directed from the bellows-like container/s via a single rubber tube, or through two separate tubes to combine at the point of exit, where it is lit as a flame, and directed at a thumb sized cylindrical piece of calcium carbonate set upon a spindle rotated by a geared mechanism - the spindle was also raised and lowered by this mechanism, when heated it becomes calcium oxide,
a mystic circle of light, with dim figures chasing one another, through what looked like gaslit fog, began to bob up and down on the sheet, [the shadows of the audience] the children sat with hushed breath, and the grow-up neighbours crowded the window and doorway. A rumour had run like wildfire through the Folly that ‘Hoppety was a-makin’ ghosteses.’ He got his focus at last, but at no time were the figures free from blurred outlines; they were clear enough for recognition, however, ere long. (W.H Withrow (ed.) Vol. XXXII July-Dec 1890, in Auckland and Sebus, 2020, pp. 6 – 8)

The amateur lanternist-come-showman at this fictional event interspersed his commentary of the slides, a programme of both comic and biblical images, with comments to the audience about the inferior quality of the oil making the pictures dim.66

66 Robert H. Clark, Royston, Herts. advertises a range of hand painted monochrome or coloured slides that “from their extreme transparency are especially suitable for oil light.”

In the eighth edition of the catalogue of Messrs. Theobald and Co., Kensington, “We observe that this firm have a specially-prepared oil, for which they claim a large percentage in the increase in light compared with ordinary kerosene.” (OMLJ, Vol.2. No. 19. December 1, 1890. Editorial Table pp. 66-67)

The problem of creating sufficient contrast between the projected light and ambient light, especially when exhibiting during daylight hours, is discussed in period texts. For example; How to darken Windows for Daylight Exhibition. (p.11, OMLJ. Vol. 1. No.2. July 15 1889) W. M. Baynes explains how the made a set of ten brown paper shutters that fasten to the window frame by two buttons and stowed away when not in use.

Manufacturers and suppliers refer to 3 and 4 wick lanterns to increase the light from oil.
The quality of the slides was variable due to their age, the materials used in their production and the wear and tear they had suffered through repeated use. Slides manufactured from direct negatives were advertised as ‘quality,’ implying slides copied from slides, a widespread practice, were of inferior quality. Any flaws or errors in the image or the glass would have been magnified, along with the image, by their projection. “The quality of the glass for lantern pictures is a matter of considerable importance, as a slight scratch or air bell would, when magnified on the screen, be very objectionable. —Albert W. Scott.” (OMLJ Vol 2. No.15. Aug. 1. 1890, p. 24)

The necessity of an effective collaboration between lanternist and lecturer was highlighted in this 1916 text in *The Lantern Lecture* by Geo H. Rydall B.Sc. “a lecturer is not an adjunct to a lantern entertainment, but the principle feature, upon him rests the responsibility of making or marring, which is in every other respects a good exhibition.” (p. 105, Chap. Practical Hints to Intending Lecturers, in *The art of projection and complete magic lantern...*) Slugan (2021) explains the relationship of the lecturer to the audience’s imaginative engagement with film. The lecturers, provide a necessary supplement to the intelligibility of the action on screen. The most skilful could also, Slugan points out, transform the film into a ‘Prop’ for imaginative engagement and so for example, turn an illustrative travelogue into an imaginary voyage.

Some lanternists had greater aptitude for the task than others but there was no hidden trickery in the illusions. The lanternist’s visible manipulations of the slide were part of the entertainment and for humorous slide sets, the joke, in which the audience was
encouraged to participate by joining in with sound effects and responses in the manner of the repartee with the audience of pantomime. Many professional lanternists were itinerant, some travelling independently, others as members, or in the employ of the organisations such as the Band of Hope Union. Newspaper accounts indicate that sometimes the vicar of the church or chapel organising the event, or a local dignitary, stepped up as either lanternist and/or Master of Ceremonies. Lecturers could advertise for lanternists and vice versa in the Optical Magic Lantern Journal. They could read from or adapt pre-prepared scripts that came with the slides or that were available to purchase at a low cost, such as The Onward Reciter: no. 244 (January 1892) that could be bought for one penny. The scripts or readings could accompany a single set of slides or might set out the programme for the entire event. Services of Song, for example, provided the words of songs and hymns on slides to be projected on screen between Life Model slides illustrating the narrative. For recitations, some distributors provided indications as to the number, age and gender of participants that could take part.

Ivens & Co. Catalogue 1913.

High end ‘Grand’ biunial and triunial lanterns costing from several hundred Shillings to 100 Guineas (Chatham Pexton. Manufacturer in OLMJ Dec 1990) were of polished wood and brass. These mahogany, Russian iron, and Japanned metal lanterns were

67 For example, Why the Green Dragon was closed. A service of song: Manufactured by T.J. and W.F. Piggott, an 18 slide Set, included in the Band of Hope Union Catalogue in 1906. Lucerna Magic Lantern Web Resource, item 3003091.
large and ostentatious, and their mechanisms displayed by attentive operators. The lanternist who played a dual role by also giving the lecture or commentary to the slides needed to be especially skilful. In semi-darkness he would engage in the hazardous operation of attending to the lantern light by adjusting the weights on the gas bags and turning the spindle that held the lime in order that it burned evenly. Potential mishaps included slides overheating and cracking, the lantern catching fire and the gas running out or exploding. Not only did the audience participate in the entertainment but, as Nelson (2000) notes, they participated in the risks inherent to lantern shows. These risks, when they were realized were widely reported in the same columns as the accounts of lantern shows that did not end in disaster and injury (Nelson, 2000).

Explosion at a Lantern Entertainment.
A SAD [sic] calamity occurred at Ilkeston, on the 18th ult. Councillor Jos. Scattergood [an experienced lanternist of many years’ standing, and all occasions exercised the greatest possible care; he used gas bags] had arranged to give a lantern entertainment, in order to wipe off a debt of the Pleasant Sunday Afternoons Association, and a large audience had assembled at the Methodist Church to witness "Little Nell." Immediately upon the oxygen being turned on, a sharp crack, not unlike a pistol-shot, occurred, and this was immediately followed by a tremendous explosion, which caused sad havoc. All

68 The preparation of the lantern and the attention it required during the show is itself a performance to twenty-first century audiences, however, the period audience were familiar with this activity. period accounts of this?

It seems that the lantern itself is rarely mentioned in reports of these events.
the windows of the church, except one, were blown out, a young man almost instantly killed, and several people injured. (OMLJ. Vol2. No.31. Dec.1. 1891, p. 179)

EVERYTHING at the Bath Photographic Convention was a success except the lantern entertainment on the opening evening. The woodwork of the instrument ended in flames. (‘Notes,’ OMLJ. Vol. 2 No. 27. Aug. 1. 1891. p.134)

Period texts and images indicate that lantern shows featuring the Life Model slides that this chapter discusses comprised of mixed audiences of men, women and children of all ages, and from a broad spectrum of occupations available to the lower classes. Engravings show adults and children crowded into halls and theatres. Children feature prominently and make up the bulk of the audience in illustrations of meetings of the Band of Hope, Sunday schools, and Ragged Schools. Nineteenth century illustrations of domestic lantern use, those in advertisements or on packaging, typically show large multi-generation families gathered around a lantern and pointing excitedly at an image on a drawing room wall or makeshift screen. These lantern shows appear to have developed into a stable form that was familiar to and met the expectations of the audience. Within this form the content and delivery of the shows was adapted to meet the specific purposes of the organisers. The thesis suggests that the audience was prepared for their role as spectators and contributors to a shared psychic experience and that within this context Life Model lantern slides were not experienced in isolation but alongside other imagery that provided clues to their meaning as part of a textual continuity within a broader technological imaginary. The mutual intelligibility that Punt (2000, p.194) describes was the aim of missions which recognised that the understanding of the audience needed to be developed through negotiation between
technological potential, audience and exhibitor. Life Model slides depicting “folk like us” (Crangle and Kember, 2018) contributed to this mutual intelligibility.

Newspapers and society newsletters gave detailed accounts of lantern shows, the slides shown, the lanternists, speakers and musicians plus notes about the audience’s participation and response. Advertisements for lantern shows variously informed the potential audience about the types of slides that would be shown, for example, ‘a sacred pictorial concert’; the type of apparatus, a ‘Grand Lime-Light Lecture’; the credentials of the promotor, the lanternist and the lecturer, and the songs, readings and their authors, that would feature in the show. During the performance and depending upon the organisers’ objectives, the audience could expect to listen and sing along to ‘Instructive stories and sacred songs,’ recitations of secular verse and fiction, and laugh at comic sketches. Nelson (2000, p. 415) considers the image to be essential to the “mutual interaction” which bonds together its participants, suggesting that the “shadow or representation on the wall, never remains mere projection, mere being, because it is part of a performative triangle consisting of speaker, audience, and image.”

In these slides, living figures were integrated into fictions in a manner that replicates aspects of studio portrait photographs. The audience was encouraged to identify with the characters depicted, (Kember and Crangle, 2018) yet in many slide sets the Life Models were posed in such a way that the audience could not see their faces, to remain anonymous. This seems to suggest that the viewer was not intended to identify with a recognisable individual but a type. The characters and locations are stereotypical, the
images were intended to be transposable, and the specifics of locality could be projected onto the narrative by the audience’s imagination, whose psychic lives were reflected back to them by the characters in the slides. Their familiarity with the circumstances portrayed and their empathy with the characters encouraged engagement with the potential for their own downfall or salvation dependent upon the moral choices they made. Religious salvation, by the appearance of the angels in the slides is shown as possible for both deserving and undeserving poor. There is an intentional correspondence between the characters in the story and the audience. The historian, Michael Saler’s (2006, 2012) work examining the phenomena of fictional characters who are storied as living in real worlds supports the significance of this correspondence. He talks about how these characters that are close enough to real lives and portrayed as people who live those lives, create an instability, one that is applicable in the context of the media forms of Life Model lantern slides.

Kember and Crangle (2018) and Jakobs (2021) suggest that the emotional engagement of the viewers of Life Model lantern slides was dependent upon their ability to project themselves into the image. Temperance slide sets especially use this method of engaging their audience’s imagination to illustrate the consequences of drinking alcohol (McAllister, 2012). In Dan Dabberton’s Dream, a temperance story written by The Reverend Frederick Langbridge, the alcohol the movement opposed was itself a means
of experiencing supernatural phenomenon. The sparse furnishings in slides depicting poverty are contrasted with the elaborate settings of others: public house interiors, shops, offices and middle-class drawing rooms, depicted in some slide sets. In *The Flower Sellers* the child protagonists’ redemption from crime and poverty and their saviour’s turn from loneliness to practical humanity is depicted amongst material wealth. Small clues indicate respectability even in poverty, for example, the lace curtains and the framed pictures on the walls of the room in *The Angel’s Promise*. In these slides, hell was not as depicted by the fantastical depictions of phantasmagoria but earthly, in the workhouse, in starvation, fear and violence.

Lantern shows were audio-visual and multi-sensory events featuring still and animated images, light, and sound. As McAllister (2012) has noted, the value of a multidimensional experience was recognised during the period. Joseph Livesey, the “father of temperance” in Britain, invoked John Bunyan’s metaphor of ‘Eye-gate’ and ‘Ear-gate’ as “key conduits through which ‘temperance truths’ could be absorbed.”

69 The Reverend Frederick Langbridge (1849–1922) wrote plays, verse and prose for adults and children using his own name and a pseudonym. These included sentimental, humorous, and improving novels set among a Protestant middle-class. (Oxford Reference Dictionary – online). Langbridge was one of many professional and lay ministers to produce readings, recitations and songs that were illustrated by Life Model slides.

Nineteenth century lantern shows would also immerse the audience in a warm, somewhat stuffy atmosphere, especially if the hall contained a stove and it was lit for the occasion. Warmth was also provided as hot food and mugs of tea, a practice that would seem to raise the audience’s empathy with the characters in images that featured empty grates, bare shelves, and barefoot children in the snow.

iv. The images as expressions of transcendence, a spiritual dimension.

Some Life Model slides went further than alluding to a spiritual domain. They were explicit in showing it as operating alongside the physical world of matter, albeit only revealing itself at times of mortal or moral crisis. Dissolving view angels and superimposed memory images of departed loved ones were used to affirm their existence in another form, as they also did in film. The persistence of attempts to express a dimension of human experience through different media forms extends to spirit photography's depiction of transcendent yet determinedly physical bodies. Just as the dying child in *The Angel’s Promise* recognises her imminent transformation into the angelic form of those who beckon her to join them, photographs produce spirit portraits that are recognisable to those who want to see and hope to follow them. The spirit world

71 Beer featured in the experience of some lantern shows. Tea, bread and butter, or supper was often provided. A blessing or Grace was said. Games were played. The National Anthem might be sung and children might be given oranges and buns at the end of the event.
that séances and photographs revealed was earthly and embodied, and although partially concealed by diaphanous gowns and shawls, and unable to speak for themselves, these spirits were often described as recognisable participants in the event. The spirit world the lantern revealed was heavenly, its inhabitants revealed as embodied but semi-transparent, a feature the lantern dissolve enhanced.

The experience of watching dissolving views was itself an attraction, sufficiently appealing for inclusion on posters and handbills advertising lantern shows. Even though the mechanisms of these effects were familiar to the audience, who could read about the process and observe the lantern operator dim the light of one lantern and simultaneously brighten it on another, its use as a means of making spiritual beings appear was spectacular and sophisticated way to create an affective experience.\textsuperscript{72} Dissolving views required a more sophisticated and more costly lantern, or

\textsuperscript{72} If two or more images were superimposed on the screen (using biunial, triunial or multiple lanterns) and faded into one another, the stunning effects of the ‘dissolving views’ were produced, for which the Royal Polytechnic Institution soon became known - 1840s coincided with the spectacle of photographic studios 1850s under the auspices of Henry Pepper of Pepper’s Ghost fame - night scenes turning into day, summer landscapes into winter. Accompanied by sound effects as did (Hale’s Tours) The dimensions of these shows were spectacular: according to W.F. Ryan, the screen at the Polytechnic measured 60 square metres, six gigantic lanterns projected on to it, and the Institution’s new theatre, opened in 1848,
multiple lanterns, and as a consequence, a more skilful lanternist to operate them.

Large organisations had suitable lanterns that were available to hire. “THE Band of
Hope Union possesses five sets of dissolving view lanterns; these when not engaged
are employed for giving free entertainments in workhouses and schools” (‘Notes.’
OMLJ. Vol.2. No. 27. August 1. 1891, p. 133). But mechanical slides could be used to
create similar, less sophisticated effects using a single light source.

Gaspard- Félix Tournachon (Félix Nadar) wrote about Balzac’s notion that the physical
body is constantly renewing itself, that it has multiple layers, just as the mind has
multiple layers. (1899, in Rabb, 1995) Life Model slides that depict characters
remembering past events at which they were present and imagining events taking place
without them seem to correspond to these ‘layers of the mind’ as scenes dissolving into
and out of view above their heads. ‘Spectral apparitions and illusions’ and ‘the ideas of
memory and imagination’ are explained by David Brewster, as ‘pictures on the retina.’
“The imagination has the power of reviving these months and years after they were
made” (1834, p.120).

Life Model images combined with effect slides were a sophisticated way to illustrate and
animate the supernatural phenomena of visions, ghosts and angels, and the memories,
held audiences of up to 1,000 people. Exposition and dissemination of science. This effect
required a light source that could be adjusted – oxyhydrogen, Candle and oil flame limited
opportunity so one slide would be masked as the other was revealed.
dreams, thoughts and imaginings of the characters in the stories, that represent both the characters and the audience’s inner worlds revealing extra-ordinary dimensions of mundane life. In Dan Dabberton’s Dream, a Temperance Story, the drunken protagonist dreams episodes from his happy childhood and youth followed by premonitions of the death of his wife from overwork and hunger, all played out by dissolving view images that appear to emanate from the fireplace. The beams of the ceiling, the tall clock case and upright architectural features evoke the proscenium arch of theatres where the dream images of cinema appeared.\textsuperscript{73}

\textsuperscript{73} Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 3000439. Accessed 8 April 2022. This slide set, illustrating a text by the Revd. Frederick Lanbridge, is known to have been available to purchase or hire from at least eight lantern slide stockists, including The Band of Hope Union from the mid eighteen-nineties through to c1914.
Fig. 15. He entered the House
Slide 4 of *Dan Dabberton's Dream* (story: York & Son, 18-32 slides, 1885)
Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021432.
Accessed 18 April 2022.

Fig. 16. ‘He sleeps! he sleeps!’
Slide 6 of *Dan Dabberton's Dream* (story: York & Son, 18-32 slides, 1885)
Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021434.
Accessed 18 April 2022.
This slide was superimposed by slides 7–16.

Fig. 17. ‘Our Father!
Slide 7 of *Dan Dabberton's Dream* (story: York & Son, 18-32 slides, 1885)
Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021435. Accessed 18 April 2022. This slide was superimposed onto slide 6.
After 'While', a Bamforth & Co. song slide set (1910)\(^4\) is typical of sentimental songs of lost romance of the period.\(^5\) In this narrative, the hero remembers happy times with his sweetheart as he wanders along a country path. The effect slides in this slide set produced a pictorial representation of a back and forth in time of memories and premonitions, of embedding an immaterial dimension into the material via the


\(^5\) *After 'While*, a song for piano written by American composer & song writer, Chas. K. Harris, (London: Feldman & Co., 1909)
ephemeral and intangible form of light, effects that Hugo Münsterberg found compelling as he watched Photoplays. In his analysis he explains:

The screen may produce not only what we remember or imagine but what the persons in the play see in their own minds. The technique of the camera stage has successfully introduced a distinct form for this kind of picturing. If a person in the scene remembers the past, a past which may be entirely unknown to the spectator but which is living in the memory of the hero or heroine, then the former events are not thrown on the screen as an entirely new set of pictures, but they are connected with the present scene by a slow transition. He sits at the fireplace in his study and receives the letter with the news of her wedding. The close-up picture which shows us the enlargement of the engraved wedding announcement appears as an entirely new picture. The room suddenly disappears and the hand which holds the card flashes up. Again when we have read the card, it suddenly disappears and we are in the room again. But when he has dreamily stirred the fire and sits down and gazes into the flames, then the room seems to dissolve, the lines blur, the details fade away, and while the walls and the whole room slowly melt, with the same slow transition the flower garden blossoms out, the flower garden where he and she sat together under the lilac bush and he confessed to her his boyish love. And then the garden slowly vanishes and through the flowers we see once more the dim outlines of the room and they become sharper and sharper until we are in the midst of the study again and nothing is left of the vision of the past. (p. 98. 2016)

As described in Chapter Two, dissolving views had long been used in dioramas and protean views to turn daylight into darkness and summer into winter, and a multitude of
other effects, but this animated addition of visions, dreams, thoughts and memories in Life Model slides was a novel experience. This continuity of effect through other media forms is seen in the illustrations of periodicals, gift books and religious texts that used the pictorial device of hazy images or as if appearing in a cloud.

Fig. 20. Eleanor Vere Boyle [E.V.B.] Engraver unknown. Though you'll not see me, mother, I shall look upon your face. Illustration for The May Queen. Alfred, Lord Tennyson in 1861 in Favourite English Poems (R. Clay & Co., 1862, London: Sampson Low, Available at: https://www.dmvi.org.uk/ Item Code: FEP013 70 mm x 95 mm / 2”24 x 3”24 (In this illustration, the spirit child’s head is framed by light as if a halo.)

Protean views or tissues - see Bill Douglas Museum Item no. 70205 The Guildhall London, transformed from an empty space into a brightly lit and lavishly decorated banquet for HM Queen Victoria https://www.bdcsmuseum.org.uk/explore/item/70205/
Fig. 21. 'The Angel with the Book'. Engraving by Charles Wands (worked ca.1800 - ca.1844), after John Martin. Plate on page 1296 of 'The Imperial Family Bible', published by Blackie and Son, 1844. https://collections.vam.ac.uk/item/O692662/the-angel-with-the-book-print-john-martin/ Height: 16.6cm
Width: 19.5cm
The representation of angels in these slides follows a traditional iconography of angels in Christian art. Male and genderless angels are represented in texts and in art but in lantern slide depictions they are typically young girls wearing loose golden wavy hair crowned with wreaths of flowers, their bare feet peeping out from long white gowns. Life model angels and those painted on the glass surface of the slides are intermediaries between God and humans, the role assigned to them by long tradition. They can
transcend the distance between earth and heaven, conceptually and as described in text and depicted in images, physically, as in Slide Seven of *The Angel’s Promise*. The qualities ascribed to guardian angels\(^77\) are transposed to people who demonstrate them. In the Victorian ideal of ‘the angel in the house’\(^78\) and in *The Angel’s Promise*, the possibility that angels as spiritual forms can be transformed into or imbue corporeal form is emphasised by the depiction of the child’s mother who fulfils this role in a domestic setting. Her spotless lace-trimmed white collar and apron, tidy clothes, nurturing and praying for the child embodies these intangible qualities.

In lantern slides, angels appear where there is a mortal threat and only to those who are directly threatened. Other characters in the image do not appear to see them. In *The Angel’s Promise*, the child tells her mother about the angels in her dream, but the mother’s head is bowed when the angel appears in the room. In another example, *The Death of Dombey*, (see below) the nursemaid does not see the child’s vision of an angel. The audience is privileged because they do see these supernatural beings, a

\(^{77}\) Guardian angels appear through history. In the Christian tradition guardian angels are found in both the Old and New Testaments, where they might be assigned to guard individuals or groups of people and their land. In the Catholic tradition (as specified in the Catechism) every human, whether Christian or not, is assigned a guardian angel. In lantern slides these Catholic traditions are featured in the images otherwise more typically associated with and provided by protestant communities.

\(^{78}\) Coventry Patmore
privilege that was also extended to the viewers of spirit photographs. In *The Little Match Girl*, the intimation is that the angel was familiar to the visionary.

Sometimes the angels are portrayed as very mortal young women and children. They are typically clothed in white, with eyes raised heavenward and outstretched hands inviting the visionary to follow. Life Model, The Little Log Cabin, Slide 7. Yet the angels they will lead me when my time has come to go.1903, (see below.) And Ora Pro Nobis, Slide 7. For while they prayed the angels had come / And taken the soul of the orphan home (Life Model, 1897) (see below) a similarity to the angel in Slide 8 of The Angel’s Promise below. Appearing on cemetery path and among gravestones. Appearing in bedrooms and parlours, hovering en masse over sleeping soldiers and a convoy of war ships, Life Model, The Sound of the Drum. Slide 7. Visions of Light, Angels so Bright. 1900.

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79 Untypically, in Slide 1. 'The little match girl' is looking out of the slide and directly at the viewer.
Fig. 23. 'The Light is shining on me as I go!' Slide 6 of *Death of Paul Dombey* (York & Son, 6 slides, 1893) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5021374.

Fig. 24. 'Visions so bright, angels of light' Slide 7 of *The sound of the drum* (Bamforth & Co., 12 slides, 1900) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5004368.

Fig. 25. 'Yet the angels they will lead me, when my time has come to go', Slide 7 of *The little log cabin* (song: Bamforth & Co., 16 slides, 1903) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5003202.

Fig. 26. 'Vision of the Angels' Slide 6 of *The little old log cabin* (song: Riley Brothers, 6 slides, 1896) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5018600.
Yet an angel from its sphere, whispers comfort in our ear. Slide 10 of *When the heart is young: new series* (Bamforth & Co., 12 slides, 1905) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5009659.

Fig. 28. (Effect) Angels. Slide 9 of *The little match girl* (Bamforth & Co., 9 slides, 1890) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5009534.

The Angel’s Promise

Fig. 29. Slide 1 of *The Angel’s Promise* (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000791.

Fig. 30. "Was I dreaming, mother, darling, as I lay asleep?" Slide 2 of *The Angel’s Promise* (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000792.
Fig. 31. Slide 3 The Angel’s Promise 'I thought I saw the angels!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000793.

Fig. 32. Slide 4. The Angel’s Promise 'I could not leave you, darling, because I love you so!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000794.

Fig. 33. Slide 5. The Angel’s Promise 'Am I dreaming, mother, darling! but I see a glorious light!' (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000795.

Fig. 34. Slide 6. The Angel’s Promise "'Tis the light I saw in Heaven in my happy dream last night!" (Bamforth & Co. 1898, 8 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000796.
**Fig. 35. Slide 7. The Angel’s Promise ‘So you'll weep not, mother, darling! I've forgotten all my pain’ (Bamforth & Co. 1898, 8 slides)** Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000797.

**Fig. 36. Slide 8. The Angel’s Promise ‘I feel a loving hand, and it seems to bear me gently’ (Bamforth & Co. 1898, 8 slides)** Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5000798.

*The Angel’s Promise.* A song, lyrics by Fred Weatherley. Music by Behrend. Published by Boosey & Co. The slides discussed here were produced by Bamforth & Co. in 1898

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80 Frederic Weatherley (1848-1929) wrote the words of many of the most popular songs in the English-speaking world for half a century. [...] He did not claim that his lyrics were fine poetry, nor pretend to musical ability beyond a good ear, but he felt strongly that the words of a ballad were as important as its setting, as their author was the equal of the composer. He was alert to changing tastes and versatile in several styles from the patriotic and naval to the humorous, religious, rustic, and sentimental. Inevitably he attracted parodists who reflected his success; this itself depended on the popularity of ballad concerts promoted by music publishers that
and distributed by Riley Brothers, a Yorkshire firm manufacturing and supplying slides and lantern equipment for sale or hire. York & Son. is known to have produced a three-slide set to illustrate this song, although it is not always possible to tell which of several versions from one or different producers’ catalogues and reports of lantern shows refer. York listed *The Angels’ Promise* in *The Optical Magic Lantern Journal*: volume 10 number 124 (September 1899) It appears again as an illustrated song set of three slides.81 Words and music, price 2/- in Ivens & Co. Lantern Slide Catalogue 1913.

The mise-en-scène of *The Angel’s Promise* subtly reinforces a societal narrative about their being a deserving and an undeserving poor. This narrative may have been expressed overtly in other slide sets, songs and texts during the service or meeting and created a vast lucrative market for sheet music for home entertainment. (Pickles, J. D. (Published in print: 23 Sept. 2004. Published online: 23 Sept. 2004) *Oxford Dictionary of National Biography*. Available at: https://doi.org/10.1093/ref:odnb/46652)

Boosey & Co. already had a commercial strategy to market ‘sacred songs’ as the marketed secular ones. In 1875 Boosey’s *Sacred Musical Cabinet* was begun (running to twenty-eight parts before its termination in 1885), and in the later 1870s they published *Sacred Songs, Ancient and Modern* (edited by J. Hiles).

81 1. Was I dreaming, mother darling?
2. And the angel’s wings are near me
3. I saw the angels in a flood of golden light
was otherwise familiar to the audience through documentary and fictional accounts of poverty in the penny press and periodicals. This slide set has been chosen for analysis here for its depictions of angels as representations of a supernatural dimension of human experience integrated with the everyday material world. In addition to superimposing drawn illustrations of angels onto a photograph, it depicts an angel that is part Life Model, a young girl dressed in white robes, and part illustration, angel wings are painted onto the glass slide. In these slides the realism of photography is challenged and confused as it was through spirit photography by the fusion of a

For discussions of photography's realism and spirit photography see Jennifer Green-Lewis 1996, Framing the Victorians: Photography and the Culture of Realism, London: Cornell University Press.


photograph with an illustration of a supernatural phenomenon. And the dominance of nineteenth century materiality is challenged by the dying child's vision of a child-angel with wings and the semi-transparent host of angels.

The late nineteenth century audience would have been familiar with the death of children and of death occurring at home.\textsuperscript{83} Seven of the eight slides in \textit{The Angel's Promise} slide set carry a hand-coloured photograph of Life Models in a single studio setting of a domestic interior containing a bed and chair, lace window drapes and framed pictures. The first slide carries a coloured drawing of an angel and the song title. It has not been possible to trace the complete text of the song, but the individual slide titles tell of a dying child in conversation with her mother. The child's words are the titles of six slides and the mother's words of one. Only female characters are portrayed. Mother and child are present in each of the slides. The audience would expect and is assured of the child's salvation as her youth means her soul is as yet unblemished by poor moral choices. In three of the eight slides the angels, representing the supernatural dimension of heaven, are depicted by illustrations, with the addition in one, slide seven, of an angel embodied by a child Life Model, who holds the dying child's hand as her life ebbs away. This angel's wings are painted onto the photograph confusing and destabilising the realism of the photograph and ontological status of the child-angel. The colourist has treated the graphic and photographic, and physical and supernatural

\textsuperscript{83} Around a quarter of all children born died before they reached five years of age.
elements of the image in the same way, further contributing to the pictorial blurring of real and supernatural dimensions of the narrative.

These slides were produced by an industrialised manufacturing process driven by cost-effectiveness. Reusing slides, backgrounds and props were part of this concern. James Bamforth told visitors to his studio premises just how quickly he was able to complete the creation of a slide set, from painting the background cloths to photographing the models. So it must be kept in mind that the staging is likely to incorporate crude and familiar signs to the viewer about how to read the images. The intention was to illustrate a narrative that was (a) a familiar form and (b) told by a showman who would give clues and pointers to the audience through his performance techniques. In these circumstances the slides were mnemonics, reinforcing the narrative as one component of many elements in play for an event that comprised the image, the narrative and the context. In the same way that portrait studios were part of a continuity of media forms expressing a supernatural dimension within a technological imaginary.

The angel in the title slide’s illustration contrasts with those in the following slides. This female angel has a mass of dark hair and wears a long bright pink sash around her waist. One bare foot peeps out from her overly long white gown that has loose sleeves and a low-cut frilled neckline. The angel’s feathered wings are raised, and she holds out her arms as if in welcome. The impression is one of an earthly physical body and wings, (as is the embodied Life Model angel in slide seven) rather than of an ethereal insubstantial form. It is not clear whether she is hovering or standing in front of the
'rugged cross,' the Christian symbol of suffering and salvation that illustrates the song’s theme. The colouring is of the same palette as the other slides in the set, primarily pink, white, and a blue-grey.

Slides two to seven feature the same domestic interior. The planes of the background cloth, picture and curtains confuse the spatial dimensions of the room if they are examined closely. This was not the expectation of the manufacturers who just needed them to serve the purpose of focussing attention on the figures while allowing space in the composition for the superimposition of the illustrations of angels onto slides three, six and seven. The crease in the wall covering as it reaches what appears to be a wooden skirting board evidences the studio setting. The audience is encouraged to focus upon the child by following the line of the mother she leans in towards the child who is propped up on a pile of white pillows and framed by the lace window curtains behind the bedhead. The tilt of the mother’s head links the focus of the image with the child’s voice of the slide’s title. As is typical of the secondary characters of life model slides, her face is not visible. She is turned in to the composition affording licence to the viewer to imagine themselves into her place. The connection implied by the child’s gaze onto the unseen face of the mother is reinforced by their holding hands. The positions of the Life Model characters indicate the direction of travel in terms of the narrative and intended emotional affect.

The mother wears a full sleeved blouse, a white shawl collar, a full skirt and a long white lace trimmed apron, its sash tied in a bow behind her back. Her tidy hair, clothes, the
bed linen and lace drapes are clean and undamaged, indicating the desirable qualities of personal hygiene, domestic industry, and care for possessions. She portrays the idealized image of wife and mother and iconographically of ‘the respectable poor’ (discussed by Vogl. 2006, p. 481). A tassel trimmed patterned counterpane covers the bed. Its wide border and central panel feature fern-like leaves, their shape hints at the feathered wings of the angels that appear in the next slide. The furnishings and decoration indicate simplicity and respectability.

This slide set is skilfully coloured, the patterning on the bedcover is picked out with barely any bleeding of one area into another and the child’s features are sympathetically toned. The consistency of the colouring of the images and their material condition indicate that this is a complete set as it was manufactured. The fragility of glass slides combined with the conditions in which they were used inevitably caused breakages. Missing slides may have been replaced over time to complete otherwise partial sets. The images of the slides analysed here are digital reproductions on the Lucerna website. As we see them, slides 3, 4 and 6 are the reverse orientation of slides 2, 5, 7 and 8, but it is not possible to be certain that the slides have been reproduced as they were intended to be shown to the period audience.

A semi-transparent painting of a cluster of eleven golden-haired angels has been superimposed onto the area of the image previously showing only wallpaper and a framed picture, its frame is partially visible. This superimposed image can also just be seen layered over the child’s arm and pillow. The hovering angels, their hands clasped
prayerfully, appear to look toward the child. Two more kneel either side of a seated angel who holds a scroll draped across her knees, all three bow their heads as if reading. (A semi-circular scratch into the paint just above the child’s head brings to mind a halo.)

The viewer appears to advance into the composition, closer to the bed, taking up a position almost looking over the woman’s shoulder in Slide 4, 5 and 6 to be immersed in the scene and implicated in the narrative. This tighter framing reinforces for the viewer the impression of being closer to the group. The viewer forms the third side of a compositional triangle with mother and child the other two sides.

A larger group of angels are superimposed in slide 6. The slope of the woman’s back leads the eye up to follow the lines of golden light that enclose the host of angels and appear to originate from a source above the image frame. Colouring is altered to highlight the woman, child, bed, while leaving the background uncoloured, increasing the effect of the heavenly light at a time of darkness as death approaches. As an example of media intertext, the supernatural ‘projection’ of the angels evokes the projection of their image by the lantern apparatus, contributing to the affect. As the narrative progresses agency passes from the mother through her actions, and through whom the viewer is drawn into the image, to the child who rises from her pillow in slide 7, and then to the angel to whom she gives her hand in slide 7.
Slide 7 returns the viewer to his original position as an onlooker and moves him a little further outside of the frame. This pictorial device separates him from the angels as the supernatural elements of the image. The dying child's right hand is held just above the counterpane by a girl-angel of about the same age illustrating the child’s words in the song and the slide’s title. This girl-angel, a chimera of sorts, wears a costume that matches those of the painted angels. As she looks down at the sleeping child her right hand is raised to point out of the image frame towards something unseen as if above the heads of the audience. Her head is framed by her painted folded wings, which rise as arches from unseen points below her shoulders, a pictorial rhythm that is repeated to her left by the inverted arches and curves of the wings of the semi-translucent angels with their scroll. The folds of the wings direct the viewer to look up to the angel at the centre of the group. The triangle of viewer, mother and child in the previous images is disrupted. It now forms a new triangle of Life Model angel, mother and child and the edge of a white-grey fur rug adjacent to the bed, grounding the supernatural beings as very much ‘within the room’ and so indicating their presence among and in the same spaces as the human characters in story.

As noted above, re-using backgrounds, props, illustrations and photographs seems to have been common practice for slide manufacturers. The illustration of angels in slides 3 and 8 of The Angel’s Promise appears in another Bamforth & Co. slide set Rocked in
the Cradle of the Deep (c. 1901), as if underwater. The set also features an illustration of what appears to be a vision of Jesus. This slide set appears to be made up from slides from more than one set. The numbering is mismatched and slide 7 appears to have been coloured from a different palette to the rest, that have been coloured in the pink, blue, greens and browns of The Angel’s Promise. The angels are seen again in slide 3 of another Bamforth & Co. slide set: Jessie’s Last Request: a homely ballad for Band of Hope children, c. 1899.

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84 Lucerna Magic Lantern Web Resource, item 3001534. Accessed 8 April 2022. This set was created to illustrate a song by Emma Willard and Joseph P. Knight.


The complete set can be viewed at Lucerna - Jessie’s last request: a homely ballad for Band of Hope children’ It features a sick young girl and her formerly supportive and loving father, now brought down by drink. The slide set is known to have been advertised in distributors’ catalogues until 1912.
Fig. 37. ‘For Thou, O Lord, has power to save’ Slide 3 of *Rocked in the Cradle of the Deep*. (Bamforth & Co. 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014325.

Fig. 38. Slide 5 of *Rocked in the Cradle of the Deep*. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, 5014327.

Fig. 39. ‘In ocean cave still safe with Thee’, Slide 6/7 of *Rocked in the Cradle of the Deep*. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014329.

Fig. 40. Slide 8/9 of *Rocked in the Cradle of the Deep*. (Bamforth & Co., 1901, 9 slides) Lucerna Magic Lantern Web Resource, lucerna.exeter.ac.uk, item 5014331.
These slides reinforce a cultural construction of heaven and heavenly beings in the particular context of the late nineteenth century instability of science and religion and the technological possibilities of visual media that have been outlined in Chapter Two. In this context, angels represent a religious spirituality whereas in contemporary technological contexts, angels are just as likely to be described and experienced as non-religious abstract ‘light-beings’ (Blassnigg, 2007, p.14). As is characteristic of the other media forms in this thesis, these images of angels integrate a spiritual heavenly dimension of human experience into the material earthly world rather than a movement against the industrial material positivist science. The images were not intended to be viewed without the scripts, so the images of angels, and the mechanisms applied to
them, combined with other less tangible elements of the experience to evoke an immaterial dimension.

Conclusion

Chapter three has argued that magic lantern shows were events where the nineteenth century public could represent and experience the immaterial dimension of technology. In particular, the pictorial illusions of Life Model lantern slides mediated the audience’s contact with the spiritual through a technological arrangement that afforded enchantment as a sophisticated experience of a fuller reality, where the supernatural is represented as existing alongside the material world of daily life. The chapter has shown how these images within the technological arrangement of lantern shows offered the audience the means to become co-producers in their own experience. In this sense the chapter has revealed a continuity with photographic portrait studios and for other entertainments such as cinema and Hale's Tours of The World that are discussed in the following two chapters.

Chapter Four: Phantom Ride

If only to see the Biograph and its most realistic and startling pictures a phantom ride on an express train, people should go to the Palace. In this picture animated photography has surpassed itself. (The Stage. The London Variety Stage. Nov. 4. 1897.)

Among other Boxing Day entertainments at The Palace Theatre of Varieties, “received with special applause,” “The America Biograph’ projected a series of views of moving objects upon a screen reported as almost filling the proscenium. “the greatest novelty of all is the scene called ‘The Phantom Ride,’ in which the panorama has been taken from
a locomotive engine running at great speed through a railway tunnel, along cuttings and over embankments, the latter affording views of the surrounding country. The effect produced upon the spectator by the weird curiosity is exactly the same as is experienced when looking ahead from a fast train amid rural surroundings.” (The London Evening Standard. Tuesday Dec. 28. 1897)

The Phantom Ride on an express engine, which represented the vanishing scenery with truly startling realism. (The Circus in St James’s Gazette. Tuesday Dec. 28. 1897)

Introduction

This chapter will move the discussion from the partially animated hybrid images of Life Model lantern slides to the moving images of film in the 1890s and 1900s, with a particular focus upon the experience of transcendence that appears to have been afforded by the affective and cognitive dimensions of phantom rides. Chapter Three considered the ‘projection’ of angels, as heavenly light, into depictions of domestic spaces by the projected light of magic lantern apparatus. This chapter explores how a novel assemblage of railway and film evoked an experience of supernatural energy and of transcendence. It will suggest that in the context of the challenges to perception and cognition presented by the actual motion of the railways and the perceptual motion of the moving image, phantom rides enabled viewers to be carried into the scene through which the camera moved, that is, to take the position of an unseen camera. Where Chapter Three concerned depictions of spirits and visions in the technological and social context of lantern séances, and the audience’s engagement with these affective experiences, this chapter will explain how the phantom rides, like Life Model slides, illustrate the porous boundary between material and immaterial dimensions of human
experience, a particular quality of experience that can be expressed as one of enchantment.

A phantom ride is one of a constellation of technologies that share to a greater or lesser extent characteristics that afford the experience of enchantment in terms of the visibility of the apparatus, the operator, and modes of display. Phantom rides move the viewer from the position of onlooker, who will identify and empathise with the Life Model characters’ dreams and spiritual experiences (Jakobs, 2013; Kember and Crangle, 2016), to a position within the scene represented on screen, one described by Slugan as possible through “elicited imagining” (2021, p. 13). The temporal realism of the experience contradicts the spatial dislocation of a requirement to be in two places at once; that of the auditorium and the space evoked by the image of a landscape through which the viewer moves. Phantom rides offered the viewer a novel experience of train travel and carried them to places outside of their familiar experience, or from an unfamiliar perspective. The thesis suggests that the enchantment of a phantom ride has less to do with a mimicry of the railway and more to do with circumstances and setting in which it was experienced: a technological arrangement coloured by memory and imagination within a supernatural imaginary.

The phantom ride phenomenon has been thoroughly examined in the context of cinema studies and of railways: as a ‘virtual’ travel experience (Hayes, 2009; Gunning in Harper & Rayner, 2010; Clarke and Doel, 2005); in the context of an evolution of film from attraction to narrative forms (Gunning, 1990; Slugan, 2021), and together with the
railway as a factor destabilising perceptions of reality (Kirby, 1997; Harrison, 2014; Loiperdinger, 2003). Its perceptual relationship to both rail travel and to supernatural experiences are evident too in period accounts. While we cannot be certain that this was the intention of their makers it is how the films were described by period viewers. In his 1851 biography, Cecil Hepworth commented that he found it strange that the popularity of phantom rides continued for as long as it did. While the attempted realism and elaboration of the hybrid fairground-ride-come-moving-picture entertainment of Hale’s Tours of The World (discussed below), might be interpreted as a way of dealing with the immateriality of the experience of phantom rides, and while the commercial imperative must be acknowledged, this thesis suggests that the enchantment of this experience may explain the persistence of their popularity. Phantom rides were an opportunity to play with the mysteries of supernatural phenomena and of the inner worlds of human imagination, that Münsterberg discussed in the context of Photoplays, and that science promised to reveal and explain but technology helped to demonstrate (Punt, 2000). The technological arrangement that created the affective and cognitive dimensions of phantom rides foregrounded the flickering and ephemeral image over the material mass and physical encounter with the train.

The chapter suggests that phantom rides within the technological arrangements of their viewing, might be interpreted as experiences of transcendence within a broader imaginary of the supernatural. It will explore how ideas of transcendence as weightless, disembodied and of ‘looking down’ onto the world, seemed to be becoming attainable through nineteenth century media and transport technologies. In particular, the
widespread experience of travelling on the railways and of seeing the world from the air from a hot-air balloon, for most people a vicarious experience effected by watching them at fairs and expositions or through photographs and engravings. The thesis suggests that their popularity indicates a desire to disrupt the day-to-day experience of the world, through a disconnection from the ground and of being 'un-tethered' from materiality.

The first part of this chapter will set out the context in which phantom rides were experienced, including the audience’s experience of travelling on railways and of films of oncoming trains among a constellation of visual technologies contributing to a supernatural imaginary. The second part will situate these ideas and activities, including the multi-media entertainment of Hale’s Tours of The World in a discussion of transcendence as a technologically mediated form of enchantment.

Phantom Ride

Phantom rides were a moving picture entertainment popular from the mid 1890s through 1910s. They were films comprising of a single shot from a fixed point of view at the very front of a train. This method was used on other moving vehicles including trams, omnibuses on rails pulled by horses, or powered by overhead electric cables, and the electric railways that are discussed in Chapter Five. Although the majority of phantom rides appear to have been filmed from the front of a moving vehicle, some producers explored novelty by filming from the rear of the train, so the landscape appears to shrink, for example, The Lumiere brothers’ *Leaving Jerusalem by Railway*
(1896). Phantom rides ostensibly showed the audience what the engine driver would have seen. However, the viewer’s position was much more one as if embodying the camera, or as described in some period accounts, the train. The pro-filmic reality intimates the presence of the train through the railway infrastructure, but does not include the locomotive, the supplier of the energy that causes it to move. The energy that creates the apparent movement on screen is provided by an entanglement of the projector, operator, and the viewer’s perception. Unlike actualities, films of significant local and national events, and the narrative drama of Photoplays, the ‘subject’ of a phantom ride is as much the viewer as the view. When not inserted into travelogues, or other films comprising multiple film strips, the phantom ride begins to move from a stationary position, as if by an invisible force, or, as Gunning explained, by “an unseen energy [that] swallows space” (1983, in Fell, (ed.) p. 355), a reference to the phantom of the name by which these films came to be known. According to Loiperdinger, “many

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86 (BFI) http://www.screenonline.org.uk/film/id/1193042/index.html A fairground novelty as an alternative to usual experience of moving through the landscape, feeling instead that they were motionless while the landscape moved past them. Such as this panorama of a moving boardwalk filmed July 1900, at the Paris Exposition in Paris, France. https://www.loc.gov/item/00694271/

As Chapter two explains, during the early cinema period, moving images were often presented as novelty attractions as part of a mixed bag of entertainments at fairgrounds, lecture halls and variety theatres. Phantom rides have been considered as one of these entertainments, this thesis considers them as transcendental experiences. As the delight in these attractions
commentators describe this transition from a still to continuously moving image as a surprising, even thrilling, perceptual experience." (2003, p. 97) The viewer travelled into the view as he followed the rails as they narrowed towards an ever-receding point in the distance. The curve of the rails that indicated the forthcoming direction of travel, was confirmed by the subsequent movement which validated its realism.

Whereas many Life Model slides draw the viewer into the image and so encourage their involvement with the on-screen action, by subtle and established pictorial devices of perspective, pose and line, Phantom Rides compel the viewer to enter the image space to the extent that his viewing body becomes the location of action, an experience Harrison describes as “divorcing the imaginary from the bodily experience” (Harrison, 

persisted enterprising producers began to repurpose theatres and constructed purpose-built venues, cinemas. The origin of the name Phantom Ride might perhaps be because many short films, including those shot from the front of a moving train, were sited in booths alongside fairground Ghost Shows, where the audience participated in illusions such as Pepper’s Ghost. ‘Traditional’ ghosts, spirits and phantoms that were transparent and able to pass through walls, were present in film from its earliest days created by the techniques of spirit photography and lantern slides, dissolving views, double exposure, composite imagery etc. Ghosts inhabiting the same image space, the same grey, spectral, ‘kingdom of shadows’ of cinema that Gorky described, One similar to that of photographs that the Goncourt brothers described. Loiperdinger explains that Lumière’s Cinematograph required that the framing had to be adjusted and the film locked into place prior to the projectionist beginning to crank the handle.
Editorial comment and advertisements for phantom rides alerted the audience to how they were supposed to feel and behave when viewing the film. The eighteen ninety-seven American Mutoscope and Biograph Company production, *The Haverstraw Tunnel*, is generally accepted as one of, if not the first phantom ride. The concept was quickly adopted by British film makers. A phantom ride through a tunnel provides the period audience with a novel experience. Curiously likened to a half-closed eye, the light, that appears as a glimmer in the darkness of the tunnel, increases as the viewer rushes towards it to reveal (as in an homology) an image of the world, evokes the projection of light from the cinematograph.

As we become accustomed to the gloom we see an EYE far ahead; a half closed eye, growing larger and larger as we approach, It glistens on the converging rails; it grows larger; it grows brighter. We see a delicate picture outlined in that tiny space; a picture of a station, a tower, bright trees, shining meadows, and suddenly we’re right in the midst

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88 Gunning suggests *View from Gorge Railroad*, June 1896, Edison (in Sugan, 2021, p. 75). Rather than facing forwards along the rails, the camera faces towards the river running alongside the train.

89 Conway Castle - panoramic view of Conway on the L.& N.W. Railway 1898 is one of the earliest. https://player.bfi.org.uk/free/film/watch-conway-panoramic-view-of-conway-on-the-l-nw-railway-1898-online
George Albert Smith extended the novelty of trains rushing towards the viewers and of phantom rides. He spliced a scene that had been staged in a studio of comic action set inside the train between its movement into the darkness of a tunnel and emergence into daylight at the other side. His idea of splicing action into phantom rides, which was copied by many others, was turned on its head by makers of travelogues who spliced phantom rides into their documentaries.

‘Hale’s Tours of the World,’ in Oxford Street, hard by Messrs. Gilbey & Co.’s Pantheon, are at once the oldest-established and the most educative of all London’s picture shows. Nothing approaching them has in our day been designed or so effectively carried out. Time was when Hamilton’s Diarama’s [sic] were all the rage; these have no worthily supplanted them. Seated in a veritable Pullman car, which appears to be travelling on the ever-present metals through mountainous scenery, over bridges, across vast prairie lands, or Eastern deserts, as the case may be, the illusion is perfect. Not the slightest suspicion of cinematograph lantern rays have the quasi-travellers, for the reason that the views are thrown on the screen from a great distance behind … The conductor of the Pullman Car, who snips the tickets, lectures pleasantly all the time, though in the darkness he remains unseen. Moreover, throughout the imaginary journey, the travellers are treated to pervading sounds as well as sights. The shrill whistle of locomotive and steamboat, the fearsome syren [sic] of an ocean greyhound, the roar of falling waters or tossing sea waves, the pattering of rain, the rolling of thunder, and the shouts of people add a keen zest to the excursion. From a chat with Mr S.B. French, the Secretary, we learned that his company have a contract with the New South Wales Government for the regular supply of films, and also that their operating representatives enjoy a free run on the great American railroads, and on certain British railway systems. (The Rinkin
From 1904, phantom rides were specifically produced to provide ‘the window on the world’ of Hale’s Tours. This novelty entertainment was initially staged as a fairground ride at the St. Louis Exposition in 1904 then, through licensing, became widespread, opening in London in 1906. The ‘passengers’ on a Hale’s Tour would sit in a mocked-up railway carriage for a simulated ride, sometimes with accompanying bumps and rattles, bells and whistles, through exotic and picturesque landscapes projected over their heads onto a screen viewed through the open end of the ‘carriage’ or onto the screen from behind it. A ‘conductor’ talked the ‘passengers’ through their journey, standing in for the lecturer or showman of lantern and film shows. He worked with the technician and projectionist to manage the mechanical effects that were used to enhance the illusion of going on a real train journey. These effects were prominent in an experience that removed the film projection apparatus from display.

For a comprehensive account of Hale’s Tours, in period context, the ideas that influenced the phenomenon and their persistence in media and entertainment forms though to the present day, see Raymond Fielding’s paper, Hale’s Tours: Ultrarealism in the Pre-1910 Motion Picture. *Cinema Journal*, 10(1), 34–47, (1970). Keefe’s original patent for what became Hale’s Tours describes a train running on a circular track inside a pavilion containing a projected panorama (check detail)
An “affectionate identification that replaces the viewer into the passenger experience of being in the train.” (Blassnigg, email, 03/02/2015) An experience, for many, attenuated by their tram journeys to and from the event.

Cecil Hepworth’s series ‘View From an Engine Front’ (1898) included films of travelling along railways through Barnstaple and through Ilfracombe. Although his motivation was a commercial collaboration for the purposes of advertising the railway as a tourist attraction, in his account of making them on the South Western Railway Company’s lines in Devon, he describes them as phantom rides.

Then around 1901, we came to a definite milestone in the shape of the Phantom Rides which became tremendously popular about this time. These were panoramic pictures taken from the front of a railway engine travelling at speed. The South Western Railway Company whose line ran through a great deal of very beautiful scenery, especially in and around Devonshire, possessed some engines particularly suitable for this work in that they had long extensions between the front of the boiler and the buffers—iron platforms looking as though they had been made for a camera to be strapped upon. I approached them with the idea of gaining publicity for their line through a number of Phantom Rides and they agreed to put one of these engines at my disposal on certain sections and gave me a station-to-station pass all over their system for as long as was necessary to complete the arrangements.

But first I had to obtain a suitable camera—it was no use tackling that job in fifty-foot driblets and I determined to construct a camera big enough to take a thousand feet of film at a time and take no chances. What eventually emerged was a long, narrow, black box, rather like a coffin standing on end. It had three compartments. The centre one contained a "Bioscope* mechanism, modified to do duty as a camera instead of a projector, and the top one held a thousand feet of film on a spool, while the bottom compartment held a similar spool on which the film was automatically rewound as it came out of the camera.
It was a fairly easy matter to lash this contrivance to the rail which had been fitted for safety to the front of the engine extension, and the box-like seat contrived for me and a station-master to sit upon completed the arrangements.

He goes on to describe the Hale’s Tours phenomenon.

I think it was the American Biograph Company, during their long run at the Palace Theatre, London, who started this fashion of Phantom Rides, but it was rather strange that the public should have liked it for so long. Before the craze finished, however, it was given a new lease of life by the introduction of an ingenious scheme called Hales Tours. A number of small halls all over the country were converted into the semblance of a railway carriage with a screen filling up the whole of one end and on this was projected from behind these panoramic films, so that you got the illusion of travelling along a railway line and viewing the scenery from the open front of the carriage. The illusion was ingeniously enhanced by the carriage being mounted on springs and rocked about by motor power so that you actually felt as though you were travelling along. (Hepworth, 1951, pp. 44-45).

The end of the nineteenth century was a period Gunning describes as “a new realm of visuality” (2015, p. 18) in which the photographic image’s apparent veracity and indexical qualities presented confused ideas of the status of phantoms, spirits and ghosts. Photographs reproduce the things photographed as “phantasmic doubles” (Gunning, 2015, p. 18), contributing to photography’s association with the occult and the supernatural.

Gunning (2010) discusses phantom rides in the context of ‘the view’. That the novel presentation of the view was the attraction. Phantom rides have also been explored from the premise that they are another means of presenting the view in a tradition of
'virtual' travel experiences (Hayes, 2009; Oettermann, 1997). These include peepshows, dioramas, panoramas, lantern slides, photograph albums, postcards and periodicals. The idealised landscapes of photographic studio sets might also be included in this list. These transformed the view through various mechanisms: of lighting (dioramas); layering images or slipping them one over the other (lantern slides)\textsuperscript{91} or altering the viewers’ point of view, (Great Wheels and balloon flight); transporting them to another time and place, (Panoramas); imaginary travel through the glimpses of distance places sent by friends (postcards and photographs); and the immersion of stereoscopes (see Stakelon, 2010). The moving images of film made it possible to view transformed and transforming landscapes.

Gunning describes phantom rides as a phenomenon of pre-narrative cinema, situating them as among early films that ‘displayed things’ as attractions for curious viewers seeking the thrill of novelty among many others at variety shows and fairgrounds. Phantom rides persisted across Gunning’s two phases of early film: attraction and narrative. (In recent scholarship these have been described as less distinct. (Slugan, 2021). They can be understood in terms of pictorial realism and of narrative and although there is no human subject on screen with whom the viewer can identify, the beginning, duration and end of the journey was be experienced as it was filmed—in real

\textsuperscript{91} Bottomore (1999) also notes a similarity of effect between films of trains approaching and lantern slipping slides, citing cinematographer, Hal Mohr’s recollection of viewing a projection of “a train passing by.” (p.181)
time. This realism may be interpreted as enhancing the viewers identification with their own bodies, as if they were travelling, which in turn contributed to an evocation of transcendence as the means of the movement if not visible. Unlike the films associated with Gunning’s ‘cinema of attractions’ (1986), in those that showed the apparatus, where the ‘tricks’ were familiar, and displayed in the manner of Vaudeville and variety performances, Méliès’ for example, the viewer takes the place of the performer. So, while Slugan, in a discussion of the ‘fuzziness’ of categories of film as either fiction and non-fiction points out that numerous scenics are not narratives for they regularly lack agents playing a role in changes of states and affairs” (2021, p. 168), the narrative was explicit in travelogues, lectures and inter-texts describing the scene that would unfold as a ride.

Stereoscopes as precursors to phantom rides

Stereographs can be considered as having a continuity with Life Model Slides and phantom rides. Stereograph card series illustrating narratives shared stylistic form and content with Life Model lantern slides and shared their intimation of movement through three-dimensional space with phantom rides. Life Model slides, narrative stereographs, and early narrative films provided engaging entertainment through picture-like tableaux in which the action took place within a limited depth of field at a fixed distance to the picture plane as a consequence of technological constraints. For example, the temperance story, *Buy Your Own Cherries*, was illustrated by Life Model slides and produced as a film. The screen and the stereoscope both operated as if the glass of a window through which the viewer observes a representation of reality that alludes to
three-dimensional space through perspectival clues and, in the case of stereographs, the careful placing of objects in the scene to enhance the stereo effect. Bantjes (2015) adds the nineteenth century viewer’s "sometimes capricious spatial imagination" as an external contribution to the immersive effect. Phantom rides and stereographs played with the viewer’s perception of immersion and movement, and although, according to period accounts, seeming to create a tension between reality and representation, viewers understood they were not looking at reality but, as Loiperdinger (2003), described in his discussion of ‘the panicking audience,’ at pictures of reality.

It is a unique inner experience, which is characteristic of the perception of the Photoplays. We have reality with all its true dimensions; and yet it keeps the fleeting, passing surface suggestion without true depth and fullness, as different from a mere picture as from a mere stage performance. It brings our mind into a peculiar complex state. (Münsterberg, 1916, p. 48 [Online])

While some stereoscopic images showed ethereal spirits among solid realities (see Brewster’s 1856, p. 205, and above in Chapter two), the priority was to an create an illusory visual experience of three-dimensional space in which the viewer can move as if an invisible voyeur. This experience seems much like that of a phantom ride, where the body of the viewer and locomotive could not be seen. Stereoscopes obscured the viewer’s surroundings, rather like blinders (or blinkers) did for horses. This blocking out of the 'real world' enhanced the viewer’s experience of being pulled into the image. Narrative stereo cards used the pictorial devices of Life Model slides with the addition of the careful placement of objects and people in the image mise-en-scène at a number of picture planes to enhance the stereo effect.
In addition to a continuity of technique, there is a continuity of the circumstances and experience of viewing stereographs, lantern slides and Phantom Rides and portrait photography. Stereo cards were shared with others in the familiar surroundings of a drawing room or parlour. Phantom Rides and lantern slides were viewed as a collective experience in the shared spaces of halls and auditoriums where the viewer sits “invisibly in darkness, responding to feelings experienced in an external world whose boundary with the self seemed vertiginously fragile and unstable” (Brain, 2012, p. 338). Collective experience reinforces social relationships, which is important for the project of Life Model slides, but more importantly for this discussion, collective experience enhances expectation and effect. See ref in enchantment discussion

Phantom rides and railways

As Alan Trachtenberg states in his introduction to Schivelbusch’s The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century, "in little over a generation [the railway] had introduced a new system of behaviour: not only of travel and communication but of thought, of feeling, of expectation"(1986 [2014] p xiii), (a comment that might also be applied to the photographic portrait studio) and the public had come to accommodate travel by rail as an unremarkable "normal fact of existence" in which the discomfort, and potential peril of the railway was tolerated. As an indication of the railway becoming commonplace in everyday life, from the 1870s illustrations and text related to rail travel turn to the opportunities and problems of social behaviour in railway carriages and to the pictorial possibilities of the view from the carriage windows.
and of the trains themselves (Revill, 2012, p. 49). As Harrison (2014) explains, the view from the window of a moving train altered the viewers relationship to the world he looked onto, a separation of the viewer from the world. Photography also gave rise to new systems of behaviour. As noted in Chapter One, the primary experience of photograph technologies was for most people associated with photographic portrait studios. The entertainments of stereographs, and towards the end of the century, film, were also photographic experiences and, as Hayes explains, phantom rides, as a fusion of railways and the photographic images of film combined the experience of travelling by train with that of projector and screen to create a new perceptual experience, one in which "cinema conquered the train and made only its speed and power visible" (2009, p.185). This combination of railway and film, described by Harrison (2014) as a symbiotic relationship, seemed to offer a simultaneity of experience, of being able to move through space, disconnected from the earth and as if weightless and invisible, but at the same time retaining an awareness of one’s own body. The relatively long duration (at that time) of the camera shot may have contributed to the embodied experience as it

92 The practice of mounting a camera on a moving vehicle offered a means for the film to follow the movement of the subject, albeit in a rather limited way. This method was a forerunner of the dolly used by film makers for filming a smooth lateral shot – a tracking shot. Giovanni Pastrone’s Cabiria, a film viewed by Münsterberg, is widely described as the first use of this method. More flexible camera movement was possible from around 1900 when were attached to pivoting plates on the top of the tripod or stand. Robert Paul devised such a mechanism to film the jubilee procession of HM Queen Victoria in 1897. (Salt, 1983, pp. 42-44)
allowed for a sense of owning the view that otherwise belonged to the technological ensemble of projection apparatus and screen. This technological ensemble might be understood as an adaptation and extension of the ‘fusion’ of technologies of rails and locomotive (Schivelbusch, 1986) to incorporate the human experience of the cinema, including its immaterial dimensions.

The railway and supernatural forces

That the human experience of technology incorporates an immaterial dimension seems to infuse period accounts of people’s engagement with them and of post hoc interpretations. Freeman (1999) describes the association between the railway and supernatural forces. He recounts a Chicago resident’s description of railroads as “‘talismanic wands.’ Their power to transform landscapes seemed to draw upon a ‘mysterious creative energy that was beyond human influence or knowledge’.” (Cronan, 1991, in Freeman, 1999, p. 39). Revill (2012, p. 49) describes the experience of rail travel as one of “disembodied flying.” Where viaducts were built to accommodate the requirement of a level track the railway traveller was indeed elevated way above the ground, as if in flight. Period accounts support this imaginative association between travelling on the railway and flying. In A Poet’s View of a Railroad (1847) by Christian Anderson in Railway Readings, the locomotive is likened to a magical flying horse “We feel ourselves as powerful as the sorcerers of old! We put our magic-horse to the carriage and space disappears; we fly like the clouds in a storm, as the bird of passage flies…” (in Revill, 2012, p. 26), while Thomas Carlyle described a railway journey as a
strange experience of whirling through darkness and unknown space on steam wings

(in Jennings (ed.) 1985, p. 212)

The whirl thro’ the confused darkness on those steam wings was one of the strangest things I have experienced. Hissing and dashing on, one knew not whither, we saw the gleam of towns in the distance, unknown towns; we went over the tops of towns (one town or village I saw clearly with its chimney heads vainly stretching up towards us); under the stars, not under the clouds but among them; out of one vehicle then into another, snorting, roaring we flew;—the likest things to a Faust’s flight on the Devil’s mantle; or as if some huge steam nightbird had flung you on its back, and were sweeping thro’ unknown space with you, most probably towards London!

In a pastoral poem of 1846, the railroad itself is described as having wings:

Quit, quit with me this antiquated scene,
and fly on railroad wings to Gretna Green.
(Railroad Eclogues, William Pickering, in Freeman, 2003, p. 38)

And in a letter written in 1830 by Fanny Kemble to a friend (in Jennings, 1985, pp.172-175)93 the steam engine is described as a “curious little fire horse.” Fanny writes:

you can’t imagine how strange it seemed to be journeying on thus, without any visible cause of progress other than the magical machine, with its flying white breath and rhythmical unvarying pace,” After a pause in the excursion she goes on – the engine, with the carriage behind, set off “Swifter than a bird flies, […] you cannot conceive what a sensation of cutting the air was; the motion is as smooth as possible, too. I could either have read or written; and as it was, I stood up, and with my bonnet off ‘drank the air before me.’ The wind, which was strong, or perhaps the force of thrusting against it, absolutely weighed my eyelids down. When I closed my eyes this sensation of flying was quite delightful, and strange beyond description.

93 From a letter of Fanny Kemble to a friend, printed in her Records of a Girlhood. 1878.
Period commentary in the press about the experience of phantom rides points to an uncertainty about whether the train or the spectator was the phantom. In September 1897, The Mail and Express had exclaimed: “The spectator was not an outsider watching from safety the rush of the cars, he was a passenger on a phantom train ride that whirled him through space at nearly a mile a minute.” (Musser, 1994, in Greiveson and Krämer, 2004, p. 94)


In addition to smoothing out the movement and replacing the friction and sound of the train with the flickering of the projected film and noise of the projector, phantom rides from the front of railway engines lifted the viewer above the ground and removed the engine from sight, as if flying. Period accounts of watching phantom rides suggest that the viewer’s awareness of the location of his body in a theatre seat, the proximity of others in the audience, tobacco smoke, and the noise of the projector, etc., is altered to a sensation of his body being moved by external and invisible forces. In his analysis of contemporary ‘ride’ films, Richmond (2016) suggests the viewer experiences a heightened awareness of himself in relation to the worlds on and off screen, a sense of being ‘here’ and ‘there’ simultaneously. As described in Chapter Two, hot air and hydrogen balloon flights were a relatively commonplace entertainment, experienced as an aeronaut for a privileged few, and as a spectator for the remainder. As Oettermann (1997) has shown, observation towers and panoramas in their many and various forms also served this purpose. A sensation of flight was possible on Great Wheels during the period that phantom rides were produced. For ten years, upwards of some two million
people travelled on the Great Wheel, installed for the Empire of India Exhibition at Earls Court, London, in 1895. Film taken from ascending balloons and from Great Wheels were shown. The audience’s familiarity with the sensation of travelling on the railway, in trams and trolley cars, and with the bird’s-eye-view of fairground rides and aerial photographs may have contributed to the anticipation of the sensation of being detached from the ground while watching the film.

Balloon flights offered an adventurous few the actual experience of breaking the bounds of earth, of rising heavenward with no obvious means of flight, the experience was one of being lighter than air, experienced vicariously by the onlookers who were familiar with an imaginary of transcendence. Phantom rides’ popularity coincided with the beginnings of heavier than air flight, and aeroplanes and phantom rides lift the viewer above the landscape and carry the rider forwards. Rather than a view of the horizon, phantom rides, like aeroplanes, offered a race towards it, this sensation increased by the perspective of the rails disappearing into a point in the scene ahead. The rails are a constant in an otherwise changing view, a feature that confirms Phantom Rides’ realism.

The panicking audience and the “headlong rush into space”

Gunning, with reference to the Lumière brothers’ Cinématographe projection of L’arrivée d’un train en gare de La Ciotat, (1895) describes how the phenomenon of locomotives “apparently charging out from the screen” (2010, p. 52) implies new attitudes toward the frame and the spectator. While the car in Hepworth’s film, How it feels to be run over
(1900) does rupture the screen, the locomotive approaching le gare de La Ciotat does not, instead, it passes it by as it slows to a halt. Period accounts though do describe the audience’s apparent perception of the image spilling out from the screen into the auditorium. One of many cited by Bottomore is by Méliès who, in a letter to a friend following a Lumière’s screening recounted the experience: “as the train dashed towards us, as if about to leave the screen and land in the hall” (Méliès, (no date) in Bottomore, 1999, p. 194). The camera’s position on the edge of the platform augmented, in the projected image, the effect of the train seeming to enlarge until it ‘loomed’ over the audience. This apparent movement into and out of the image are recognisable to contemporary viewers as sharing some aspects of Phantasmagoria when spectres appeared to rush at the audience, the projected image shrinking and enlarging as the operator pushed a trolley carrying the lantern back and forth behind the screen.

Bottomore (1999), Loiperdinger (2003) and Gunning (2010) among others, examine the facts and fictions associated with cinema’s founding myth of ‘the panicking audience’ caused by the ‘train effect,’ (terms coined by the film historian and semiotician Yuri Tsivian.) This thesis draws upon Loiperdinger’s argument that viewers did not confuse image and reality, instead, the moving images of film, Life Model slides and portrait photographs offered a fantastic experience of familiar realities (2003, pp. 89–119). Loiperdinger’s insight is that spectators did not want to see reality on the screen, but rather images of reality, which were different from reality.” (2003, p.102) In this case, images showing the rails breaking the edge of the screen/frame serve to separate the viewer from immersion into the projected scene.

183
In a similar manner to that of theatre, the manufacturers and operators of the technological arrangements of photographic studio, Life Model slide shows and film, designed a particular quality of experience that can be associated with the ‘as if’ of make-believe, into the audience’s experiences of them, just as authors and artists designed them into their fictions. Debates about the apparent confusion of perceptual clues experienced by the panicking audiences of films of oncoming trains and the supernatural quality of phantom rides can be considered within a discussion of the experience of ‘as if.’ This term is used in accounts of audience reaction to film during the Early Cinema period and in particular, is a feature of both the screen image breaking into the audience’s reality, (the ‘train effect’) and their transportation out of that reality (phantom rides). This discussion will be extended in Chapter Five which examines Münsterberg’s aims to design an ‘as if’ experience into his experiment to ascertain the competence of motormen for their job.

There is a purity to phantom rides that other period films do not possess. Harrison explains this as a “More nuanced filmic language [that] rendered the physical signifiers of transport — the steam, whistles and fans — obsolete, as audiences learned to vicariously travel through images alone” (2014, p. 189). The projectionist might turn the crank more quickly or slowly to alter the speed at which the train appears to move, or run the film backwards for comic effect, but there is a notable absence of in-frame manipulation of the images, no edits, close-ups, montage, layering, that were devices used to produce illusions of spirits, ghosts, visions and dreams in lantern slides, the film
fantasies and comic sketches of Méliès, with the magician Walter Booth, and Robert Paul, and of Photoplays. The fixed focus and single shot of Phantom Ride mimics the persistence of reality as we perceive and move through it, but from the novel perspective of the unlikely experience of sitting on the front of a locomotive. Clarke and Doel (2005) question just how much of a novelty these films made by attaching the camera to the front of a moving vehicle were. They propose that visual technologies are aligned with those of transport and suggest cinema might be understood as a machine that made it possible to understand space and time as abstractions separate from reality. In their view, the visual experience ‘foregrounded’ the apparatus, and the landscape was seen through the apparatus. This novel perspective that phantom rides afford is often described as the driver for their popularity, but as this thesis suggest, it doesn’t seem to fully explain the persistence of the phenomenon.

Chapter Four has explored the phenomenon of phantom rides, which was one of the experiments of emerging cinema, within the context of the novel experience of film around the turn of the nineteenth century and the audience’s familiarity with a sensation of separation from the earth on railways, fairground rides and vicariously via aerial photographs. The chapter has attempted to show, through a review of period accounts and contemporary scholarship, how the challenges to perception and cognition presented by the actual motion of the railways and the perceptual motion of the moving image were assimilated into a broad imaginary of supernatural as part of the immaterial dimension of human experiences, specifically those of transcendence through an ‘invisible energy.’ Phantom Rides moved the viewer from the position of an accessory to
the images unfolding on screen to being at its core whereas the “vehicular amplification” (Huhtamo, 2013, p. 309) of Hale’s Tours of the World interfered with this transcendent experience, brought the viewer back down to earth, and returned him to the position of a passenger. Phantom rides are significant as examples of the immaterial dimension of human experience through the projection of an unadulterated moving picture of reality. They allowed the viewer to move from seeing spirits to being one. As the next chapter will suggest, Hugo Münsterberg recognised the value of incorporating this immaterial dimension into his experiment for testing the aptitude of motormen for their task and informed his psychological theory of the Photoplay.

Chapter Five: Münsterberg - imaginary images

Introduction

This chapter will consider how an immaterial dimension of human experience was experienced and expressed in the context of nineteenth century engagement with science and technology, through Hugo Münsterberg’s endeavour to formulate a theory of the aesthetics of the Photoplay and his work to apply psychology to the practical problems of industrial and urban life. His thinking about the cognitive and affective dimensions of moving images culminated in a book *The Photoplay: A Psychological Study* (1916). Significant among Münsterberg’s work during this period is his design for an experiment to test the suitability of motormen for the work of driving electric
streetcars. At the core of the experiment was a mechanical device that he employed to manipulate human perception. Its operation not only required the prospective motorman to coordinate hand and eye but to do this while navigating an imaginary scene in which he felt himself to be active.

The chapter will show how Münsterberg’s work helps to explain an immaterial dimension of the experience of the subjects of photographic portrait studios and suggests that the immaterial dimension persists as a quality of the resulting photographs that can be experienced by contemporary viewers. The chapter draws upon methods of media archaeology and a provisional reconstruction of his experimental apparatus to understand how his design thinking about apparatus and images representative of scientific and technological objectivity contributed to his work concerning the moving images of Photoplays. The chapter suggests that Münsterberg recognised in the Photoplay some sophisticated and subtle mechanisms that contribute to the affective and cognitive experience of enchantment. Both the motormen experiment and the moving images of the Photoplay appear to have been deliberate constructions of instability, that through “poetic and creative engagements with the best affective aspects of human consciousness” (Punt, 2018, pp.138–139), resulted in a

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94 Around this time, motormen of the Boston Elevated Railway appeared as defendants in court, and were sometimes found to be accountable for accidents, injuries, and the death of pedestrians and other road users.
synthesis of the technologies of the external physical world and the viewer’s imaginary world. The motorman experiment and the Photoplay also seem to share aspects of the inner logic of Life Model lantern slides and portrait photographs. This chapter contributes to the aim of this thesis that re-evaluates photographic portrait studios as places where the immaterial dimension of human experience could be expressed, and persists as a quality of nineteenth century portrait photographs to be experienced by contemporary viewers.

The discussion in Chapter Four explored how phantom rides evoked an experience of transcendence that was described by some period viewers as ‘as if’, and how this was confused by the attempted realism of Hale’s Tours of The World. This chapter will continue the discussion of the affective and cognitive dimensions of Life Model lantern slides, phantom rides, and Hale’s Tours through an analysis of Münsterberg’s design for an experiment that would represent the complexity of the motorman’s task. Period audiences were familiar with syncretic depictions of the world and supernatural and spiritual dimensions of human experience, through stereoscopes, Life Model slides, the films of Méliès, Robert Paul and others, photographic portrait studios, and, in the popular press as entanglements of fiction and ‘fact’. The chapter will extend the discussion of the affective and cognitive dimensions of ‘as if’ through Münsterberg’s schematic representation through lines, symbols and colours, of the reality of the motorman’s work, that he intended would provoke a response ‘as if’ they were driving an electric railway streetcar.
This discussion in this chapter falls broadly into two parts, (i) the motorman experiment and (ii) The Photoplay: A Psychological Study. Bruno (2009) noted the interaction between Münsterberg’s film theory and his experimental psychology might be more thoroughly considered. They have in recent years received increased attention in academic scholarship but still in most cases as separated aspects of his work. Münsterberg’s thinking about inner and outer worlds of human experience is a thread through the following discussion, as it was through his work on the design for the motorman experiment and the development of his psychological theory of the Photoplay. These sections will be preceded by a brief biography of Münsterberg’s education, work and philosophical thinking, which offers insight into his work and his aims for its application. The discussion will draw upon Münsterberg’s own accounts of his work, his commentary upon contemporary concerns and his theoretical writing, plus, his conversations with colleagues in letters and reports of meetings and articles about Münsterberg in the popular press. Secondary material is drawn from histories of moving images and early cinema, and applied psychology, in addition, the chapter reflects upon insights gained from a provisional reconstruction of the apparatus designed for the motorman experiment.

Biography and public persona

Hugo Münsterberg (1863-1916) was born and educated in Germany. He satisfied his businessman father’s hope that he was “of the material [that would allow him to rise] above the average of the general mass” to “become a useful member of society.” He
graduated from the rigid hierarchy, disciplined and bureaucratic academic structure of
the Gymnasium to gain a place at university and access to Germany’s cultural, social,
and political elite (Hale, 1980, p. 15). In this education system, success or failure at
each stage defined the students’ place in the world and goes some way to explain
Münsterberg’s philosophy, that informed his Psychotechniks, that society is best served
if its citizens are assisted to find the job that best fits their pre-determined place and
ability. Psychology, Münsterberg argued, could reveal an individual’s ‘best fit.

At Leipzig university he studied medicine and psychology with an international
community of students in Wilhelm Wundt’s laboratory. Wundt’s methods were based
upon the premise that physiological processes could explain simple mental states, but
that higher mental states, such as acts of will or reason, could not be analysed through
psychological experiments (Hale, 1980, pp. 21–22). Münsterberg used much of his time
at the laboratory to challenge Wundt’s doubts. The resulting thesis (which was not the
one that he submitted for his degree) contributed to his obtaining a junior position as
Docent at the University of Freiberg where he lectured on the philosophy of natural
sciences. He also developed his experimental psychology and aesthetic and
philosophical ideals in his own laboratory and published accounts of his work and
ideas. These, often lengthy, texts provoked a negative response from some of his

95 Hale (1980, p. 23) notes that within a few years its reputation was comparable to Wundt’s
state-funded and longer established laboratory.
peers who found his methods and interpretation lacking in detail and scholarship and his claims somewhat speculative rather than measured and reasonable, a foretaste of the response to his work by some in the academic establishment and popular press in America during his later years at Harvard (Hale, 1980, p. 23). Despite these negative responses in Germany, he gained a more positive reputation in the Anglo-American scientific community, eventually moving to Harvard University in 1895 at the invitation of William James, to direct the development of its Psychological Laboratory into a first-class faculty.

Psychotechnics and Psychophysics

Münsterberg’s interest in psychophysics, which he developed as a student at Leipzig and early in his career at the University of Freiberg 96 appear to have informed the designs of his experiments to resolve practical problems in the industrial and business worlds of north-eastern US. These were a world away from the photographic portrait studios of provincial Britain but, when considered alongside Life Model lantern slide shows and the Phantom Ride phenomenon, they offer insight into the studio experience and viewers’ reception of portrait photographs.

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96 Where his thesis to satisfy the requirements of the university that he was fit to lecture was titled ‘Will activity, a contribution to Physiological Psychology.’ (1887)
Münsterberg was instrumental in drawing out psychology from philosophy during a period when the work of the laboratory was increasingly impacted upon by the problems of society. His experiments tended towards the stimulus and response of Behaviourism, seen in the design for motormen experiment, he combined this with interest in the workings of what he describes as our inner lives. He grappled with the problems of the compatibility of Romantic notions of soul and scientifically determined theories of mind. In addition to giving lectures, laboratory work and duties associated with his directorship of the Harvard Laboratory, he was a prolific writer in German and English and engaged directly with a non-academic audience through his public lectures and writing, producing numerous and often opinionated articles and letters about the application of psychology to what he perceived as ‘life’s problems’ in the American popular press. Goldman describes Münsterberg’s concern for individual well-being and through it the benefit to society (Goldman, 1918, p. 117). His belief in a hierarchy of naturally endowed intelligence that appears to have persisted throughout his life was the foundation of his attempts to resolve the problems of society. These, he believed, occurred when people did not follow the path determined for them by their place in this hierarchy.

Münsterberg along with colleagues, including Joseph Jastrow and William James, investigated the so-called spirit and other-worldly phenomena of mediums and attributed them to psychologically induced physiological effects (and vice versa according to Münsterberg (Drayson, 2018, p.148)). He engaged with public debates about supernatural phenomena, spiritualism, psychics and mediums. For Münsterberg, the practice of science (and within it, psychology) and spiritualism intersected
(Blassnigg, 2009, p. 99). Both claimed direct engagement with the most intimate elements of self, typically, through a mediating apparatus. In her discussion of aesthetics, science and moving images, Bruno (2009) describes a continuity of the spaces of laboratory and cinema. This continuity might be extended to the spaces and apparatus of psychical activity, and even to photographic studios (as will be discussed in Chapter Six.) Experimental psychology required especially constructed processes, equipment and spaces in laboratories and clinics. Spiritualism developed performative rituals and equipment that were typically used in modified spaces.\textsuperscript{97} Münsterberg’s professional interest in the science of image making and psychic affect, which extended to the movies, took place in the Harvard laboratory alongside his application of psychology to corporate and industrial imperatives and to the ‘problems’ of everyday life encountered by the working man.

The Harvard Laboratory
Münsterberg was not trained as an engineer or a technician, however, he was familiar with the construction and operation of finely engineered apparatus and optical instruments in both his professional life and for personal pleasure as a photographer.

\textsuperscript{97} Some, such as drawing apparatus were used in both practices. Münsterberg’s visit to the home of the child phenomenon the Fox sisters was unusual at the time in that it took psychological analysis out of the laboratory.
Münsterberg describes the process of designing the motorman apparatus as one of an iterative process of trial and adaptation but considered it necessary if he were to construct the ‘special apparatus’ needed to test “as a whole the mental process demanded by industrial work” (Goldman, 1918, p. 117). It is not always apparent from the literature or accepted histories of laboratory work that creativity and innovation were significant elements of psychological experiments that were sometimes made of everyday materials, and that experiments themselves were often experimental in their design and application and as such were not fully documented as might be expected. Harvard laboratory students did sometimes make their own apparatus using items from previous experiments, so this one too may have modified features and recycled parts from other apparatus. As Schmidgen (2008, p. 1) describes, it is quite possible that Münsterberg was party to the construction of apparatus in an artisanal process of making from imagination in a role of ‘creative experimenter.’

The Motorman Experiment

The commission of the experiment

Münsterberg was proactive in approaching industry. His involvement in discussions regarding the ‘problem’ of the elevated railroads were not, to begin with, exclusively concerned with The Boston Elevated Railway Company which provided the subjects for

98 He produced accounts of other experiments using ready-made items, such as the daily newspaper, in his tests for telephone switchboard operatives.
Neither was he the first or only psychologist to apply psychological tests to the problem of selecting suitable candidates for the job of driving street cars. In 1908 the French psychologist J.M. Lahy collaborated with the Compagnie des Tramways de l’Est Parisien (Burnham, 2009, p. 69). Science-Supplement provides a brief account of "Special laboratory tests by which it may be possible to pick out the man who has the makings of a safe and efficient street-car pilot" devised by a Dr Morris S. Viteles, of the University of Pennsylvania. The report also refers to "elaborate testing machines in a new laboratory in Paris "that features "a realistic reproduction of a street car."

Münsterberg in his usual self-assured manner pronounces his experiment a success. Although in his report to the American Association of Labor Legislation upon which his published account is based, he is concerned to point out that the experiment was in its initial stages and further work needed to be done. Münsterberg refers to the experiment as a game and describes how he provides time for the participants to learn the moves.

99 Münsterberg’s work on the motormen problem took place a few weeks following a meeting of The American Association of Labor Legislation regarding concerns to prevent accidents on street railways. At the time of the experiment the Boston Motormen were engaged in industrial action (Spring 1912, but industrial action was widespread during this period), so it might be wondered, who amongst the motormen would have been willing to take part in an experiment that would potentially determine their individual competence to do the job.
and rules through practice. In effect he allows them to learn how to play the game. He claims that the motormen tell him they feel ‘as if’ they were driving the car.

Münsterberg refuted reports of the use of film projection in his laboratory and referred to his own late appreciation of the Photoplay. Yet his daughter writes of the occasion of his birthday in June 1912 when "he had just taken his family to the moving pictures of *Ramy’s Hunt in Africa*, which had a particular charm for him" so it seems reasonable to suggest that he would have been familiar with travel documentaries that often included phantom rides. Although phantom rides would not have been considered by Münsterberg as Photoplays as they lack the “conflict of will” that he describes as a key characteristic of a Photoplay (Münsterberg, 1916, in Langdale (ed.) 2013, p. 141) they do share the “elementary excitements” of the viewers’ minds which is not exclusive to the experience of Photoplays. In *The Photoplay: A Psychological Study* he explains

... the apparent movement [of the moving pictures] is in no way the mere result of an afterimage and the impression of motion is surely more than the mere perception of successive phases of movement. The movement is in these cases not really seen from without, but is superadded, by the action of the mind, to motionless pictures. ([1916] 2013, p. 77)

The Motormen Apparatus was intended to invoke mental images of the motorman’s view from his cab, one that would have been much like the moving images of Phantom Ride. Münsterberg wanted to foreground the imagination of the subject in a creative production of a 'mental' film. And as a mind-film analogy this thinking is carried through to his discussion of the creative process of the writer of Photoplays (Fredericksen, 1977,
p. 256) who, he states, should not try to emulate theatre or novels but to use imagination to remodel life itself through the medium of film.

According to Münsterberg’s experimental design, the subject is asked to draw upon his lived experience to project (prompted by the code) upon the material present (the apparatus) a potential future consequence of his actions. Goldman praises Münsterberg’s method and intention for the experiment (p. 118, 1918) as it attempts to model through schema the complexity of the task in recognition of the ‘unity’ of ‘psychical factors’ affecting the motormen in their work. It seems that Münsterberg was conforming to the then prevalent idea of considering man as if he were a machine component, and as if he were functioning as a complex machine.

Accounts of the experiment

Münsterberg's activities, including his work on the motorman experiment, were widely reported in the popular press. A newspaper account (The Chicago Examiner, 20 April 1913) of psychological tests, including those for the Telephone Company, and for the Boston Elevated Railway Company\textsuperscript{100} which contributed to Münsterberg's 'Plan for Finding the Right Place for Every Man' included an illustration of the reporter's impression of the apparatus labelled "How the Candidate for Motorman Uses the Card

\textsuperscript{100} The Chicago Examiner. 20 April 1913. The article also hints that Münsterberg was working on tests to ascertain the quality of decisions in ship's [sic] officers prior to the Titanic disaster.
in the Test. The Rows Appear Through a Window in a Black Band. Quickness in Picking Certain Fixed Numbers Determines His Fitness. The article also provided an illustration labelled "The card Devised by Professor Münsterberg, Which Tests the Elements of the Mental Functions of the Perfect Motorman."

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\[101\] Popular Science Monthly (December 1930, p. 48) stated "When the Boston Elevated Railway recently discovered that more than half its accidents were caused by only twenty-seven percent of its men, it inaugurated a novel series of psychological tests to find the reasons for the troubles of the small "accident prone" group." The item includes two photographs of testing apparatus, one appears to be situated in a laboratory, the other shows a motorman in uniform standing on a replica platform of a train cab where he is required to respond to "signal lights mounted upon the laboratory wall" by working a dummy controller and air brake. This account states that railway officials devised and ran the tests. (Comment here about the integration of psychological testing into industry? and the continuing public interest in the work of psychologists.) Münsterberg's book – Psychotechnics publication well known. Aptitude tests for prospective motormen continued to be reported in academic, industry and public arenas at least up until 1930.
Münsterberg provided a detailed account of the design of the experiment, the apparatus and its operation, and his methods for evaluating the subjects’ performance and therefore suitability of his subjects to be employed as motormen.

As soon as this principle for the experiment was recognized as satisfactory, it was necessary to find a technical device by which a movement over this artificial track could be produced in such a way that the rapidity could be controlled by the subject of the experiment and at the same time measured. Again we had to try various forms of apparatus. Finally we found the following form most satisfactory. Twelve such cards, each provided with a handle, lie one above another under a glass plate through which the upper card can be seen. If this highest card is withdrawn, the second is exposed, and from below springs press the remaining cards against the glass plate. The glass plate with the cards below lies in a black wooden box and is completely covered by a belt 8 inches broad made of heavy black velvet. This velvet belt moves over two cylinders at the front and the rear ends of the apparatus. In the centre of the belt is a window 4 1/2 inches wide and 2 1/2 inches high. If the front cylinder is turned by a metal crank, the velvet belt passes over the glass plate and the little window opening moves over the card with its track and figures. The whole breadth of the card, with its central track and its 4 units on either side, is visible through it over [p. 72] of 5 units in the length direction. If the man to be experimented on turns the crank with his right hand, the window slips over the whole length of the card, one part of the card after
another becomes visible, and then he simply has to call the letters of those units in the track at which the red figures on either side would land, if they took the number of steps indicated by the digit. At the moment the window has reached Z on the card, the experimenter withdraws that card and the next becomes visible, as a second window in the belt appears at the lower end when the first disappears at the upper end. In this way the subject can turn his crank uninterruptedly until he has gone through the 12 cards. The experimenter notes down the numbers of the cards and the letters which the subject calls.\textsuperscript{102}

Analysis of the design of the experiment

Münsterberg designed into his apparatus the means to experience the familiar world in an imaginary form. He expected that the subject’s recall of the busy streets of Boston would be projected as a mental image upon the abstracted street scene and hazards as he engaged with the mechanism which moved the window along. Later, he described the Photoplay audiences’ perception of reality as if, on occasions, the screen were a window, “as if he looked at real space through a piece of glass” (Fredericksen, 1977, p. 123, and p. 117). This interpretation implies they could observe the world but not act in it. The design allowed the subject to control the speed of the mental images of himself moving forwards along the tram tracks, to be actively engaged with the scene by turning the crank rather than as an observer of it, and to be intently focused upon the card

\textsuperscript{102} Münsterberg’s account of the apparatus

http://psychclassics.yorku.ca/Munster/Industrial/chap8.htm

He dedicates a Chapter in his Applied Psychology to his own account of the experiment, which closely follows his report to The American Association of Labor Legislation in May 1912.
through the window, just as he would be anticipating the potential hazards as he drove the car along the street. On the one hand, Münsterberg designed an experiment that would take place under laboratory conditions, where extraneous stimuli would typically be eliminated. On the other, he designed uncertain variables into the experiment by allowing each individual motorman’s imagination, memory, expectation, and familiarity to influence their response. The thesis suggests that the motorman apparatus is a significant example of the “tellingly cinematic” design of the “Haptic instruments of inner absorption” described by Schmidgen in his archaeology of the psychological laboratory (2009. p 109). Later, in *The Photoplay: A Psychological Study*, this imaginary reality appears to be part of his thinking about the moving images of film: “the act, which in the ordinary theater, would go on in the mind alone is here in the Photoplay projected into the pictures themselves.” (p. 90) and later in the text, the “pictures reveal to us our own imaginative play” (Münsterberg, 2016, in Langdale (ed.), 2002, p. 179)

Goldman described Münsterberg’s work on this experiment as “[a] study of individual differences” that contributed to “the most important advance towards the practical application of psychology” (1918, p. 116). The apparatus, that was one part of a technological arrangement that incorporated a human subject and an experimenter, was intended to enable scientific objectivity.
Whether or not the apparatus was built, or the experiment took place, Münsterberg was concerned with the realism of imaginary images, and the subject’s experience of collaboratively, with technology, creating and acting in those images. Münsterberg abstracted the key elements of the motorman's task in his design for the experiment. He rejected the option of using mocked up street cars (in the manner of Hale's Tours), or of asking them to watch a phantom ride filmed from the driver's cab, (as were used in other experiments and training exercises.) Instead, he presented them with what might be described as an outline which the participant would fill in with movement, colour, and detail to create an individually imagined reality and of themselves acting in that reality.
He expected they would imagine the scene and their movement through it sufficiently well to be able to identify the coded hazards as if they were real.

It is possible in a post hoc interpretation to read similarities into the design of the experiment and the technological arrangement of film. Münsterberg wanted his experimental subjects to identify with a reality of their own making and in this sense “the emotion of cinema had been “instrumentally” present in his laboratory.” (Bruno, 2009, p. 90). The temporal dimension of the experiment, that is, the time it takes for the prospective motorman to complete the journey, in the context of the experiment and its encounters with potential hazards, is measured by the coded grid on the twelve cards. The motorman controls the action, which would not be possible if he were watching a film, whereas the temporal dimension of the experiment is segmented by the grids and the mechanics of the apparatus, in the manner of a film strip running through a projector gate when frames and shutter blades perform this slicing up of time and movement. The prospective motorman, experimenter, apparatus and context operated as a technological arrangement which produced an affective state that this thesis calls enchantment.

Münsterberg appears to have determined that the moving images of film were unsuitable for the purpose of this experiment, (later, in The Photoplay: A Psychological Study, he explains that its characteristics isolate it from real experiences and responses (Fredericksen, 1977, p. 89)), and so devised a method which through the abstraction and coding of the subjects' known reality, would invoke an imagined one that he
expected would engender the response from the motorman upon which the evaluation of his aptitude depended. The mechanism of the apparatus, which has only symbols standing in for moving images allows the active viewer to 'see' in his ‘mind’s eye’ (Ferguson, 1992) images that are familiar to him and as if he were in motion. The schema, for Münsterberg, was sufficient, with prior instructions of the meaning of the codes, to provoke an ‘as if’ response.\textsuperscript{103}

This discussion above has examined what seems to have been, at least in part, a thought experiment centred upon an apparatus designed to stimulate individually specific imaginary scenarios and response. The description and analysis of the design and use of the apparatus, as recounted by Münsterberg, is considered in the context of his early encounters with the moving images of film and his experience of cinema. He describes being “under the spell of the ‘movies’” (The Photoplay: A Psychological Study, 1916, p. 172). The provisional reconstruction of the apparatus offered a means to gain insight into the ideas and influences that created it. And into the enchantment affect the experiment was intended to provoke.

\textsuperscript{103} This experiment might have contributed to Münsterberg’s beginning to determine the extent to which imagination was a factor in engagement with the cinema and indicates that he might have begun working out his theories related to the Photoplay three years earlier than existing accounts propose.
The design facilitates a participatory enaction and engagement with the apparatus. The prospective motorman was attached to the apparatus through his hand grip upon the crank. The moving parts of the machine are operated by his physical action. He is also connected visually through the necessarily attentive looking at the coded grid. The experimenter listened to and transcribed the subject’s call and responded to his actions. He was also physically connected to the machine through his grip upon each of the twelve cards in turn to remove it when the window has reached the ‘Z.’ Although the experimenter’s ability is not considered in Münsterberg’s account of its design, he is too a subject in a collaborative perception-response test and the results of the experiment were dependent upon the collaboration of the subject and the experimenter.

There is a curious similarity in its operation to that of magic lanterns and/or slide projectors (replacing one card with another) and film projectors (a belt running over two cylinders carrying a ‘little window opening’) combined. The design of the apparatus means that only the subject can look at the card through the window and view the mental images invoked by the schema, whereas viewing images projected onto a screen can be a shared experience. The apparatus, experimenter and subject might be described as an extended machine ensemble (Schivelbusch, 1986) in the manner of phantom ride.

The illusion of movement of the streetcar moving forwards that Münsterberg intended to replicate is not produced as a sequence of images viewed through a fixed screen, or multiple apertures in a disc or cylinder such the mechanisms of Zoetropes and
Phenakistoscopes, where both the apertures and the images move in synchrony. Rather, the ‘windows’ in the black velvet band are moved across a sequence of ‘images.’ This means of producing the perception of movement appears to be a reversal of the mechanism of the Antirrheoscope, an apparatus with which Münsterberg was familiar. In his accounts of experiments concerning the perception of continuous motion he emphasised the significance of the viewer’s imaginative participation by which his mind ‘fills in’ the gaps between a series of separate positions. He extends this conclusion to explain the not only the viewer’s perception of a continuity of depth and movement from the projection of a sequence of separate images printed onto a strip of film, but also the perception of “a whole that is greater than the sum of its parts” (Fredericksen, 1977, p. 131) which is an essential component of the experience of watching a Photoplay.

Depth and movement alike come to us in the moving picture world, not as hard facts but as a mixture of fact and symbol. They are present yet they are not in the things, we invest the impressions with them. ([2016] in Langdale (ed.) 2013, p. 78)

In order to throw the moving pictures that so delighted Münsterberg onto a screen the mechanism of the projector moved a series of photographs across a stationary

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104 Münsterberg had previously used at least one apparatus involving a moving belt. Harvard University’s Collection of Scientific Instruments contains an example from his laboratory: the Antirrheoscope, (or Waterfall Illusion) described by Schmidgen (2009, p. 105) has a mechanism which moves a belt that is visible through a window, the window itself is stationary.
‘window.’ But Münsterberg did not want the subject to only see moving pictures, he wanted the subject to feel as if he were moving with the potential to act to affect the events that would unfold. He explained that we “perceive the world just as far as we are prepared to react to it…” (Hale p. 82) This interpretation of the perceptual quality, that Münsterberg describes as a consequence of the viewers mental investment as a collaborator in a technological arrangement, can also be applied to the examples of Life Model slides, phantom Rides and to photographic studio portraits. And as he draws out in *The Photoplay: A Psychological Study*, through the collaboration with the affective quality of the images on screen and the outer world of technology. (Fredericksen, 1977, p.105)

Fredericksen (pp.168-169) draws attention to Münsterberg’s thoughts about the practical advantages that film directors have over theatre directors: they can select the ‘actors’ for their best fit to the role they play, rather than be constrained by their technical ability, to project their voice to the back of the auditorium, for example. Münsterberg claims that the natural fittingness of the actor to his role makes them more credible and promotes the audiences’ empathic response, rather than the over-compensation of the caricatures typical of actors in theatre. But he also talks about the audience’s response to the emotions of the actor played out on screen and significantly, that these are individual and subjective responses rather than simple imitation. “He responds from the standpoint of his independent affective life” (Fredericksen. 1977, p. 175). These individual and subjective responses appear to have been what Münsterberg was aiming for in his design of the motorman experiment.
The Photoplay

imagination, that magic glass
That colours all the pictures of the brain
With bright enchanting hues
(in Old Age by: Mrs. C. B. Langston, c1870s)\textsuperscript{105}

Münsterberg’s encounters with the moving images of Early Cinema would have been multi-media and multi-sensory experiences involving commentary and music, and for all his apparent concern for the ‘purity’ of the Photoplay as an ‘independent art,’ sound and music and the audience’s participation would have accompanied the moving images while text intertitles were embedded between the filmed action.

The Photoplay: A Psychological Study was published in New York in 1916. Part One: The Psychology of the Photoplay relevant to the themes that run through this thesis. In it, Münsterberg addresses some of the themes that have been considered in the chapters above and to follow, including depth and movement (and its opposite state of stillness,) memory and emotion (the empathy of Life Model slides,) attention (the heightened awareness and concentration of enchantment) and imagination. He was especially concerned with the psychology of the audience’s engagement with the narrative films of Photoplays that he recognised as a new art, distinct from

\textsuperscript{105} http://www.blackcatpoems.com/l/old_age.html
theatre. However, Münsterberg recognised, despite his claims for its independence, that the Photoplay derived some of its elements from theatre.

Münsterberg aligned film techniques, of double exposure, composite images and dissolves, cutting and splicing the film strip to the cognitive states of attention, emotion, empathy, memory, and imagination. He explained that the viewer’s mind actively engaged with these techniques to produce temporal and spatial effects, to manipulate and disrupt space, time, movement and depth through flashbacks. These states are constructed from mental ‘objects’, inner world ‘images’ that are as ‘real’ as the objects in the outer world. Film takes this inner world and projects it onto a screen for all to see.

The film allows the viewers to inspect through the ‘close-up’ the expressions of actors, and of objects. As Fredericksen explains, “a hand carrying a dagger, after a full-shot of the room in which the man holding the dagger is located, signals a change not in the outside world, but inside our mind” (1977, p. 28). It provokes a change in the intensity of our attention to the action played out on the screen. This might be interpreted as an example of the continuity of his thinking through the motorman experiment and the Photoplay, the technique of the ‘close-up’ projects onto the screen a subjective inner process of attention. The composite images and dissolving views of Life Model slides

106 Fredericksen (1977) explains that The Photoplay: A Psychological Study was Münsterberg’s attempt to confirm film’s aesthetic as distinct from theatre but of equal status, and as an “independent art.”
might also be understood as prompting the subjective inner processes of the minds of their viewers, for example, to evoke the thoughts, memories, and dreams of the protagonists in the stories. This subjectivity is important as it might go some way to explain the generality of locations and the anonymity of the key figures in the narrative. Münsterberg was concerned to separate the emotions of the viewer from the emotions portrayed in the action on-screen (Jarvie, 2018, p.11), a recognition of its unreality.

For Münsterberg in *The Photoplay: A Psychological Study* and *The Eternal Values* (1909) he talks about an inner life and an outer life. In *The Photoplay: A Psychological Study* he describes how his psychology has allowed him to examine the mental objects of the inner world “the elements of ideas, of affectations, of feelings” that are as real as the objects of the outer world that science examines (Fredericksen, 1977, pp.73-74). In terms of the aesthetic value of the Photoplay as an art in its own right, with its own will and internal logic “a realm in which a mental, emotional logic reigns” (p. 244). Fredericksen explains for Münsterberg that we shouldn’t expect the particular quality of the Photoplay to exist in science but accept it as a “shimmer of reality” (p. 84)

Although Munsterberg was averse to musical accompaniment to Photoplays, he described them, as he did music, as having the ability to “overcome the outer world and the social world entirely, they unfold our inner life, our mental play, with its feelings and emotions, its memories and fancies, in a material which seems exempt from the laws of the world of substance and material” (1916, p. 169). In his design for the motorman experiment Münsterberg is concerned to promote the individual motorman’s experience.
In his discussion he accommodates the individual’s subjective experience of film and sees a continuity between mind and experience that is amplified in a particular way through the cinema experience, (one that might be described as an enchantment.)

The Photoplay’s Unreality

The massive outer world has lost its weight, it has been freed from space, time, and causality, and it has been clothed in the forms of our own consciousness. The mind has triumphed over matter and the pictures roll on with the ease of musical tones. It is a superb enjoyment which no other art can furnish us. (2016, p. 190)

For Münsterberg, the aesthetic value of the Photoplay is a subjective interpretation characteristic of an inner world rather than an objective explanation characteristic of the outer world (Fredericksen, 1977, p. 180) On entering the picture palace, Photoplay audiences literally and in their imaginative experience of it, step from an outer world to an inner world, the subjects of studio portraits did the same. The appeal of the Photoplay and of portrait photographic studios, life model slides and portrait photographs, is their mimicry of the inner world, where the laws of the outer world do not apply and need not apply for that world to be comprehensible. These things are part of life/within life – but separate from it. Our interaction with them bridges a gap between outer life and inner life. The motorman experiment depended upon his ability to connect these two through action, although the inner world of experience can be self-contained and does not need to be explained in the outer world, simply experienced. This produces a certain harmony which as the discussion in Chapter Seven will show, might be described as enchantment.
Münsterberg talks about a doubling that occurs where the mind—the viewer's inner life in combination with and accommodating knowledge and understanding of their outer life. In a discussion about the perception of depth in the moving images of The Photoplay, he talks about the contrast between the viewer's knowledge of what they see and their impression of it (Brain, 2012). The viewer's emotional attachment is not immersion, or a willing suspension of disbelief though, it is as strong an affect but still separated by awareness of its framing, the technical arrangement of which it is part that includes circumstances of viewing, the permission of the settings and conventions, and the awareness of the limitations of the technology and attempts to ameliorate these.

For Münsterberg, art and science transform reality in different ways and for different purposes and it is the combination of those transformations that are found in the experiences of film, lantern slides and photographs. The project of Life Model slides was to provoke change in the viewers' thought and action, their compassion and emotion, through their empathising with the characters portrayed. Münsterberg states this is not the case with the Photoplay, if action occurs it is a 'side effect' (Fredericksen, 1977, p. 181). The empathy of the Photoplay is to be held within the experience itself, the psychological experience.

As if

The psychological experience of cinema has been described in terms of being in a state of double consciousness. Münsterberg's understanding of this state as one that could
be experimentally produced (Brain, 2012, p. 333). He refers to it in his design of the motorman experiment as an ‘as if,’ experience, that is, to not to be engaged so completely as to forget one’s position in reality, but sufficiently engaged to react, or empathise ‘as if’ one were in the position of the screen actors, or in the case of the motorman to act and react ‘as if’ he were encountering hazards in his progress along the street. Münsterberg describes this as a ‘peculiar oscillation’ of attention bringing together the ‘outer world’ —in cinema our attention is upon the succession of images—and the ‘inner world’ of our minds, rather than as a double consciousness. ‘As if’ combines two systems of reality and is simultaneously a duality of awareness (Brain, 2012). The schematic representation of the streets of Boston was, according to Münsterberg, a representation sufficient for the viewer’s imagination to ‘see’ mental pictures of the real world and to respond as if they were, moving through it. In the apparatus this appears to be represented by the movement of the window away from the viewer, this movement of the black velvet band standing in for the forward movement of the tram. All the while feeling ‘as if’ the images are the things they represent while knowing they are not and marvelling at our experience and response. The photoplay’s inner logic and its ability to connect the inner and outer world of experience are a continuity of some aspects of the motorman experiment and of the portrait studio photographs in their bringing together material and spiritual dimensions of human experience.

For Münsterberg, the essential elements of the Photoplay are its unreality and its inner logic. The unreality, as he explains it, does not inhibit the viewers' engagement and
emotional response to the film. As the examination of the motorman experiment has shown, he was thinking about the extent to which he could abstract from reality a schematic representation that would still produce in the subject an empathic response (and action, as if real) that he explored more fully in his analysis of the experience of watching a Photoplay. In *The Photoplay: A Psychological Study*, he explains that the viewer’s knowledge of the flatness of the image or the artificiality of the film mise-en-scène; the sets and costumes, does not prevent the viewer from responding to the moving images as if they were real. A similar function might be attributed to the homogeneity and internal logic of photographic studio mise-en-scène: the backgrounds and props, and to the unrealistic and archetypical settings for the characters and the ‘action’ of Life Model lantern slides. They contribute to the unreality of an image ‘from life’ but one that is modified to allow the viewer to engage and respond to it with the emotion and empathy that Münsterberg attributes to the moving images of Photoplay.

Phantom rides have a different sort of reality, they lift the viewer onto the front of a locomotive, a position that evokes an experience of flying and of physical detachment from the material world. In addition, the separation of the phantom ride from daily life was enhanced by the framing of the screen in the dark space of the theatre or fairground marquee, and within the programming of variety and vaudeville shows as Chapter Four has discussed. Hale’s Tours might seem to have attempted to contribute to a sense of immersion in the reality of travelling on a train, but instead, the sounds and movement emphasised the unreality of the experience. (See also Fredericksen, p. 267)
Münsterberg’s account of the experiment and his psychological theory of the Photoplay indicates that he recognised the deep co-ordination of the technological and the perceptual that Gunning (2012, p. 497) describes as producing an intangible quality of experience. This was an essential element of a design which required the participants to experience the ‘as if’ (the term Münsterberg used) of imaginary images. Rather than a visual effect the machine produced a perceptual effect. Gunning, (2012, p. 497) One that in the context of the thesis could be described as an enchantment.

Although Münsterberg's thinking about the psychology of the Photoplay differs from some of the characteristics of enchantment that will be explored in Chapter Seven, there are elements found in the detachment from mundanity, heightened attention, the unreality or internal logic and the heightened emotion, that are features of both. Through the insights that have been drawn from the process of creating a provisional reconstruction of the experimental apparatus and through a reading of Munsterberg’s psychology of the Photoplay, it is possible to suggest that the motormen experiment and the Photoplay might be understood as vehicles for enchantment, and that enchantment was ‘designed in’ to the experiment and to this particular form of moving images through their enabling of an experience of ‘as if’. Whether or not the design was part of a thought experiment, in its form and operation, together with the user’s imagination— their inner world—it performed a mechanical-physiological mediation of reality.

Conclusion
Munsterberg’s concern with a subjective inner world of experience and its association with an external 'real' world, is implicit in his motorman experiment which was a mechanical device which was employed to manipulate human perception by not only coordinating the hand and the eye but also with an imaginary scene in which the operator felt himself to be active.

The discussion above has explained how for Münsterberg in 1912, the moving images of film was unsuitable for the motormen experiment that needed for its project to invoke an individually imagined reality of the experiment subject. Through their operation of the apparatus, Münsterberg asks his subjects to play at cinema, to be both projectionist and viewer simultaneously, to run a film ‘in their heads.’ In his design Münsterberg seems to have used the materials of everyday life to demonstrate a unity of mind and body, and matter and spirit.

In the context of this thesis which examines a constellation of visual media forms that demonstrate a continuity of experience, the enchantment of the Photoplay is in its bringing together of matter and spirit in a particular form of photography. In this context this chapter has examined Münsterberg’s thinking about the appeal of the Photoplay and his design for an experiment which appears to set up through an abstraction and coding of the subjects’ known reality, the possibility of an imagined one. In this way the chapter contributes to the thesis’ contribution to understanding nineteenth century studio portraiture as an immaterial dimension of human experience.
Chapter Six: The Portrait Studio Mise-en-scène - enchanted studios

Let me turn over the leaves of an album, and describe one or two of the pictures contained therein.

No. 1. A portrait of a lady in an evening dress, walking on the seashore; in consideration of her thin shoes, that part of the sands on which she is standing is carpeted.

No. 2. Represents a veteran photographer standing on a terrace. The terrace is carpeted. And on it stands a pedestal and column, round which is festooned a curtain elaborately tied up in various places with cord and enormous tassels. The distant landscape is delicately and well done but adds force to the absurdity of the curtain in the open air.

No. 3. A gentleman standing before a profile balustrade and pillar, with landscape behind representing distant mountains the light on the figure is from the right, that on the balustrade from the left. The shadow of the column falls on the distant mountains, which are much more clearly defined than the head of the figure.

No. 4. A lady reading at a window but the light comes from the opposite direction the shadow of the window curtain falls on the sky.

No. 5. Represents a gentleman with a gas chandelier, globes and all, sprouting out of the top of his head.

(H.P. Robinson, 1869, *Pictorial Effects in Photography*, p. 105)

The discussion draws on accounts throughout the period with more from the early period and then the 1870s by which time studios were a familiar part of the commercial landscape. The spectres under the blue light of the early years of portrait photography set up an imaginary in which the possibility of a supernatural encounter was a feature. Spiritualism capitalised upon this imaginary, but it fed through into literature and
illustration. Just as literature and illustration informed the mise-en-scène of the portrait studio. Their syncretic landscapes and the supernatural imaginary within which they operated spilled over into life-model slides.

Chapter Six will examine the syncretic mise-en-scène of nineteenth century photographic studios and the multi-layered experience of having one’s portrait made in their mixed realities. The chapter will explore the seemingly paradoxical combination of the scientific realism of the camera technology with the anti-realism of the painted backdrops and paper-mache props, and the affective and cognitive dimensions of the sitter’s experience. The discussion will further the argument this thesis makes for an immaterial dimension of engagement with technology, of material’s ‘other,’ by showing how the mise-en-scène of nineteenth century portrait studios is an example of the photographers and subjects’ creative collaboration in a modification of the technological process of having one’s photograph taken, one that enabled the emergence of these intangible qualities.

The portrait photographic studio was for the nineteenth century public one of the sites of their primary engagement with the practice of photography. As such, it is significant among those discussed in the previous chapters which evidence the continuity of experiences whose technological arrangements were designed to draw the audience into a world that was familiar to their daily experience, but one which contained an immaterial dimension. This is represented as a syncretic reality in which the resulting enchantment imbued the images with a quality that endures and can be experienced
now. The thesis’ aim is to understand the mise-en-scène of nineteenth century studio portraiture in order to explain the particular quality of the photographs as we encounter them now, that demands that they be kept.

The first part of the chapter reviews the literature and scholarship concerning nineteenth century photographic studio portraiture, followed by a brief look at pre-photographic portraiture as this informed the both the experience of having one’s photographic portrait made, the photographs themselves, and some of the subsequent interpretations of portrait studio photographs. Following this, the chapter turns to the photographs, their textual provenance and their production, the mode of distribution through the domestic worlds of their subjects, the conditions of their exhibition. Following the methods used to examine the technologies discussed in the previous chapters, it will present images and commentary from period texts. It will also draw upon primary engagement with studio backgrounds and props in the sites in which they were used. Through these methods the chapter aims to contribute to the existing scholarship with a re-evaluation of existing interpretations of these significant elements of the practice of portraiture across the period, from those that began as responses to practical problems, to rituals and excess that appear to have continued in use beyond their practical purpose. The chapter considers in the portrait studio mise-en-scène the elements that are not visible in the photographs. It suggests that it is important to consider these because they contributed to the experience of having one’s photograph taken and therefore, this thesis suggests, to an experience of enchantment.
This chapter will consider the technical, cognitive, and cultural aspects of having one’s portrait made in nineteenth century photographic portrait studio, where painted backgrounds and paper mache props, the ‘soft technologies’ of the studio, that are visible in so many portraits were a significant presence. It will explain why they can be described as technologies of enchantment and contribute as much as the camera apparatus and other technological processes to an experience this thesis calls enchantment. These items have been variously explained as indications of the social aspirations and utopian dreams of the innocent subjects of the photographs, and as the photographers’ desire to be aligned with artists. This chapter will present additional and alternative interpretations. These are informed by a comprehensive examination of photographs from the 1840s through to the 1930s, accounts of the use of painted backgrounds and props in nineteenth and early twentieth century periodicals produced for general and specialist audiences, trade almanacs, books, correspondence and business records, plus rare examples of painted backgrounds and props in museum and private collections, and still in use in a photographic studio.

A photograph can only offer partial information about the significant event of having one’s portrait photograph made and although camera technology has been discussed extensively in scholarship that addresses technical and scientific and commercial contexts of photographic portraiture it has been less thoroughly considered in terms of its affective impact upon the subjects’ experience of the studio portrait event. This chapter aims to extend our understanding of this event through examination and analysis of the items used in the practice of photographic portraiture. It will consider how
they contributed to the experience of being photographed and to the resulting photographs that are the records of a novel and significant event in their subjects’ lives. It suggests that the dominance of the apparatus in the photographic portrait studio is undermined by these items, and that the sitters engaged knowingly with the activity of sitting for a portrait, using it as a means of negotiating their position through active participation in the technical arrangement of the studio.

The backgrounds, props and other ‘soft’ elements of the portrait mise-en-scène can be considered as semi-material objects, that is, they have both real and imaginary dimensions (Punt, [2009] 2012) as much as the cameras, chemicals and darkroom practice, and as such, contribute to the experience of enchantment, at the time of the event and arising from encounters with the resulting photographs. This thesis proposes that the painted backgrounds and fabricated props are understood as technologies of enchantment in the mise-en-scène of the photographic studio. In this sense, they can be interpreted as experimental manipulations of perception of light, space, time and experience, through elements that appear to have both a material and an imagined form, and through the technological production of a likeness.

A feature of accounts of portrait studio practices during the first few years of photography is that it was a slow and, anecdotally, sometimes uncomfortable process. The popular press saw mileage in aligning photography with dentistry, an association the photographic press played up to, if ironically. Editors and journalists commonly referred to the headrest (a device long used by portraitists but perhaps less familiar to
the middle-class clients of photographers) as a head clamp or head brace, emphasising its potential cause of physiological and psychological disturbance to the sitter.

Photographers appear to have been keener to align themselves with medical science, desiring through association the status of professional and as Sheehan (2013) explains, there were material similarities between medical and photographic operations. In practice, it seems the patrons' desire for a photograph of themselves overrode any discomfort.

In the early years of commercial portrait photography, unreliable and uncertain processes often resulted in inadequate images which meant the entire procedure needed to be repeated. Throughout the period the chemical constituents of the photographic process, the camera apparatus and other materials including the metal or glass that carried the image, were broadly similar but individually specific to each photographer, as they created these from raw materials of varying constituents and quality bought from opticians, chemists and built from scratch or adapted new and used cameras. Some encountered difficulties obtaining supplies in the rush to obtain the ingredients to create photographs. Samuel B. Morse, for example, complained about the difficulty of obtaining good quality polished metal for his Daguerreotypes.

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107 Although Sheehan's research focusses on the practices of photographers in Philadelphia, it seems reasonable to suggest there were similar associations in the UK.
Recipes for emulsions, innovations to apparatus and to processes were shared in society transactions and journals and between individuals, who visited each other's premises and often recounted these visits in the columns of the photographic press. As a commercial photography trade expanded an industry developed to supply its needs (Pritchard, 2010; Jenkins, 1975). Reliable equipment and chemicals (meaning consistently acceptable photographs) and a conveyer belt like approach to the process afforded a rapid throughput of customers in some establishments although trade was still dependent on the quality of natural light for exposure, developing and printing.

To judge from what one sees, having your portrait taken is deemed by many an amusement à la mode, and there can be no doubt that ladies in the West End will pass an hour in the studio pour se distraire. (Baden Pritchard, [1882] 1973, p. 43)

The Sarony Gallery is one of the sights in Scarborough. Visitors may come and go any hour between nine and five; and beyond the many productions of a photographic nature on view [...] there are noteworthy paintings and portraits which make the fine hall a point of attraction and fashionable lounge with the visitors to this favoured spa. (Baden Pritchard, [1882] 1973, p.147)

Even when the technical processes became standardised and offered reliable results, having one's photograph made could be a long-drawn-out experience. Prestigious photographic portrait studios opened in already fashionable areas in Paris (initially the Palais-Royale) and London. The historian Jean Sagne describes Parisian portrait studios as places where fashionable people congregated that “combined the attractions of a stroll along the boulevard with a visit to the theatre” (in Frizot, 1998, p.103). In the London studios of Camille Silvy and John Jabez Edwin Mayall, of Oliver Sarony in Scarborough, and the aspiring proprietors of numerous provincial premises, Winter's in
Derby among them, the experience from start to finish was one of entertainment and of being the centre of attention where multiple exposures might be made with the sitter taking up a variety of poses. In addition to grand reception areas, these larger studio premises included galleries, waiting rooms, and dressing rooms, where the sitter would have encountered attendants preparing apparatus and readying clients for the entrance of the photographer. In this respect, the layers of meaning attached to the photograph include understanding the photograph as souvenir of the experience, an aspect that is foregrounded in the film *Sunrise: A Song of Two Humans* (1927, F. W. Murnau, Director).¹⁰⁸


A sequence plays out the reconciled couple’s visit to a photographic studio where they are mistaken as newly married. Their status as unsophisticated country folk is confirmed when they do not realise that while the photographer is under the black cloth he can see that they are kissing, a discovery they make when they look at the resulting photograph, their souvenir of the occasion which marks their reconciliation.
Fig 44. Cabinet Card. The American Photo Co. 102, Church St. Luton. Design on reverse.

Fig 45. Carte de visite. M. Blizzard. Taunton. Design on reverse.
Commercial portrait studios

The term ‘portrait studio’ is typically applied to the commercial establishments that were to be found on the high streets of most of the larger towns in the country by the 1860s and in other forms elsewhere.\textsuperscript{109} They ranged in style and status from so called high-class premises of Tunny’s in Edinburgh, Silvy’s and Mayall’s studios in London and Sarony’s in Scarborough, to the dockyard back rooms described by Henry Mayhew in his 1861 account of street photographers (pp. 204-213). Portrait studios were also set up temporarily in the courtyards of public houses, barns and halls, installed in adapted fairground wagons and boats, and in purpose-built mobile studio vans. It is not always possible to differentiate itinerant from studio photographer. Heathcote (2002) notes one, a certain John Baume, who had two mobile studios and variously formed and dissolved partnerships with establishment (settled) photographers. Another, Richard Beauford, who travelled with a mobile studio, exhibited photographic apparatus at the Great Exhibition in 1851, and in Paris, Dublin and New York. This indicates that there were different classes of business within the itinerant community as there were among the established studios. Tensions between established businesses and itinerants were

\textsuperscript{109} The London Gazette (online searchable database) provides records of studios setting up, changing hands and closing, some due to insolvency. Pauline and Bernard Heathcote’s review of the portrait studios in the UK from 1841–1855 includes a comprehensive listing of commercial activity during this period.
further complicated by photographers who did both. The photographic record indicates that some form of background material that screened the space behind the sitter, was used by the majority of commercial photographers, throughout the period, from the elaborate painted canvases of high street premises to rudimentary affairs such as the sheets or blankets itinerant photographers used to demarcate the site as a studio. Although, as Linkman (2000) notes in her essay concerning fairground portrait photography, it is often impossible to identify the portrait images of cartes de visite taken at a fairground from those taken in high street studios. This appears to have been irksome to the latter and the photographic establishment to which they aspired to belong who were “united in [their] antagonism towards the cheap, itinerant element emerging in its midst” (Linkman, in Popple and Toulmin, 2000, p. 73).

A typical portrait studio contained a multifarious array of painted backgrounds and sometimes foregrounds, one-dimensional wooden or paper-mache fences and trees, pillars, plinths and balustrades, occasional tables, rugs, drapes, chairs of all sorts, including the ubiquitous fringed and padded posing chair. Studio equipment catalogues and photographs illustrate a spectrum of elaboration and complexity, including rope swing seats that were supported from below. The ropes of the swing are rigid and reach just high enough for their ends to be obscured by the image frame.

Baden Pritchard reported that in Mayall’s studio in Brighton, one studio on the first floor had the appearance of a spacious drawing room, with two windows, a couch, a table and mantelpiece and a white screen reflector. The studio manager was concerned to
prove this room really was a studio by insisting that he take a portrait of Baden Pritchard in the room. In the three ordinary studios on the second floor “some bits of tapestry” were used as backgrounds, plus

one of an exceedingly novel character. It rose some eight feet high, and was constructed of jointed or ribbed wood, or, more properly speaking, of laths standing upright. It could thus be made to assume various forms – a semi-circle round the model, a recess, and consequently shadow, to his left or right, or, if necessary, a column might be shaped at one side by bending the plastic screen suitably. The covering of this background was of grey cloth, which, naturally enough, was rendered dark or light, according as it was put into the shade or not. (1882, p. 131)

The studio premises shared the internal logic of photographic portraits. Dressing and waiting rooms mimicked comfortable domestic interiors and the backdrops and props of the atelier, suggested drawing rooms, studies and libraries, or terraces, pastoral landscapes and sublime wilderness. The photographic record, however, does indicate that recognisable locations or buildings were rarely included. Painted backgrounds were not deemed necessary if the portrait studio was arranged as if a drawing room or opera box. As Baden Pritchard explains in his description of W. & D. Downey’s studio “close by Buckingham Palace,” careful positioning of the model against ground glass window lights, plus moveable partitions or screens, could indicate these locations perfectly satisfactorily. ([1882] 1973, pp. 20-21 facsimile version)

Aesthetic quality

Each of the many photographic processes and the material forms of the photographs have a different aesthetic quality. These were much debated in the society and trade
literature and embedded in discussion of photography’s status as science or art. As an example, the Calotype process caused the photograph to be embedded in the fibres of the paper. The resulting softness of image was appreciated for its ‘artistic’ qualities but was less commonly produced in commercial portrait studios.\textsuperscript{110} Discussions in the photographic press suggests that from the perspective of the commercial photographer an efficient and cost-effective process and reliable quality of image was a priority. While the photographic record indicates that sitters appeared to favour the clarity of Daguerreotypes and Ambrotypes and the shiny surface of albumen prints on paper, there were many factors in play that contributed to their dominance.

The experimental nature of photography, and the uncertain meaning of photographs discussed by Batchen (1997) is illustrated in the period debates about its place and potential. These played out in art and intellectual circles, in scientific and photographic society meetings and publications that initially and for some time accommodated the interests of all interested parties, later reflecting a gradual separation of gentlemen amateurs and scientist experimenters from the commercial trade. As this trade expanded, the stages of the photographic process were separated too, and the component parts served by specialist manufacturers and suppliers. This speeded up the

\textsuperscript{110} Talbot’s patents limited the use of the Calotype process by commercial photographers.
process of having one’s portrait taken and the production of prints and developed into an industry servicing the mass production of photographs, later becoming accessible to amateur enthusiasts as picture-taking was detached from the manufacture of the components, processing and printing. Cameras and equipment, initially large, fragile & cumbersome, were complemented by other lightweight, robust, and portable ones, but the studio mise-en-scène and its technological arrangements remained broadly the same throughout the period that is characterised by marked social, cultural, economic, and technological change. As photographic processes became more reliable and less costly, the opportunity to have a portrait photograph made became accessible to the professional and working classes and later to all but the poverty stricken.

Review of the literature

Histories of photography concerned with its development during the nineteenth and early twentieth century most often situate the photographic portrait studio as a place

111 Perhaps explaining some of the additions and embellishments made to the photographs, which might suggest that for some people, the experience of having one’s portrait made and of the resulting photograph does not have sufficient weight to carry its meaning.

112 The Eastman Kodak Company (initially the Eastman Dry Plate Co.) were foremost as a supplier and driver of a commercially viable market servicing the needs of amateur photographers.
where social and cultural aspirations and status were expressed. Hamilton (in Hamilton and Hargreaves, 2001) explains that the use of photography for portraiture became widespread due to its coinciding with the emergence of a new middle class who could afford to have portraits made from the new and still experimental technology. According to many post hoc interpretations, these images, whose status as art or science was uncertain, confirmed to the sitters their new, but still unstable, status, (Batchen, 2005; Edwards, S. 2006, Lippard, 1997). Cosens considers the presence of backgrounds and props in the photographs in his collection as indicators of status “from the humble to the high and mighty” (2006, p. 29), although the photographic record indicates that the same backgrounds seem to have been used for people of all classes and occupations. The subject’s choice of photographic studio might be a more telling indicator of status.

A review of literature for both general and academic audiences has found that, with few exceptions, where the photographic portrait studio is discussed, a repetition of comments and conclusions are presented. These are commonly drawn from a few well-known and often repeated sources. In discussions of nineteenth century culture the studio might be mentioned amongst a description of entertainment on fair days and


\[113\] This use of the studio was complicated by photographers who documented the realities of the roles and circumstance of working men and women depicted with the tools of their trade, and presentations of men and women as ‘other’ and exotic.
seaside holidays (Linkman in Toulmin & Popple, 2000). In sociological accounts of the Victorian and Edwardian periods, it is referred to as the place where a significant event, such as a birth or marriage, and in some cases, death, was marked and subsequently memorialised in albums and frames. (Ruby, 1999; Batchen, 2004; Linkman, 2011)¹¹⁴ A

¹¹⁴ The young lady photographer, the protagonist in Levy’s fiction Romance of a Shop, is asked to photograph a corpse of a woman still lying in her death bed. "As her eyes grew accustomed to the light, she perceived herself to be standing in a daintily-furnished sleeping apartment, whose open windows afforded glimpses of an unbroken prospect of wood, and lawn, and water. Drawn forward to the middle of the room, well within the light from the windows, was a small, open bedstead of wrought brass. A woman lay, to all appearance, sleeping there, the bright October sunlight falling full on the upturned face, on the spread and shining masses of matchless golden hair. A woman no longer in her first youth; haggard with sickness, pale with the last strange pallor, but beautiful withal, exquisitely, astonishingly beautiful.

Another figure, that of a man, was seated by the window, in a pose as fixed, as motionless, as that of the dead woman herself.

Gertrude, as she silently made preparations for her strange task, instinctively refrained from glancing in the direction of this second figure; and had only the vaguest impression of a dark, bowed head, and a bearded, averted face.

She delivered a few necessary directions to the housekeeper, in the lowest audible voice, then, her faculties stimulated to curious accuracy, set to work with camera and slides." (1888, pp. 74–75)
visit to a photographic studio is sometimes mentioned in accounts concerning the status of a homogeneous Victorian middle-class family. (Heyert, 1979)

We were shown the properties wherewith all the rustic changes to be seen in Messrs. Hills and Saunders’ cabinet pictures are carried out. Hay, dried grasses, dead palm leaves, together with a few growing plants in pots, and some branches and twigs, comprised the whole. “We throw nothing away,” said our host, taking up a brown palm leaf from the floor; “we only take care to change the arrangement with every picture. (Baden Pritchard, [1882] 1973, p. 58)

Painted backgrounds and props are present as a persistent and to many contemporary viewers, superficially unchanging element of the experience of having one’s portrait photograph made from the beginning of the 1840s through at least until the 1930s. They were the subject of much discussion and commentary within the photographic press during the nineteenth century, and chapters were dedicated to them instructions manuals, for example, Jabez Hogg deemed the photographer’s choice and use of backgrounds of sufficient importance to include them in the index of his Practical Manual of Photography (1843) that ran to numerous editions. Commentary though frequently pointed to their ‘absurdity,’ but they receive little focussed attention in recent scholarship concerning the portrait photography industry and commercial practices. First person accounts of the experience are scarce, and these often as satire or humour in the period literature, including in the photographic press (Henisch and Henisch, 1998). The thoughts and opinions of the subjects of the photographs about their portraits are also scarce in primary sources. The key sources for understanding the experience of having one’s photograph taken in a daylight studio are produced by
photographers rather than the subjects, nevertheless with this bias in mind, these do provide insight into the experience.

The majority of adult sitters seem either to be acting up for the camera [...] or appear sulkily compliant while trying to maintain their dignity. (Chanan, 2006, p. 91)

The equipment used in photographic portrait studios is typically considered from the perspective of scientific and technological development (Jenkins, 1987) and in this context, the discussions of studio practices focus upon the photographer’s attendance to the cameras and the chemical processes. If other studio equipment is considered, it is most often with reference to the photographer’s use of the head rest and posing stands. The industry producing backgrounds and portrait studio props and accessories seems to have been neglected in scholarship concerning commercial portraiture in the UK. The implication of this apparent lack of attention is that they are deemed to be of little significance or have any impact upon the resulting image.

In the final chapter of Allegories: The Making of English Photography, Edwards focuses upon the lively discussions about backgrounds in the British photographic press of the

115 For example, in Chapter 2 of The Studio (1971) the nineteenth century photographic portrait is discussed in a history of technique, and Jenkins’ (1987) chapter structure follows technical ‘developments.’

116 Pritchard (2010) for example, does not include them in the scope of his comprehensive research into the industry
1860s “as a way of reconsidering […] the aesthetics of photography” (2006, p. 248), situating this within an analysis of Victorian social and political ideologies, and commercial photographers’ desire to be considered artists within the broader debate about photography’s aesthetic. Edwards concludes his account by suggesting the “‘monstrosities’ of the backgrounds confronted photographers with their own anxieties and fears” (2006, p. 293). Yet, it seems they overcame these troubling feelings because backgrounds and accessories continued to be used, or, according to the persistence of accounts at least until the turn of the century, in many cases, misused. This might suggest that the majority of commercial studio photographers did not identify with the concerns of those (including some notorious and prolific) contributors to the photographic press of the nineteenth century who engaged in acrimonious debate. Given that these items were significant elements of their daily work, having implications upon time, financial success, management and the commercial attractiveness of their

117 Jabez Hogg also poured scorn upon “photographic monstrosities, fathered by individuals […] knowing, perhaps, little of, and caring, perhaps less, for the art.” And, “Often are badly-painted backgrounds introduced, and these are frequently so stupidly managed as to distract attention from what should be the main feature, and the entire picture is thus rendered repulsive to the eye of a person of the slightest taste.” (Hogg, 1843, p. 28)

118 Edwards notes that some correspondents used pseudonyms in order to promote their arguments. In fact, reading their colourful and expressive arguments now is entertaining, so perhaps the commercial photographers found it so too.
studios, it would be reasonable to expect them to contribute to the discussion of their aesthetic qualities, yet it seems questions about the practicalities of their manufacture and use took priority. 119

Baden Pritchard describes his visit to Mr Bassano’s premises at Old Bond Street, London. In the principal studio (of two), he finds

but one background. But it was a long one. It measured no less than 80 feet, and was mounted on perpendicular rollers like a panorama. Its handiness was obvious. As it was deftly passed in review, the tint changed from warm to cold, the scene from outdoor to indoor, and, in a word, progressed through every phase.”

He continues:

“Another point that struck us in the studio was the presence of nought but real furniture. The tables, chairs, and bookcases were real, the Persian carpet was real.” ([1882] 1973, p. 82)

The use of elaborate studio settings continued as did the debate about photography’s aesthetic continued even as the informality of the snapshot begins to appear in the record. In the preface of The Studio and What To Do In It (1891) Robinson (who was not a stranger to controversy due to debates about his composition of pictures from multiple negatives) addressed his reading audience firmly from the perspective of a photographic artist, states a case for the artistic ambition of portrait photography.

119 Photographic journals featured correspondence columns where a whole range of questions were asked, and answers given by the editors and other correspondents. Photographers sometimes would advertise used studio equipment and furnishings for sale or for swapping with another photographer.
For instance, I quite agree with the late Mr. Norman Macbeth, whose advice on art was always sound, that as the portrait is derived directly from living subjects, so should the backgrounds and surroundings be composed of real objects; but I know that in the practical business of a portrait photographer, it would be next to impossible to compass this desirable result, and therefore I have admitted the use of painted screens.

And so it is not surprising that he accounts for every aspect of the practice of studio portrait photography as contributing to an aspired to artistic aesthetic. Post hoc interpretations of the presence of backgrounds and props as the desire of photographers to produce an artistic effect are informed by the period accounts to the neglect of other possibilities.

A research project concerning the US industry producing painted backgrounds and props was undertaken from an archivist’s perspective (Keller, 2013). Another studied the patents and copyrighting practices of the photographic studios of New York during the period 1854–1884, which concluded that the painted backgrounds and props, and the elaborate poses of the sitters, could have been used as a form of “extra-legal copyright protection for photographers worried about vignette pirating of their portraits.” (Harris, 2011)

120 Email to JH from Mazie Harris on 10 February 2016. Project Title: “Technology in Transition: Portraits and Patents of Broadway Photography Studios, 1854–1884.” Harris also comments upon the lack of a fixed direction or goal for the medium during the early years of photography.
In cultural studies, the studio mise-en-scène has been accounted for as evidence of the subjects’ aspirations to be visible participants in an activity that inferred a certain social status. Warner Marien suggests backgrounds were “visual symbols of personal achievements and economic success” (2010, p. 72), and cites Batchen (2005) to explain them as “an expression of the new sense of identity and solidarity among the emerging middle class, which sought to lend their photographic likeness and added importance and grandeur through the use of such props.” Their subject’s social identity confirmed by their photograph.

Lippard (1997, p. 8) described the space between the sitter and the painted background as “an abyss,” which she suggested, highlighted the difference between the sitter’s actual status and the one they aspired to. She interpreted examples from the Rochester House exhibition as indications of a desire to escape into a fantasy world, suggesting they are “about escape from reality, about being someone else, someone richer, or someone happier” (1997, p. 8). Kasher (2008, in Keller, 2013, p. 6) proposed the background “stood for romance, for escape, for clean air, and city planning.” This assertion that the backgrounds are an indication of utopian dreams is perhaps understandable given the broader enthusiasm for themes of romanticism and naturalism that encouraged experimentation. (https://www.lensculture.com/articles/mazie-harris-photography-then-and-now-treasures-from-the-getty-museum) Assistant curator of photography at the J. Paul Getty Museum in LA
in the decorative features, images and text of the popular press. The makers of painted backgrounds for photographic studios appear to have drawn upon the stylistic features of both classicism and the realist but sentimentalised rural naturalism, a theme also present in the some of the images of Life Model lantern slides. Background scenes might include a ‘typically English’ rural landscape in which a classical building of Greek or Roman style can be glimpsed. The photographic record of UK studios contains few examples of backgrounds painted with scenes of urban or industrial environments.\footnote{This apparent avoidance of urban and recognisable landscape features is not the case in China, South America and India for example.}

Yet, photographs of mill owners were often taken in front of their mills and shopkeepers were commonly photographed with their staff on the doorsteps of their shops. This suggests that these sitters were not necessarily averse to being portrayed in urban environments so long as they were real. Following Loiperdinger’s discussion of the audiences’ reaction to films of oncoming trains (2003), the studios were places to create pictures of reality that were not reality.

As noted above the photographic journals and periodical press for general audiences provides evidence of fervent discussion about the photograph’s status as ‘art’.

Photographers' aspirations to be considered as artists is visible in the elaborate designs of their advertisements, commonly printed on the reverse of carte de visite and cabinet cards. Pauline Heathcote’s biographies of photographers who were active between
1841 and 1855, provides plausible explanation of the painted backgrounds and props as a ‘painterly’ device. She describes many who were artists, (some exhibiting at the Royal Academy,) and miniature painters before turning their hands to photography. Although it is uncertain if photographer Knights-Whittome began his career as an artist, he appears to have painted at least some of his own backgrounds for his studio in Sutton, Surrey. (Project Officer May 05, 2015). Amy Levy’s fictional photographers are described as painting the backgrounds for their new portrait studio. Editorial discussion, communications and step-by-step instructions in the trade press and manuals for photographers indicate that at least some photographers painted their own backgrounds, or they altered and updated those bought from suppliers.\textsuperscript{122}

Personal experience has found that those who look at nineteenth century portrait studio photographs rarely comment upon the painted backgrounds and props. Where they are attended to it is often to poke fun at the apparent foolishness and naivety of the people who had their photographs taken, while standing on patterned flooring in front of painted and modelled backgrounds and foregrounds accompanied by props such as one-dimensional wooden pillars and trees, obviously artificial ‘French’ doors and casement windows through which the subject can lean while he or she gazes at a distant landscape, and swings that appear to hang from the image frame, whereas in fact they were supported from below. Their apparent foolishness though might be explained by

\textsuperscript{122} Tom Reeves explained how his father and grandfather did this by using modern paints and colours over ‘old’ painted backgrounds.
Moore (1997) who explains that “Enchantment is often colored by at least soft hues of absurdity, which is only a sign of its saving distance from excessive rationality.” (p. xi). Certain material and contextual elements of the portrait mise-en-scène have been overlooked which has contributed to these ideologically informed opinions that the sitters were naive, foolish in the aspirations and beliefs that the image transformed them into people whom they aspired to be, that the mise-en-scène pointed to their status. In the early period. With some exceptions during the earliest years of photography, the backdrops appear to have been plain or of stylised cloud-like painting, but elaborate painted scenes soon become the norm, accompanied by artificial columns, stairs, bookcases and balustrades to supplement the chair and side table of earlier portrait image making events. Towards the end of the nineteenth century and through the Edwardian period, examples of studio portraiture include photographs of casually dressed young men and women who are sitting astride plywood motorbikes or airplanes, or behind cut-outs of boats in front of painted lighthouses and choppy seas (see Phillips, 2012, for example). These extended the studios’ repertoire for the specific purpose of providing light-hearted entertainment at fairs, carnivals and at the seaside and as such are not discussed in this thesis.

123 H P Robinson still espoused this as preferable in his The Studio: and What To Do In It (1891), although he also admits to continuing to use painted backdrops and props in his own studio.
A willing suspension of disbelief?

Discussion in the mid nineteenth century photographic press indicates the painted backgrounds contributed to presentation of light and shade and three-dimensionality, the flooring in terms of perspective and depth, and the plinth and side table as support during lengthy periods of immobility. However, the extent of their use and development into grotesque forms is not accounted for by this explanation and period discussions about the practice indicate uncertainty about photographers’ having an intention to fool the public into thinking the pillar, rustic stile or pastoral view was real. As Henry Peach Robinson pointed out, if poorly chosen and carelessly used, the artificiality of the studio accessories would require a great stretch of the imagination to be believable. “Now a stile in itself is a very picturesque thing, so also may be a wicket gate, but the way they are, as a rule, made and used, seems to proclaim with a grin that there is no deception.” (1891, p. 33)

In the case of staged photographs such as those produced by Julia Margaret Cameron Lewis Carroll and Lady Clementina Hawarden, a tension existed for the viewer as the ‘truth’ of the image was presented as fiction and the ‘fiction’ as truth which might be interpreted as continuous with aspects of the pictorial devices of Life Model lantern slides and some of the films of Early Cinema. This confuses interpretations of the purpose of backgrounds and props in studio portraiture although they too seem to contribute to performative aspects of the studio practices.
The variety and persistence of presence of these painted backgrounds and fabricated props in the photographic record over eighty years and across continents suggests that many thousands must have been produced. An indication of the extent and sophistication of the industry is found in advertisements in nineteenth and early twentieth century photographic journals and almanacs. In the UK for example, Edwin Butts of Westminster Bridge Road, London, advertised in The British Journal of Photography in 1889 “Backgrounds. -every description painted by an experienced artist; very moderate terms. Photo of work for approval…” In the US, The Ross L. Fitch Studio of Chicago (no date, but a Library of Congress catalogue entry for the company records a date of 1917) produced ‘Catalogue no. 24. Photographic Backgrounds and Tapestry Settings,’ in which they encourage customers to select from photographs of “a large and varied assortment of designs.” But, as the discussion above shows the industry that created them, their makers and suppliers, how and why they were used in the day-to-day activity of the photographic studios appears to have been somewhat neglected by researchers. The apparent naivety of the photographs in which painted backgrounds and props appear, belies the sophistication of the industry that produced them. A lack of consideration has been given to the immaterial dimension of these items amongst what appears to us now to be an excess of materiality in the studio. This thesis is concerned with the elements of the technical arrangement that appear to have a material and imagined forms.

Aspiring photographers had ample opportunity to acquire technical and aesthetic proficiency from lectures and demonstrations, learning from their peers at society
meetings, and, for some, by paying for instruction from practicing photographers. They were able to pick up hints and tips about managing their clients from the numerous items in trade journals and instruction books. Photographers drew upon their experience of pre photographic portraiture to determine what should be included in a portrait photograph, in practical terms, the lighting, pose, props etc. they should use. Their decisions were influenced by the portraits and landscapes in paintings from the seventeenth and eighteenth centuries. Discussions about how best to light the sitter were informed by Rembrandt’s work, so much so that his name became a style of portraiture to which photographers aspired and a range of painted backgrounds were named after the picturesque rusticity of the work of eighteenth-century artist George Morland.

An elaborate painted background is visible in the Daguerreotype of William Johnson created in c1843 in Beard’s Polytechnic studio. Photographers drew on the painterly conventions of pose showing sitters holding books, hats and gloves, with hands on hips, a foot resting on a step indicating a man of action, a downward gaze evoking the modesty of the sitter while a direct gaze might convey confidence. Photographers followed these conventions. They not only needed to present a likeness, overcoming the problems of catching a normally transient and unselfconscious expression by a lengthy process, but to reveal individual characteristics, and a commonality with a social body.
While many ‘How to …’ manuals were concerned only with the science of photography, giving detailed instructions about using camera and developing apparatus, optics and chemicals, for example, *An Introduction to the Science and Practice of Photography*, by C. Jones in 1888, that was initially given as a series of lectures at the Birkbeck Institution in London. Others offered a broader range of information and provided step by step instructions and more general advice, which varied according to the author’s own opinions of good taste. In *A Popular Treatise on Photography* (1863) by D. Monckoven, Chapter VIII is subtitled ‘On the glass room in which the sitter is placed, and the rules to be observed in taking portraits and landscapes’ (p. 48). Although Monckoven was a physicist whose research concerned photographic chemistry and optics, he directs photographers to follow his ‘rules’ if they are to modify and perfect the details of what, he considers, can only be successful images if the photographer has ‘a natural instinct’ for artistic taste. The lay person learned about photography from publications for the general reader, such as *Household Words*, where ‘non-technical’ descriptions included a good deal of technical information.

The veracity of drawn or engraved portraits reproduced in print was confirmed by the phrase ‘from a photograph.’ The ‘truth’ and objectivity of photography dealt with the issue of likeness, the character and commonality needed to be accommodated by other means. Full or three-quarter face connects the sitter’s domain with the viewers domain. All of these, within the constraints of the photographic process, contributed to the technological arrangement that was the sitter’s experience. Some historians of photography find nineteenth century photographers’ efforts to adhere to the codes and
conventions of Western representational art explains the apparent dissonance of portrait photographs (Ramalingam, in Baetens, 2010, Lippard, 1997). This thesis suggests the dissonance fades away when other factors, that have been explored in Chapters Three, Four, and Five, are included in our reading.

Pre-photography portraiture

Pre-photography portraiture included a range of forms and formats to suit all financial circumstances. For the wealthy paintings in oil on canvas or panel and enamelled porcelain miniatures, and for the remainder, cut paper shadowgraphs or silhouettes, a means of fixing a shadow by copying or smoking it) or profile drawings outlined free hand or mechanically. The Physiognotrace was a device that traced and simultaneously reduced the life size outline of a person’s shadow to an accurate and manageable sized image, this and its mechanically enabled objectivity is closely aligned with photography. Silhouettes might be either negative, the portrait being the space or hole left after the shape of the sitter's head had been removed, or positive, the portrait cut from black paper. Photographs, like paintings and miniatures, could offer more successfully a range of profile or full-face. Silhouettes, or ‘black shades’ were created by itinerant

_124 We are no other than a moving row/ Of magic shadow shapes that come and go/ Round with the sun, illuminated lantern held/ In midnight by the master of the show._ Omar Khayêm C12th & the origin/ patentees of the Physiognotrace (patented in 1802 in the US). Silhouettes reputedly cut of William & Mary in 1699
professionals who moved among the wealthy circles on recommendation and reputation. These were painted onto ivory, plaster or glass and housed in elaborate cases and frames, the maker’s label fixed to the reverse, just as were the Daguerreotypes and Ambrotypes of the 1840s and 1850s.

Miers and Field’s advertisement on the reverse of the portraits they painted on plaster or ivory stated they

[e]xecute their long approved Profile Likenesses in a superior style of elegance and with that unequalled degree of accuracy as to retain the most animated resemblance and character, given in the minute sizes of Rings, Brooches, Lockets, etc. (Time of sitting not exceeding five minutes.) Messrs. Miers and Field preserve all the original shades by which they can at any period furnish copies without the necessity of sitting again. (In Jackson, 1911, p. 21)

In some, the silhouette has been placed onto a painted or drawn background image and embellished with gold paint to pick out features and emphasise jewellery and clothing, a practice that continued for photographic portraiture. The advertisement above draws attention to the significance of the portrait as a resemblance and of its meaning held close to the body. Likenesses were commonly obtained from itinerant practitioners at fairs and shows or cut by amateurs in domestic settings for whom instruction manuals

\[125\] Messrs. Miers and Field were active commercially through the 1790s–c1830.
were produced. To have a silhouette cut in a street or fairground was an entertainment for onlookers. Sharing the portrait after the event was as much part of their appeal and a forerunner of the experience of having a photographic portrait made in a commercial studio. Silhouette portraiture continued as a commercial opportunity for a decade or so as photographic portraiture became widespread alternative, even in the mid 1850s silhouette portraits illustrated books of ‘worthies’—local or national dignitaries, men of the cloth or literary heroes, a craze that continued with photographic portraits which supplemented the income of many portrait photographers.

When the Great Exhibition opened, commercial Daguerreotype portrait studios had already been operating for ten years. Commercially minded and aspirational photographers exhibited their work. Samuel F.B. Morse, Antoine Claudet and Richard Beard, advertised in the exhibition catalogue. As did John Jabez Edwin Mayall who showed “Daguerreotype pictures to illustrate poetry and sentiment, the backgrounds in

126 For example: Introduction to the art of cutting groups of figures, flowers, birds, &c. in black paper. Barbara Anne Townshend; M Dubourg. London : Printed for Edward Orme, [1815-1816]

127 Samuel F.B. Morse learned photographic techniques from Daguerre in France. His assistant, Joseph Pennel operated a commercial portrait studio in Boston, US through 1841–1843 in partnership with Albert Sands Southworth who acquired his skills from Morse. Antoine Claudet, who also acquired his initial photographic skills from Daguerre, opened his studio in London in 1841. Richard Beard operated, with Jabez Hogg, a Daguerreotype portrait studio in London from 1841. Photographs were named for the studio and not necessarily made by the person named. JJE Mayall worked briefly with Claudet in 1846 then opened his own studio in the Strand, London. He pursued his profession as an ‘Artist’ and pro-actively promoted photography’s status as ‘Art.’
some cases being sketched, and the sitter posed so as to make the whole harmonise together.” *The Soldier’s Dream* (Campbell), an illustrated poem (from life) in four tableaux, and *The Lord’s Prayer*, in a series of ten designs (from life) in (Taylor, [2002] 2012) were prescient of Life Model lantern slide sets of the 1890s. Studios had opened in cities and towns across the UK, many by an itinerant profession who rented rooms for a few weeks or months and then moved on to find a new clientele or to avoid those whose portraits proved to be unsatisfactory.

*Spirits... take such shapes and occupations as the hopes and thoughts of mortals, and the recollections they have stored up, give them.* (Charles Dickens, *The Chimes* (1844) in Harvey, 2007, p. 7)

The technical arrangement of the portrait studio incorporated the hopes, thoughts, and recollections of the people who used them, and imbue the photographs that are the focus of this thesis, or as Tymieniecka (2000) explains from a phenomenological perspective, as an ‘afterglow’ that can continue beyond the event of their making. As will be seen below in a discussion of the cross-fertilisation of imagery (in both text and illustration) from the popular press, the studio mise-en-scène reflects the collective imaginary of its inhabitants, as a sense of location-less nostalgia for an idealised rural past that is, in terms of experiencing enchantment, an ‘orienting mood.’

Features that

128 The Welsh word ‘Hiraeth’ comes to mind as conveying this imaginary in which the studios operated. A “feeling [that] is a longing for something greater than a spot on a map.” Lily
seem incoherent if we try to fit them into our expectations of the everyday, what is usual and familiar, are coherent within the logic of a myth where the subjects of the photographs have the same ambiguous ontological status as characters in myths and legends. As the mise-en-scène of the studio, they are also coherent if we interpret them as suggested for the Life Model lantern slides in Chapter Three, as self-contained and with an internal logic that was intelligible to the viewers.

Studio practice

Mr Cowan, in turning over the leaves of a large album [of cabinet cards] showed how the backgrounds in every case were different. “Oh, I know where you had that taken; that’s so and so’s background!” is a remark not unfrequently heard; but at Bayswater, by the simple arrangement of a few ferns, dried palms, grasses and rustic fence-work, no two pictures are ever alike. Moreover, if it is a question of enlargement afterwards, these grasses, &c., help to avoid a lot of retouching. Hills & Saunders Studio in Porchester Terrace, Bayswater. (p. 58, Baden Pritchard, [1882] 2013)

Portraiture may have been the primary business activity for most high street studios, one that was subject to seasonal fluctuations, an inconsistency due to poor weather, and pollution affecting the daylight upon which they depended. Photographers supplemented this income by photographing works of art, drawings, paintings in oil, and sculpture, which in turn were engraved and published for sale as individual prints, for reproduction in periodicals and books. In Amy Levy’s fictional account of four sisters, Crossley-Baxter. 15th February 2021. The untranslatable word that connects Wales

who decide to become financially independent by establishing their own photographic studio, Gertrude Lorimer, the heroine, undertook such commissions.\footnote{The Romance of a Shop (1888) is a fictional account of the establishment of a photographic studio. Although fiction the descriptions of the studio and its activities were written at the time when the workings of a photographic studio was well known and known to its author, of whom there are studio portraits. As such, the novel and other fictional accounts contribute to our understanding of the studios, that has elsewhere largely been drawn from photographic press.} The reverse of carte de visite and cabinet cards offer such opportunities. There was too a need to present fresh opportunities to their clients.

The Studio Experience

It is bad enough to be taken to a strange place and be made to go through a strange operation, without the additional discomfort of being taken into an uncomfortable room. (H.P. Robinson, 1891, p. 17)

The photographic record indicates that technological arrangement of portrait studios lent themselves to a playful manipulation and presentation of a scientific technological process. A certain playfulness is apparent in the mise-en-scène of many photographic studio portraits. The willingness of the sitter to hold up a paper-mache fence while standing upon a patterned carpet in front of a painted landscape, for example, or to ‘talk’ to a taxidermy parrot on a perch, might be better understood in these terms rather than as foolish which is the more typical interpretation. The subjects of these photographs shared an unspoken understanding with the photographer that they were ‘being a

\footnote{The Romance of a Shop (1888) is a fictional account of the establishment of a photographic studio. Although fiction the descriptions of the studio and its activities were written at the time when the workings of a photographic studio was well known and known to its author, of whom there are studio portraits. As such, the novel and other fictional accounts contribute to our understanding of the studios, that has elsewhere largely been drawn from photographic press.}
picture' and their participation in such activities must be interpreted in the context of sophisticated modes of understanding images. Playfulness infers foolishness but as a spectrum of activity it accommodates the experimentation through which photographs became possible — the 'thinkering' that Edmonds describes as “one of the physical remains of a flow of ideas; a cognitive trace of the [...] processes conducted in the machine shops and performance spaces of early cinema" (2020, p. 241) in terms of the experience, playfulness “allows for openness and improvisation that in turn can cultivate enchantment.” (Bennett, 2001, p. 51)

The process of having a portrait photograph made was adapted to accommodate and provide opportunities for this openness and improvisation. A social organisation evolved to create these photographs comprising a network of complex skills practised by artisans, the photographic press was a means to develop this network and acted as a melting pot for sharing and debating developments and ideas. The process of having a portrait photograph made, for the sitters who visited the ‘establishment’ studios, incorporated choosing what to wear, how to pose, which studio to visit and with whom, and in addition to the practice of sitting in the atelier, browsing the photographs, settings and the object d’art in the waiting room. Through these studio practices and within the

130 Münsterberg’s work on the motorman apparatus can be described in these terms as can the provisional reconstruction of it undertaken as part of this research project.
context of the imaginary, the participants can be seen to be actively engaging with the
creation and meaning of the images and in addition modifying and adapting them.

Time
With various purposes in mind, the goal for experimenters in what became known as
photography was to fix a trace or record of ephemeral and transient phenomena in
order that they could be analysed and understood (Ramalingam, in Baetens et.al,
2010). Despite the assertion that photography could "secure the shadow ere the
substance fade..." uncertain processes, materials, and inexpert or un-tutored work did
mean that many portrait photographs faded over time, just as has knowledge of the
identity of the subjects also faded.

Although exposure time was reduced to a few seconds (if in ideal conditions) within a
few years, a feature of accounts of studio practices during the first few years of
photography is that it was a slow, sometimes uncomfortably slow process requiring
physical support and mental distraction. An Eye Rest was used in some studios. It
comprised "[a] small screen, fixed upon a stand-rod with thumb-screw, movable and
elevatable, green or dark in colour, on which some object is placed for the subject to
look at, will be found more agreeable to the eyes than a screen of any other reflective
colour, or a pin or spot upon the wall or other object." (Marcus Aurelius Root [1864]

131 ... let nature imitate what nature has made." in Henisch and Henisch, 1994.
1998 [online]). As he explains, their purpose was to provide a focal point for the sitter’s gaze, but their name evokes the unnaturally long time of concentrated stillness of the eyes that sitters were expected and anticipated needing to hold. Baden Pritchard reports that the Lafosse studio contained “a vast number of clever properties, but the best of all is a large musical box. Which M. Lafosse finds exceedingly useful when making exposures as sitters then have something else besides themselves to think about at the eventful moment” ([1882] 1973, p. 164).

The practical implications of the immobility and concentration that was necessary if a sitting was to be successful, resulted in the provision of physical support so, drawing upon items used by portrait painters, manufacturers devised a range of posing stands, head rests, knee braces, etc. each promising that their apparatus was more effective, more comfortable than any previous. Numerous patents were applied for, and their various merits and disadvantages discussed. As noted above, even when the technical processes were less time consuming, became standardised and offered reliable results, having one’s photograph made could be a lengthy experience.

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132 Root was teacher then from 1846 a Daguerreotypist with businesses in Philadelphia and New York.
The significance of the temporal dimension is indicated in a Daguerreotype of photographer Jabez Hogg, staged to appear as if he is timing the exposure of a plate with his pocket watch in one hand and the lens cover in the other. The camera is set at head height on a stand, barely a metre away from the sitter, a Mr Johnson, who stares fixedly into the lens. A woodcut reproduction of this image was included by Hogg in his Practical Manual of Photography published in 1843. In an engraving by George Cruikshank for his Omnibus of 1842, for an item titled "Photographic Phenomena, or The New School of Portrait-Painting" the photographer can be seen standing at an open door and timing the exposure with a large pocket watch. As Benjamin describes in a commentary on the constraints upon the photographer’s practice of 'early photography', “The procedure itself caused his subject to focus his life in the moment, rather than hurrying on past it; during the considerable period of exposure the subject (as it were) grew into the picture” (1931, p. 514). Both actual time and subjective time are involved in the temporal dynamics of the studio and are illustrated by these images, for the sitter through his act of concentrating and of observation of the photographer’s concern with the timing of the exposure and for the photographer, as an essential element of a process which began in the arena of scientific positivism. Counting down the seconds of exposure raised awareness of time in the context of the challenges to concepts and practical experiences of temporality. Within the temporal dimensions of the technical arrangement of the studio, the photographer and sitter appear to be collaborators in experimental manipulations of the perception of time. This thesis suggests that the painted backgrounds contributed to this instability of time, through the timelessness of their imagery. The syncretic mise-en-scène of portrait photographs present both a
record of the objective measurement of time and a collapsing of time to an endless present.

Batchen and Barthes write about the temporal dimension of photographs as the suspension of time as they hover between life and death. As Lowry describes it, photography is “a visual language that renders the temporality in a meaningful way” (Lowry, in Baetens et al. 2010, p. 47). The entanglement of time in the context of photography with the experience of enchantment will be discussed further in Chapter Seven, but the discussion above has begun to explain how the studio experience might be interpreted as a transformation of the temporal domain of our mundane existence, into an extra-ordinary state which is distinguished by a suspension of chronological time and physical and perceptual stillness. Lowry, following Benjamin, (in Baetens et al. (eds.), 2010) explains how the long exposures the sitters endured inscribes the experience of presence and duration into their portraits, for us to read now. The thesis suggests this might be understood as a dimension of the quality of enchantment.

Lighting the sitter

The affective quality of light and the emotional effect of being ‘in the spotlight’ are significant aspects of the studio experience. Despite its material properties, photography has always evoked another dimension: photography —writing with light— suggests immaterial properties as associations with spirit.
A feature of the earliest period of commercial photographic portraiture was the blue glass of the studio. In a discussion of the experimental application of colour to photographs by Richard Beard during the early years of the 1840s, Heyert describes the blue-tinted glass-house which he relied upon to “illuminate the features of his sitters and enhance details of their mannerisms, with the result that his sitters are displayed with uncompromising truth” (1979, p. 59). Period references to the blue glass which diffused the sunlight that was necessary for successful exposures to be made indicates that it was a notable feature of the experience and appears to have created some disquiet. On March 20 of 1841, The Spectator published an account of a preview visit to Beard’s studio:

The visitor is introduced into an apartment lighted from above, and having a flat roof of blue glass, which subdues the sun’s rays without materially diminishing their luminous intensity; the livid paleness of complexion visible in the faces of the persons assembled, and the effect on the eye from the sudden change in the hue of light, causes a strange sensation, which after a while is agreeable (in Heathcote, B and Heathcote A, 2002, p. 7)

Two months later, Maria Edgeworth writes to Fanny Wilson of “A Visit to Mr Beard’s Studio”

11, Gloucester Place, 23 May 1841. Lestock came with me to breakfast here at 8 0’ clock and then he took Honora and Captain Beaufort and me to the Polytechnic and we all had our likenesses taken and I will tell you no more lest I should some way or other cause you disappointment. For my own part my object is secure for I have done my dear what you wished. It is a wonderful mysterious operation. You are taken from one room into another up stairs and down and you see various people whispering and hear them in neighbouring passages and rooms unseen and the whole apparatus and stool on high platform under a glass dome casting a snapdragon blue light making all look like spectres and the men in black gliding about like etc. I have not time to tell you more of that. (Bodlean Library [Online])
Lighting the sitter effectively had practical and time-consuming implications for the photographer, and for their subject. Discussions in the photographic literature of the period indicates that for photographers, the quality rather than the quantity of light was important. Natural light that was obscured by chimney pots, adjacent buildings, poor weather and pollution were all discussed by photographers as difficulties to be managed. The management of light features in numerous instruction books and ‘how to…’ articles. Blinds might be white, blue muslin, and calico, to variously diffuse or block the light. H.P. Robinson comments upon the sculptor and photographer Salomon’s ‘ingenious’ design for an alcove background papered in salmon or soft grey and suggests the amateur who photographs outdoors will find it a useful means of controlling the light and the lighting of the sitter (and upon the background). If installed in the studio, manipulation of the various canopies and hinged screens will enable to sitter to be surrounded by soft diffused light. Hogg (1843, p. 27) advises photographers to drape a canopy of white calico above and to either side of the sitter to diffuse the light. Reflectors and screens were placed close to the sitter. The various merits and disadvantages of tinted, ribbed and ground glass were considered in correspondence about glass house design. In the context of debates about new forms of lighting in the studio, an article in the March 24, 1876, issue of the *British Journal of Photography* discusses an experiment (which involved creating a miniature studio with a doll as sitter) that evaluated the light from a magnesium lamp and that of daylight, concluded that by careful management of artificial light it could be used as effectively and sensitively as
daylight. The miniature studio was papered with blue as was the convention. In the same year, in a discussion of electric light, photographers were encouraged to consider the effect of the flash upon the sitter. (BJP 1876 14 Jan pp. 24 Answers to correspondents)

Space and place

The problems of light and shade and the flattening of background and figure were noted by Claudet in the Reports by the Juries [...] of the 1851 Exhibition: “Photography may be said to be too faithfully exact in its results, for the purposes of art; detailing, as it does, the accessories in the background and the main object with equal fidelity.” (p. 276)

At the Liverpool studio of Browns, Barnes & Bell, Baden Pritchard observed

a charming enlargement – two tiny sailor boys perched aloft on the trunk of the main mast among the rigging, with a clear-lit sea behind them. In the studio presently, we see the accessory that has been here employed, an object of very simple character, which is placed in front of a sea background, the seat being some five feet from the ground, so as to give the effect of height. ([1882] 1973, pp. 211–212)

Some aspects of the studio mise-en-scène can, in the early years of portrait photography, be accounted for by photographers' experiments with the presentation of plasticity or three dimensionality of the figure against the background. Period texts indicate their concern to overcome the photograph's flattening of the figure to the

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133 See BJP March 24, 1876. pp.186-187
background and their attempts to present a sense of the depth of space. The backgrounds, props and floor covering offered a practical response to practical problems. Patterned oilcloth or rugs were used to indicate depth through the pictorial devices for showing perspective. And along with background, camera, reflector screens, posing stands, etc., they also marked out the boundaries of the mise-en-scène that would appear in the photograph, the space where reality was transformed into an image. It is possible to interpret the backgrounds within the technical arrangement of the studio as one of contributors to a ‘productive tension’ that was significant to the experience. The syncretic realism and internal logic of the mise-en-scène; the ‘room within a room’ of a mundane but extra-ordinary space, was due to the entanglement of the material of the technologies and the imaginary of participants who were the producers of an experience this thesis describes as enchantment.

Influences on the backgrounds: Theatre

A continuity of experience through photographic studios and theatre, is noted by Sagne, (1998, p. 103) who explains that they “worked on the same principles and used the same tricks.” In his study of carte de visite photographs, Batchen (2005, pp. 63–74) explains how a “range of theatrical settings” was available to sitters who had some control over the theatricality of the resulting image. Keller (2013, p. 1) suggests the painted scenes of theatre designs and dioramas were the forerunners of backgrounds. However, with a few exceptions, of whom Lafayette W. Seavey was notable, they were not painted by former theatrical scene painters.
Mr Cowan has no great faith in Seavey’s backgrounds; his own, he tells us, are, for the most part, painted for five shillings apiece by an old hand who has been a scene painter in his day. Rather than the conventional drab-grey usually affected in backgrounds, a warm brown or brownish-grey is the tint preferred. (Baden Pritchard, [1882] 1973, p. 58)

Mr. Robinson’s studio is remarkable from the fact that it does not contain one of Seavey’s backgrounds. The backgrounds here are all prepared by our host by a modified Faulkner process. This clever method of Mr. Faulkner, which has now been published, was to rub wet chalks of the proper tint upon wet canvas, and afterwards soften down the effect with an ordinary clothes brush. This method of using chalks is as simple as it is effective. A skilled eye and practiced hand are indispensable for applying them and wielding the brush; but any photographer who is something of an artist, will find the plan far more simple than the distemper painting. “Just took me an hour,” said Mr. Robinson, pointing to a bit of sea and rock, against which he had been posing some bare-legged youngsters; the background had evidently taken their fancy, or something else, for their portraits were as lively and merry as if the beach were before them. (1882 [2013] pp.174-175)

Evidence suggests that most backgrounds were, for the most part, skilfully produced for their explicit use in portrait studios by commercial manufacturers, and if photographers did not want to avail themselves of these, whether for sale or hire, then they painted their own. Comment in the photographic press was generally disparaging of suggestions that the theatrical devices of illusion and imagination could be applied to the studio mise-en-scène, when, in fact, the camera would reveal the painted backgrounds as no more than what they were.
The Black Clothing of All Things

At the Hôtel Drouot saw the first sale of photographs. Everything is becoming black in this century: photography is like the black clothing of all things (1857 Edmond and Jules de Goncourt, in Bajac (2001)
The black, grey, white or sepia tones of the backdrops and props would have presented a preview of the resulting photograph to the sitter as they entered the studio and took up their position and who, for the occasion was instructed to become motionless, to wear muted colours, the colours of mourning, which pre-empted the photograph’s outliving of the sitter. H.P. Robinson advised that the studio walls should be a soft grey. He also described “a sham piano, painted a dull grey, so that it may ‘take’ well;” (1891, p. 31). In an *Photographic News* editorial, Sarony’s studios in Scarborough were reported to be painted in French Grey. Yet the furniture and drapes were colourful, rich russet red and gold or dark blue plush in the high-class establishments. This contrast of colour and the monochrome in the studio setting might have contributed to the sense of entering an extra-ordinary space that, as suggested above, contributed to the enchantment of the experience.

**Cross-fertilisation of imagery**

The mise-en-scène of the portrait studio was part of a broader imaginary. The technical arrangement of the studio and the practices within it were embedded into and contributed to this imaginary. The following discussion will examine the cross-fertilisation of imagery that was infused with the themes of pictorialism and naturalism and reflects the collective imaginary of its inhabitants. A location-less nostalgia for an idealised rural past. This imaginary was sometimes catered for before the sitter even entered the photographic studio. Baden Pritchard writes of his visit to Jabez Hughes in Ryde, where a pretty ‘grotto-like’ garden, parallel to the studio, contained rustic seats among ferns and fresh ivy, a splashing little fountain, rock work and greenery ([1882]
1973, p.185). In Valentine and Sons’ Dundee establishment, he found that “not only the end of the studio but also the angle farthest from the glass is fitted up as a background. The angle indeed, forms a rustic arbour, tastefully arranged with fragments of cork bark, ivy &c., so that with but very little trouble it is constituted an apt and unconventional background for groups, &c. A change from the ordinary flat background is at times very welcome…” ([1882] 1973, pp. 192 [Online])

As an example of the cross fertilisation of imagery, a stile can be seen in many portrait photographs from the 1860s, a feature that persisted into the 1900s. It was often made from rough wooden boards and/or tree branches, alternative materials included wood covered with cork bark or free-standing structures partially made from or coated with paper-mache or plaster. Stiles and fences also appear on painted backgrounds that depict a rural scene or on painted panels of a type similar to the flats used in theatre, allowing subjects to stand either in front or behind them. The stile was not always used with an appropriate painted background, they are frequently seen in front of painted balustrades and impeccably manicured gardens and parks, standing on carpet and placed alongside furniture and drapery. The stile appears in photographs as if a pleasant pause on a journey and a wholesome place where friends and lovers could meet. It provided the subject of a studio portrait with something to hold on to, to occupy their hands, to lean against or sit upon. It also afforded the opportunity for hinting at or displaying a little impropriety.
A stile featured in poetry, prose and painting, much of which was accessible to a broad spectrum of the public through serialised novels, short stories and poetry, and engravings and photogravure images in the popular press and periodicals. *The Stile* by Thomas Creswick was exhibited at the British Institution in 1839 and *The Wayside Gossip* (1873) by W. E. Milner includes a rustic fence and stile. Matthew Arnold refers to “Maidens” who have glimpsed the Scholar Gypsy crossing a stile from fields into “the public way.” (1853, see lines 81–85). The photographer H.P. Robinson staged some of his photographs in rural settings portraying rural scenes or cottage interiors that evoked rustic simplicity, for example, in *He Never Told His Love* and *Somebody’s Coming* (1861 as a study for *Autumn* 1863) include a stile.

Images of gentle romance appeared frequently in illustrated periodicals, for example, in 1862, the *London Society: An Illustrated Magazine of Light and Amusing Literature for the Hours of Relaxation* (1862-1898) included as it’s frontispiece an engraving to accompany a poem titled *A Summer’s Eve in a Country Lane. A Memory*. The young couple who are standing on a country path in front of a distant view of fields beyond a mature tree evokes the setting of many studio portraits of the period. A similar image appears in *Favourite English Poems of Modern Times* (1862, London: Sampson Low, Son and Co.) to illustrate the poem *The Pleasures of Hope*, (Thomas Campbell, 1879).

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134 Drawn by John Dawson Watson, engraved by Dalziel Brothers.
Images of pastoral and natural landscape abound in novels and poetry. Distant hills, hedgerows and trees, and occasionally cottages or castles, provide the settings for picnics, walks and romantic liaisons. These draw the imagery of Romanticism into the mid and late nineteenth century. Poems such as *The Farmer’s Boy*, (Robert Bloomfield, 1800), was also included in *Favourite English Poems of Modern Times* (as above). Illustrated with 189 wood engravings it created an imaginary of a rural idyll, drawing upon a nostalgia for pre-industrial landscapes. “What the bourgeois readers of the romantic period thought they were reading when they bought The Farmer’s Boy was a harmless and reassuring thing, celebrating a rural life which few of them knew anything of, and about which they could afford to be complacent” (Cochran, 2014, p.13). The iconography of the illustrations of this poem (engraved by W.T. Green from Myles Birkett Foster’s drawing), and of many others with pastoral themes, are also found in studio portrait photographs. There are no indications of technological change in these illustrations. Some painted backgrounds depict mountains and rocky crags, often featuring a rushing waterfall that might be found in Scotland or the Alps: the ‘wild cataract’ of the popular song ‘*The Splendour Falls on Castle Walls*’ (1864 that set to music verses from Tennyson’s ‘*Princess*’ (1847). Tennyson wrote many poems that feature eulogies to the natural world and ideas of a romantic landscape, an imagery that is drawn from the romanticism of travel in the eighteenth and nineteenth century (Hudson, 2015, pp. 41-57) as an indication of the widespread dissemination of this imagery, in 1864, a volume of his poems sold 40,000 copies immediately after publication.
Literature, photography and moral character

The moralising nature of much of the popular literature of the mid to late nineteenth century was not only limited to the periodicals, magazines and gift books produced by religious organisations, but embedded within the literature aimed at the general reader. Among the claims that were made for photography during this period was that the camera could reveal the moral character of its subject. Many portrait photographs seem to emulate the young ladies and gentlemen who appear in the illustrations of romantic (but ultimately morally chaste) stories. The nuclear family appears in these fictions too, modelled upon the ideal of Victoria and Albert. Victorian family photograph albums sometimes included photographs of Victoria and Albert in their opening pages followed by studio portraits of the family patriarch surrounded by his wife and children.

(Hargreaves, 2001, p. 46)
Novels and short stories simplistically classified their subjects into good or bad, misguided or foolish and in religious texts, lost or saved. Just as photography was a useful tool for the objective and empirical methods of scientific classification, its apparent ability to discern difference and categorise its subject was deemed to be a valuable social tool too. Portrait studio photographers do not appear to have been, (with some exceptions) deliberately contributing to the classification of their sitters (Although some had 1st and 2nd class studios and waiting rooms, and even separate entrances.) Their studio practices seem to do the opposite through the similarity of pose, and use of the same background and props for very many sitters. The sitters themselves appear to be willing to conform to a socially acceptable ‘type’. Hargreaves (2001, p. 35) claims that portrait photographers and their subjects would have been familiar with Johann Casper Lavater’s classifications of character according to physiognomic traits. He
suggests that “sitters could have been persuaded to contort in order to present their most desirable [...] traits to the photographer, thus ensuring that their portrait would act as evidence of their good character.” Despite these apparent concerns for displaying moral character in photographs through the camera’s discernment of truth, the obvious artificiality of the setting of the majority of studio portrait photographs indicates that the photographer and subject were just as much concerned to make a picture, one that represented the subject in a positive light.

Lippard described examples in the 1997 Rochester House travelling exhibition as “carelessly painted” (1997 p. 8). The brush strokes are clearly visible, and the paint appears to have been applied in a loose, and what could be described as a rough manner to the fabric of the backgrounds that were examined for this thesis, but this does not necessarily mean they were painted without care. Their painters developed considerable and specific skills in order to create painted scenes that although appearing raw and harsh if viewed close to the canvas, were transformed and softened in the photograph.

Conclusion

This chapter has examined the novel technical arrangements in which the nineteenth century public’s primary encounter with photography was situated, from the spectres of the blue light that informed expectations of the experience during the early years of photographic portraiture to the syncretic landscapes that persisted into the twentieth century. It has shown that influences upon the painted backgrounds and props and the
subjects and viewers’ understanding of them are more complex than has previously been understood and suggests that studio practices indicate the photographer and subjects were aware of the limitations of photography to represent the entirety of the subject. The discussion has illustrated how the technical arrangement of the camera technology and the ‘soft’ technologies of the studio mise-en-scene contributed to the affective and cognitive dimensions of the sitter’s experience, and within the broader imaginary of technical and spiritual uncertainties imbued the experience with a quality that this thesis calls enchantment.

Chapter 7 Enchantment

Chapter Seven will draw upon a philosophical analysis of enchantment and its application in anthropology and New Materialism to more fully understand some of the cognitive and affective dimensions of encounters with media technologies of the nineteenth century. It will explore enchantment as a legitimate object of study that can be analysed and evaluated on the same terms as other phenomena associated with visual media.

In anthropological studies it is typically discussed in terms of so called ‘primitive’ belief systems where experiences explained as enchantment are attributed to divine creators, magic and sorcery. The inference of naivety, deception and illusion persisted in descriptions of scientific and technological processes and coloured their affective
potential. That these uses of media technology persisted through a kaleidoscope of forms illustrate the capacity of imagination in certain circumstances to make sense of the world. New Materialism, affect and ecological ethics, cultural studies, art and aesthetics, all draw on enchantment to talk about imaginative dimensions of fiction and make-believe. The claim is that photographs have both material and imagined qualities, and that enchantment is associated with both.

To do this, the first part of this chapter will examine the phenomenon of enchantment in terms of its temporal and spiritual qualities, its perceptual characteristics, and in its historical and philosophical sense. The second part will discuss enchantment as novel way of interpreting the technical arrangement of studio portrait photography and the experience of the participants with the aim of contributing an additional perspective to the existing scholarship. The chapter will begin with a review of the literature that attempts to explain what enchantment is, how it feels, the conditions in which it arises and its affective dimensions. The scholarship that informs the work of this chapter offers various interpretations of the spectrum of experiences of enchantment, including the wonder, heightened awareness and attention, and the perception of time. Following this introductory section, the chapter will explore the entanglement of the language of magic with both enchantment and photography that is embedded into descriptions and explanations of the activities and processes of studio portraiture and moving images.

The discussion will show that the language of magic not only reflected these experiences as enchanting but also informed expectations of them. As the discussions
above have described, the audiences were prepared for their experiences of phantom rides, Photoplays and photography through the cross-fertilisation of imagery, accounts in the popular press, railway travel, and the entanglement of scientific display and entertainment. The significance of expectation and anticipation, or ‘readiness’ (Backhaus, 2000) influences the likelihood of experiencing enchantment and will be explored next, followed by an examination of the heightened tension and ‘wide-awakeness’ of being enchanted.

Enchantment is a realm of extra-ordinary perception that has a range of depth, breadth and intensity that has been associated with astonishment, rapture and ecstasy and with uncertainty, unpredictability, disorientation and a sense of uncanny. It need not be a grand affair or dependent upon an auratic object, it is just as likely to occur when something small and otherwise ordinary catches our notice as “[a] simple and unadorned experience of the real” (Rosset in Bennett, 2001, p.169). But in all cases enchantment is an emotionally charged and transformative experience, one that is sufficiently desirable so that we develop tools, rituals and mechanisms to make it possible. These are part of the technical arrangements that in combination with the nineteenth century imaginary produce the media forms that have been discussed above. In the public sphere of the imagination that Saler discusses (2012), its sensory spectrum ranges through charm and delight to an intense experience that Backhaus (2000, p. 36) and Curry (2020) describe as ‘radical enchantment.’
Orphan photographs, such as those described in the preface, have a very particular quality that is of a different order of intensity to ‘charm,’ the term Benjamin (1931) used to describe ‘older pictures.’ The quality of the experience of finding a portrait photograph in an archive or flea market is, of course, subjective and contingent to circumstance, intention and expectation. Such photographs, as examples of things out of place and time, alien and only partially intelligible, cause a shift in awareness and attention that is somehow compelling. The mixture of delight and disturbance, to which Bennett (2001) and Backhaus (2000) refer as characteristics of enchantment, describes the sensation of looking at these orphan photographs. Something about them is troubling but at the same time they are compelling. They seem to be imbued with an intrinsic quality that can be traced back to the circumstances of their making and evoke the emotional investment into them by those who engaged with them. This quality endures even though through familiarity the initial intensity of experience may fade.

Munker (1997, p. 377) describes the biographer’s “burning desire” to write about another’s life as a product of enchantment, a “transference” in the psychological sense of the transfer of feelings from one person to another. A desire that might be explained in terms of portrait photographs and the Life Model lantern slides that Kember and Crangle (2016) discuss in the context of empathy, as feelings that arise through our identification with the representation of another. Yet the majority of the subjects of nineteenth century portrait photographs are unknown, and the protagonists of the Life Model lantern slide stories are depicted in the general rather than in the particular. Munker describes this as “a kind of seismic echo. In appropriating someone else’s
history and producing a narrative about it, one seizes hold of an external story that resonates with some inchoate psychic drama of one’s own” (1997, p. 377).

Auratic objects, such as orphan photographs, might be enchanting, they might contribute to an experience of enchantment, but aura is not enchantment. In the context of a discussion of aesthetics and the ethics of value, Smith (1978) explains how the philosopher Scheler offers a way of interpreting and describing the quality of feelings or emotive states of enchantment and how these relate to the attribution of value to an object. In this system, an object is enchanting as a consequence of the quality of the feelings we associate with it. Enchantment has a symbiotic relationship with the value accorded to the object or event experienced and its relative value is grasped intuitively through experience. This interpretation might explain why not all photographs are considered to be enchanting.

Enchantment is not a projection onto a passive recipient, (Curry, 2019; Morgan, 2018; Bennett, 2001) and although its perceptual focus is outwards it is an embodied experience. As Auden explains “When we are truly enchanted we desire nothing for ourselves, only that the enchanting object or person shall continue to exist” (1970, in Curry, 2012, p. 8). Enchantment, then, can be described as both a sensation one might experience when encountering an auratic object and when such an object—a portrait photograph—becomes enchanting through its association with the encounter. The sensation of enchantment as an ‘afterglow’ can continue beyond the event and contributes to the anticipation of another (Tymieniecka, 2000, p.15) or, as Backhaus
nicely describes his recollection of the enchantment of the book fair as an experience that “remains as a remembered enchantment like the remembered vision of the mystic.” (2000, p. 35)

As Chapter Six has indicated, the process of having one’s photograph made in a portrait studio has many of the characteristics of enchantment. It was a process that was manipulated and modified through its technological arrangement to produce a particular experience and, as this thesis suggests, imbued the photographs with a quality that endures, one that we experience as enchantment, a subjective experience that McCarthy et al (2007) suggest should “be appreciated as a personally meaningful one” (p, 403). To be enchanted is not a passive state. Bennett (2001) and Curry (2019) both explain how enchantment is interactive, requiring, for Bennett, “active engagement with objects of sensuous experience.” For Curry, it is partly discovered and partly created. It has its basis in intuition or ‘feeling’ and as such, does not depend upon conscious reasoning, an interpretation that might be seen as consistent with discussions in the chapters above concerning the internal logic of pictures.

The temporal dimension of the photographic experience discussed in the previous chapter can be understood in terms of the hyper-awareness and focussed attention that are components of the experience of enchantment, one of ‘time standing still,’ and of being “caught up in a moment” (Ingold, 2000, in Pyryry, 2016, p.12). This experience could also be described as immersive; however, one does not forget real time, space and body, it is both real and imaginary. Enchantment can, though, change one’s
perception of time passing, be experienced over time and be re-experienced as a quality that endures. Phantom Ride and Münsterberg’s apparatus capitalised upon duration.

The experience of enchantment is also shaped by the social norms, values and discourses within which it is embedded, these contribute to the shared technological and supernatural imaginary in which the experience described above took place. In the public domain, unique or rare objects and experiences attain high cultural and consequently high monetary value, and sometimes the high monetary value of an object may cause it to attain this high status. As a consequence, access to such objects is restricted or limited. This creates an ‘orienting mood’ (Backhaus. 2000, p. 34), an anticipation that increases the potential of experiencing enchantment when encountering them. The orienting mood of expectation when looking for the first time at the notable photographs of the early days of photography under glass in the gallery of a national institution, is likely to affect the significance and value placed on the experience of seeing what might otherwise be described as small and indistinct images. In the private domain, memento mori and souvenirs, through association with a person or event, are imbued with the qualities of enchantment. The quality of experiences of these objects can be likened to the intimate encounters with the affective power of historical and pre-historical sites and artefacts described by Holtorf, (2005 in Perry, 2019, p. 2) as “the magic of the past.” Enchantment though is not the world seen through rose-tinted spectacles but a heightened, sharper experience of the world, so although nostalgia can be related to enchantment as an orienting mood, the “pathos and bittersweet
poignancy," that Curry, (October 2020) describes as the ‘tone’ of enchantment seems, rather than the heightened tension of enchantment, to be an affective state more closely associated with nostalgia and with daydreaming.

Enchantment and magic and photography

The term enchantment derives from the German Entzauberung, meaning mystification and magic, but magic as sleight-of-hand and trickery is not enchantment. Morgan (2018) points out that in mythology enchantment often leads to capture, to be quite literally spellbound, and explains that the alchemy of fairy-godmothers, wizards and other faerie beings in folk and fairy tales can be understood as fictional descriptions of enchanted states. It is important to explore photography’s literary association with magic as language colours imaginings, informs expectation, experience, and meaning.

Photography, enchantment and magic share a lexicon. Encounters with Daguerreotype
photographs provoked responses of awe and wonder that might be attributed to a mixture of recognising the skill of the maker, understanding the complex process by which they were made and yet still marvelling at the quality of what has been made.

In *La Gazette de France* on January 6, 1839, H. Gaucheraud describes Louis Daguerre’s “views on copper” as “enchanted drawing[s].” Nine months later, on August 23, *The London Globe* gave an account of the process developed by M. Niépce and M. Daguerre in which “the drawings come forth as if by enchantment” when the silver-plated copper sheet is exposed to the vapour of mercury. These processes were at this stage displayed in institutions and the institutional structures of science.

There is a correspondence between enchantment, magic and photography in the language used by those who encountered photography and photographers, including those well versed in chemical sciences, optics and technology. Henry Fox Talbot described his own process as a phenomenon having the character of the “*marvellous*” (Italics in source) brought about “by the spells of our ‘natural magic’.” Dickens, in the March 19 issue of *Household Words* in 1853 referred to photographers as masters of mystery and photographic studios as places of enchantment, where the mysterious

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designs of the taker of men was practiced under a London skylight. In *The Camera and the Pencil* (1864) its author, the Daguerreotypist Marcus Aurelius Root, proposed that “the photographer should penetrate, by whatever means at his command, the fleshly mask, which envelopes the spiritual part of his model” (p. 439), intimating the significance of the photographer in the technical arrangement that in some post hoc interpretations is understated in favour of the apparatus. The apparatus alone is not able to fully represent the sitter. The photographer, who had mastered the secrets of the production of images that appeared ‘as if by magic’ from otherwise hidden apparatus and processes, was a co-facilitator of a desire to participate and be seen to participate in the transformative potential of technology. If we consider the photographer in the context of magic, we can describe the process as a magical art that “worked best in the hands of a charismatic individual skilled in the theatrical use of color, sound, pattern, repetition, movement, scent and texture. For magic was both performance and performative: it transformed one thing into another.” (Bennett, 2001, p. 57)

137 His description is found on above and on pp. 54-61 of the original.

138 Its full title:

*The Camera and the Pencil, Or, The Heliographic Art: Its Theory and Practice in All Its Various Branches, E.g., Daguerreotypy, Photography, &c. : Together with Its History in the United States and in Europe, Being at Once a Theoretical and a Practical Treatise, and Designed Alike, as a Text-book and a Hand-book : Illustrated with Fine Engravings on Steel and on Wood*
The process of making a photographic image was for the most part and for practical reasons concealed from sitters, and just as magicians concealed the mechanisms involved in their illusions, both involve an occult process of transformation. Photography from the earliest experiments with bitumen of Judea, turpentine and lavender oil, and silver, mercury and iodine has been described as magical. The skills of prestidigitators might be likened to the practice of skilful analogue photographers as they manipulate the photo-chemicals, camera and light while simultaneously directing the subject towards their optimal pose. Much of the complex process of making a photograph was hidden inside the camera and the darkroom. A dark slide was used to carry the undeveloped plate and then the latent image to and from the camera. Vapours revealed the image. While the technical and chemical processes of photographic image making could be understood from instructional texts, it was not possible for most people in the nineteenth century to see the latent image appear. Imagination played a part in their understanding of the process.

Magic and Ritual
Magical events are surrounded by ritual. This creates heightened awareness, or wide-awakeness (Backhaus, 2020) and the misdirected attention that conjurers use to distract the audience away from their techniques. The hype around the event and in the magician’s hyperbole and patter causes anticipation. The performative nature of the process of having a photograph made in a studio setting and the photographer’s sleight of hand lends itself to analysis in the context of the enchantment of theatre that has
been discussed in previous chapters where the internal logic of the pictorial realism encountered by nineteenth century theatre goers was also to be found in the studio, where creating enchantment rather than illusion was the aim. The affective dimensions of photographic studios and portrait photographs can be understood as enchantment if we look at them with an understanding of their internal logic.

Enchantment imbues the experience with a “symbolic significance,” (Backhaus, p. 35) which causes everything not directly involved to recede into the background, just as the objects in a nineteenth century portrait photograph that are outside of the narrow depth of field become blurred and fuzzy. The ‘wide-awakeness’ that Backhaus describes as characteristic of enchantment (2000, p. 25) is apparent in period accounts of sitting for a photographic portrait even though these accounts must be interpreted in the context of their authors’ intentions (as discussed above.) Examination of the demands and constraints of the technical process of making a photograph upon the sitter also indicates an atmosphere in the studio of heightened tension, not only on the part of the sitters but for the photographer too who was anxious to create an acceptable likeness.

139 This is one of the constraints upon the subject’s pose. The painted backgrounds also needed to indicate the middle ground. Different planes of representation must be accommodated and adapted to the focal length of the portrait lens.
Anticipation and Readiness

Anticipation or ‘readiness’ is according to Backhaus, a necessary precursor of enchantment (2000, p. 25). It acts to orientate the participants and sets up their expectation about what will happen or is hoped for and their willingness to engage in certain behaviours and responses, for example, the finding of a photograph, watching a phantom ride, or having one’s photographic likeness made. In the context of early cinema Slugan describes this willingness as ‘mandated imagining’ (2021). His discussion draws upon Walton’s *Mimesis as Make-Believe: On the Foundations of the Representational Arts.* (1993)\(^{140}\) to explain that Early Cinema audiences were given permission to engage in a make-believe that the representations they saw on the screen were the things represented and respond accordingly. While the enchantment this thesis examines is not a consequence of make believe, (rather, it suggests that there is no make believe in the unreality of the representation was significant) the mandate to imagine might be understood in the sense of the readiness that Backhaus describes. For Backhaus, the anticipation of finding a sought-after volume at a book fair imbued it with enchantment, the volume became an ‘object of sensuous experience’ (Bennett, 2001) through its association with the circumstances of its finding just as

coming across a studio portrait photograph in a flea market does. For the nineteenth century sitter, the cultural and psychological preparation (the imaginary) for the moment when a photograph was taken contributed to their readiness.

Chapters Two and Six have described how anticipation and expectation of the process of having one’s portrait made began in the background chatter of public discourse fuelled by newspapers and periodicals, photographer’s advertisements and display boards. All of these within a broader technological imaginary. For practical reasons, photographers gave leaflets to prospective clients, or combined advertising with instructions about what to wear for their visit.¹⁴¹ Anticipation would have grown through the more intimate conversations of domestic social events where “what happened at the studio” was shared (as Maria Edgeworth did in her letter to her sister). Once at the studio, anticipation would have been heightened through carefully contrived and

¹⁴¹ ‘To My Patrons’ for example was an eight-page booklet published in 1871 by American photographer Edward L. Wilson, Secretary of The National Photographic Association, Founder and Editor of The Philadelphia Photographer. Ten years later he claimed to have sold some 1 million copies, many personalised for individual studios who bought them in bulk for a discounted price.
orchestrated activities in purposefully designed surroundings with accompanying rituals.\textsuperscript{142}

Notably, Weber (1916) positioned enchantment in a category of mystical and ineffable experiences that were, he said, the opposite of rational thought and harked back to the concrete magic of the primitive world. Enchantment is still as commonly framed as an alternative to scientific thinking and rationality and an experience of transportation from the surrounding objective reality as a consequence of a suspension of critical ability. As discussed in the introduction to this thesis and in Chapter Six, the subjects of studio portrait photographs have been described in these terms from the middle of the nineteenth century. The photographic press and non-specialist papers and periodicals all found something to say about the ‘absurdities’ of studio portraiture. That there are few contemporary accounts of the experience from those who did not have a professional or commercial interest has presented a challenge to this thesis, but there is no doubt that visiting a portrait studio was a significant event. The photographic record shows that these visits often marked transitions from one phase of life to another, these ‘threshold states’ that are described by Backhaus (2000) as a sensation of hovering

\textsuperscript{142} In addition to fostering a readiness for enchantment in their sitters, the preparation allowed the commercially savvy studio operator to sell additional products and ‘add value’ to an already significant experience, so much so that the resulting photograph could be described as a souvenir of the event.
between one thing and another, contribute to the experience of enchantment along with the blurring of public/private space in the studio and the circulation of the photographs as the sitter’s image was shared with both their intimate circles and displayed in the publicly viewable spaces of photographers’ windows.

Enchantment is experienced as a transformation of the temporal domain of our mundane existence and every-day world of collective understanding into an extra-ordinary state. This state is distinguished by a suspension of chronological time through physical and perceptual stillness. Photographs embody the time taken to create them and the extra-ordinary perception of time by their subjects as they were made, which, this thesis suggests, imbues them with a quality that affects our later experience of them and contributes to the quality of enchantment that we perceive. In 1863, Oliver Wendell Holmes described the process of making a “photographic picture” to the readers of the Atlantic Monthly. He asks them to imagine they are present throughout the process, following the glass plate from the ‘shadowy realm’ of the darkroom into the studio and back to the dark room while the ‘mysterious forces’ work their ‘miracles.’¹⁴³ He describes the experience of time passing during the exposure, an experience embodied by the photograph, and “as pulsations in our souls” by the photographer and the reader.

who is, in his imagination, acting alongside him. The temporal quality of enchantment, the heightened awareness and focussed attention is a tangible but ineffable quality.

Enchantment is found where there is ambiguity and uncertainty in the character of experiences or objects encountered (Schneider, 1993, p. 169). Ambiguity is open to imaginative potential and encountered in the gaps between realities. The requirements and constraints of the photographic process, as Chapter Six has shown, created disturbance in social hierarchies and conventions, where the sitter followed the directions of the photographer and his assistant, who were tradesmen, and where it was possible for the photographer, who was most often male, to touch the sitter to improve their pose. The portrait studio was a place where negotiation of the social body was displayed which created uncertainty, where sitters of many classes and occupations were portrayed in the same manner, and among the same objects. Clothing kept for special occasions was worn for the event blurring the norms of dress and appearance and creating a fiction of homogeneity.

Morgan (2018) suggests that the power of enchantment emanates from an image that operates within networks of human and nonhuman actors. He defines two categories of enchantment in relation to images; what they do to us and what we do to the world through them. What might initially seem incoherent elements of the studio portrait setting that appear as an eclectic mixture of props, painting, furniture and ornaments, together create a coherent whole. They have an internal logic that must have been
acceptable to the subjects of the photographs for if they found the studio disconcerting these items would have quickly fallen out of use. Instead, they persisted.

Conclusion

Chapter Seven has explored enchantment as a legitimate object of study through some of philosophical, New Materialist and perspectives in order to more fully understand the expression of some cognitive and affective dimensions of human experience across media technologies of the nineteenth century. The discussion in this and the previous chapters suggest the technical arrangements of the photographic studios, phantom rides, Life Model slides and Photoplays afforded temporal dimensions of enchantment that were ‘designed in’ to these experiences.

If we consider portrait photographs in these terms, we can see that some of their features, that disrupt or do not fit into our mundane lifeworld, are perfectly coherent within the logic of a myth. The subjects of photographs have the same ambiguous ontological status as characters in myths and legends and studio portrait photographs have elements of the self-contained, internal logic and qualities of myth. In the context of Gell’s theory of enchantment, the power that some things exercise over us might be understood in a similar manner to Munsterberg’s concern for an aesthetics of photography, and the Photoplay as a way of negotiating their place and power or agency, that is, their intimation of an immaterial dimension, an aspect that is not fully explained by the hard cold facts of science.
In this respect photographic studios and lantern slide shows contributed to the audiences’ readiness for the experience of an immaterial dimension, of other entertainments such as the phantom ride and Photoplays. The thesis has argued that through these novel media experiences the audiences’ will to enchantment was mobilized. It might be suggested that the project of these entertainments was the production of the fabric of imagination on an industrial scale. However, the conditions and circumstances that contribute to enchantment that are explored above might possibly explain why not all photographs are enchanting.

This chapter tried to explain how the material and immaterial are enlisted in the mode of photography that produces images intended to endure and therefore enchant. They mediate (as do angels) between the material and immaterial dimensions of our experience. As photographs are both material and immaterial.
This thesis marks the transition from one stage to another in what is intended to be an ongoing exploration of the immaterial dimension of human experiences of media technologies. The research presented in the thesis has evolved from an encounter with hundreds of nineteenth century portrait studio photographs in the archive of a county museum. Curiosity about the reason why these photographs are kept safe in the archives of public museums and institutions even though all connections to the subjects have been lost provoked the question: Why can’t we throw these photographs away? This led to speculation about their having a particular quality beyond their material and cultural dimensions that endures to be experienced by contemporary viewers. This question that was the catalyst for the research which is presented in this thesis has
remained at its core through the various visual media forms that have been examined in the chapters above.

Evaluation of methods

Media archaeology methods have been used to explore how people in the nineteenth century expressed an immaterial dimension of human experience in the context of science and technologies. The thesis has also drawn on methods of visual anthropology as they accommodate the researcher as part of the ‘world’ researched and the subjective element of encounters with these technologies.

A studio portrait photograph can only offer partial information about the significant event of having one’s portrait photograph made, where the camera apparatus acts as a filter between the world and the image and period and contemporary experiences of them. Period texts have been examined while keeping in mind that our understanding of them is also partial and filtered through the aims of the authors and our interpretations which may be different to the intentions of their creator. Our temporal and cultural distance from the creation of the portrait photographs means that we cannot read them as they were read in the nineteenth century. We recognise that there is something missing in our understanding of them, and it is our sensitivity to that something—a quality that reveals their spiritual, supernatural or immaterial dimension that is the residue of the intentionality of the people who collaborated in their creation.
The methods have involved engaging directly with the objects visible in the photographs, the backgrounds, props, ornaments and furnishings, and of experiencing at first hand portrait studios, darkrooms, etc. and with photographers working in this setting. The insights gained from these primary experiences have contributed to the case this thesis makes for re-aligning the nineteenth century photographic portrait studio in the academic discourse as part of a constellation of technologies that share a continuity of expression of an immaterial dimension of human experience.

We cannot interpret the language that was used in accounts of these technologies in the way that we think we can. One of the problems that needed to be overcome during the writing of this thesis was to find the language to discuss the nebulous, intangible quality of experience that is invoked by the portrait photographs. An initial reluctance to refer to the dimension as spiritual due to its associations with religious experiences, although it has a broader meaning now. There are several terms used to express the diversity of intensity and forms of this immaterial dimension, so enchantment has been used to encompass them all.

That the nineteenth century is typically characterised by the production and acquisition of material objects is consistent with the ontological priority assigned to the physical and material world over our internal, spiritual, and imaginary worlds. Yet period sources are rich with indications that an immaterial dimension imbued many aspects of nineteenth century life and could be revealed through technologies and techniques appropriated from scientific positivism. The post hoc interpretations of historical research presented
here has necessarily used features of the external material world to inform interpretations of the internal imaginary world of the subject, or object of enquiry. While we cannot fully interpret these experiences, we can look for clues in the material and external dimensions to disrupt this ontological priority.

The portrait photographs that are the focus of the research that is presented in this thesis have been discussed in the general rather than in the particular, however, as Munsterberg and Barthes have illustrated in their different spheres, and to which genealogists and family history societies can attest, we cannot overlook the subjective dimensions of the experience of them. Yet there is a quality that encompasses this subjectivity in our collective experience of them as evidenced by their presence in public archives and institutions.

The thesis has developed a position that complements those that typically explain nineteenth century studio portraiture from the perspective of the cultural, social and technical imperatives of the outer world. From this position, which recognises the significance of the inner world of the participants, the thesis has added to the scholarship another dimension through which these images can be interpreted.

As the project evolved so did the approach. Each encounter or discovery led to new questions and directions of travel that required new approaches to their investigation. It has been a challenge to rein in the scope of the research and keep within boundaries although these were not fixed during the early stages of the project and has led to some
serendipitous encounters that have led to a richer understanding. Some aspects that are part of the context of this thesis have been extensively examined by other scholars so haven’t been discussed at length here, for example, spirit photography. Others are beyond the scope of this thesis and are calling out for further research, for example, the cross-fertilisation of imagery between photography and illustrations and engravings in the popular press, both in secular and religious publications such as novels and gift books.

The initial stages of the research were informed by a curiosity about the apparent compulsion for some people to present themselves as digital avatars in online social worlds, for example Second Life. There seemed to be a similarity in the syncretic images and internal logic of these digital worlds to those of portrait photographs which provoked speculation that by more fully understanding the portrait photographs we can begin to understand why a portrait representation in the form of a digital avatar can be so compelling a presentation of oneself. It might be that the avatar offers access to an immaterial dimension of human experience just as nineteenth century studio portrait photographs do. This similarity suggests a continuity of experience of an immaterial dimension that can be expressed through novel technological forms. These forms are temporally bounded by the time in which they are created but the immaterial dimension leaks across these boundaries, as is demonstrated by the case of the portrait photographs that retain a quality that makes them compelling some one-hundred years or more after their creation.

Chapter Two explored the cultural, social and economic context of visual media technologies during the second half of the nineteenth century amid what appears to
have been an uncertain and shifting understanding about the place, status and meaning of the experience of these technologies and, in particular, of photographic portraiture. The chapter also considered these technologies in the context of an instability in science and theological thinking and during a period characterised by a preoccupation with the production and acquisition of material objects. The discussions in each of the Chapters: 3. Life Model Slides; 4. Phantom Rides; and 5. Hugo Münsterberg’s thinking about the cognitive and aesthetic dimensions of the photoplay and his design for the motorman experiment, have been presented as examples of visual media technologies where apparatus and images representative of scientific and technological objectivity appear to have been appropriated and modified for the purpose of experiencing an immaterial dimension of human experience. These four chapters contributed to the work of Chapter Six, which examined the mise-en-scene and practice of nineteenth century studio portraiture.

Life Model lantern slides and Phantom Rides emerged toward the end of the nineteenth century through the technological arrangements of lantern show presentations, cinema, and photographic portrait studios. The thesis has argued that studio portrait photography was a significant feature within this context due to the studio being a place where there was deliberate construction of an obvious instability, and perceptual and cognitive dissonance that resulted in a synthesis of the technologies of the external physical world and the viewer’s imaginary world.

Chapter three has argued that magic lantern shows were events where the nineteenth century public could express and experience an immaterial dimension of technology.
Life Model lantern slides mediated the audience’s experience of an immaterial dimension through their pictorial representations of angels and visions existing in the picture plane alongside the material world of daily life. The chapter has shown how these images within the technological arrangement of lantern shows offered the audience the means to become co-producers of their own experience.

The appeal of the photoplay, phantom ride, life model slides and portrait photographs, is their mimicry of the inner world, where the laws of the outer world do not apply and are not necessary for that world (or image) to be comprehensible. Münsterberg’s thinking about the photoplay as a representational art that offers cues and clues to invoke emotions and empathy has been applied to the syncretic images of Life Model lantern slide and portrait photographs in order to more fully understand them.

The discussion has illustrated the playfulness that was designed-in to the period audiences’ engagement with the technologies. The audience were active participants and collaborators through an exploratory ‘playing’ with the idea of an ‘other’ than the material world, to test the possibility and extent of an immaterial dimension. When looking at a photoplays, phantom rides, Life Model lantern slides and studio portrait photographs the viewer’s position is as one hovering at the porous boundaries of the outer world and the inner world. Each in a different way but sharing some features. Our interaction with them bridges a gap between outer life and inner life. This affective dimension of these interactions imbues the experience of them with a particular quality —enchantment.
The work of Chapter Six was informed by that of the previous chapters. In addition to examining the technical, cognitive, and cultural aspects of having a portrait photograph made in a commercial studio during the nineteenth century it focussed upon the impact of time, ritual, light and space upon the studio experience. The ‘non-technological’ or ‘soft’ elements of the studio, backgrounds, props etc. have typically been explained as indications of the social aspirations and utopian dreams of the innocent subjects of the photographs, and as the photographers’ desire to be aligned with artists. This thesis has re-evaluated the presence of these ‘soft’ elements and explains why they can be described as technologies of enchantment and are as significant in the studio experience as the camera apparatus and other ‘technological’ processes.

The immaterial dimension of engagement with these technologies during the nineteenth century endures as a quality of studio portrait photographs that is accessible to us as we encounter them now. In the particular context of the continuity between science, technology and entertainment of nineteenth century and the instability and uncertainty described above, there is a spectrum of experiences and expressions of an immaterial dimension of human experience, described variously as transcendence, spiritual, supernatural, and so on. Studio portrait photographs within a constellation of visual media forms of which phantom rides, Life Model lantern slides and cinema, and Hugo Münsterberg’s experimental apparatus (science and laboratory) are the means to experience and express this dimension.
The thesis has argued that some period specific behaviours associated with visual technologies are sophisticated and subtle mechanisms that contributed to the affective and cognitive experience the thesis calls enchantment. It suggests that the activities of photographic portrait studios, if considered in terms of their technological arrangements, are continuous with other forms, Life Model slides, etc. They are part of a constellation of experiences, of which experience of having one’s photograph taken in a portrait studio, and of the studio as a place designed and modified for this experience to occur each shares some characteristics and retains its own distinct characteristics. They emerged and contributed to a shared imaginary, but they were layered with, embedded into and overlapped reality from the outset.

Photographic studio portraiture situated the subjects in syncretic landscapes that were constructed in a hybrid private-public space of the studio. The thesis has taken a closer look at these landscapes in order to re-evaluate their contribution to the experience of having a photographic portrait made and to the resulting photographs. Examination of other experiences of visual media forms that were familiar to the period audiences has provided additional insight into the imaginary dimension of the experience. Influences upon the painted backgrounds and props and the subjects and viewers understanding of them is more complex than has previously been understood. The imaginative dimension of these items contributes to the imaginative dimension of the portrait photographs.

The work of this thesis has been to unpack what has been going on in the photographic studios, the experiential quality, this has resonance with other technologies. It has
realigned interpretation of some aspects of these images and activities within the academic discourse and has enriched existing scholarship by pointing out the importance of the enchantment effect to enrich our understanding of both period and contemporary encounters with visual technologies. This quality is not only due to the materiality of the photographs as some of the scholarship suggests and as discussed in Chapter two, not fully explained by notions of their indexicality and as carriers of a trace of the sitter. The majority of nineteenth century photographs are prints from glass negatives and as such are often created after the event. Although their status as material objects is a significant dimension of them, the embellishments to photographs might suggest that for some, the image alone is insufficient to represent the fullness of the person depicted. In terms of their very particular quality and their appeal, this thesis suggests, be described in the language of enchantment.

Chapter Seven considered enchantment in terms of the spectrum of experiences this thesis has examined. It reviewed scholarship that presents enchantment as a legitimate object of study that can be explored and evaluated on the same terms as other phenomena. This review supports the rationale for using the term enchantment in this thesis as a means of expressing the continuity of cognitive and affective dimensions of the immaterial dimension of human experience. In terms of the discussion of enchantment of Chapter Seven, the technological arrangements of photographic studios and lantern slide shows, phantom rides and photoplays contributed to the audiences’ ‘readiness’ for the experience of an immaterial dimension. The thesis has argued that through these novel media experiences the audiences’ will to enchantment was mobilized.
Contribution

The thesis has re-evaluated the activities of nineteenth century photographic portrait studios as they are described in histories of photography. It has looked beyond these histories at other nineteenth century image-based phenomena of Life Model lantern slides, phantom rides and photoplays within a broader context of visual technologies to thicken understanding of the audience’s collaboration in the construction of the experience. It has revealed the potential of these image forms within the technological arrangements that created them to express an immaterial dimension of human experience. It contributes to existing scholarship by re-evaluating the period viewers’ engagement with and experience of these images in the context of the technological arrangements of which they are part and within the broader context of a period that is characterised by its materiality.

Future work

As a photographic history project - to extend the work of photo-historians who have looked at the industry providing the hard technologies – cameras and associated equipment - There appears to still be a gap in histories of photography – lack of examination of the industry supplying the soft technologies – backgrounds, props, accessories, that this thesis suggests can be described as the supporting cast were involved in the production of the fabric of individual imagination on an industrial scale. As noted above, the entanglement of illustrations in the popular press, novels, gift books etc. Secular and Religious or with a spiritual dimension of photographs whether ‘still’ or
as the moving images of Early Cinema, within a broad supernatural imaginary that calls for further examination. A Mnemosyne atlas of sorts.

The thesis identified what appears to be a continuity of form across Life Model lantern slides and photographic portrait studios that has been noted by scholars of the Magic Lantern in the context of the manufacture of the slides but has yet to be fully explored. The thesis has shown how uncovering neglected aspects of an experience can contribute to a fuller understanding of it. Given that it appears that very few painted backgrounds and props the paraphernalia of the studio that was part of the experience remains it would seem sensible to record and conserve these for future research.

Fig. 59. Postcard. Two boys.  
Fig. 60. Postcard. Two boys.
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