Light, Scenography and the Choreography of Space

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The candidate confirms that the work submitted is his own, except where work which has formed part of jointly-authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated in the section 'Indication of work submitted under joint authorship' below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

Acknowledgements

Abstract

This submission for PhD by publication is primarily concerned with the scenographic role of light, especially in relation to; historiography and dramaturgy, embodiment and the use of projected digital light in performance. There is an emphasis on the ability of light to make meaning, its impact on the experience of audiences and its role in the choreography of space.

The research encompasses writings on contemporary and historical uses of light in performance and practice-led, collaborative research with digital light that was part funded through the Arts and Humanities Research Council (AHRC). The research also embraces associated concerns relating to collaborative design processes and the creative use of technology within the performance domain. The title of this submission reflects both the nature and scope of the research of a series of outputs created over the decade 2004-2014 and published between 2005 and 2015. The monograph *Light: Readings in Theatre Practice* (Palgrave Macmillan, 2013) forms a significant, central core since it focuses on the ways in which light is used as a fundamental aspect of dramatic presentation and provides a range of new insights in thinking about lighting as a creative performance practice.

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List of Publications

1. Palmer, Scott. [2004] 2006. A Place to Play: Experimentation and Interactions Between Technology and Performance. In: White, C.A. & Oddey, A (eds.) *The Potentials of Spaces: International Scenography and Performance for the 21st Century*. Bristol: Intellect Books, pp.105-118. ISBN 1-84150-137-9

2. Popat, Sita; Palmer, Scott. 2005. Creating Common Ground: Dialogues Between Performance and Digital Technologies. *International Journal of Performance Arts and Digital Media*, **1**(1), pp.47-65. ISSN: 14794713 DOI: 10.1386/padm.1.1.47/1

3. Palmer, Scott; Popat, Sita. 2007. Dancing in the Streets: The Sensuous Manifold as a Concept for Designing Experience. *International Journal of Performance Arts & Digital Media* **2**(3), pp.297-314. ISSN: 14794713 DOI: 10.1386/padm.2.3.297_1

4. Popat, Sita; Palmer, Scott. 2008. Embodied Interfaces: Dancing with Digital Sprites. *Digital Creativity* **19**(2), pp.125-137. ISSN 1462-6268, DOI**:**10.1080/14626260802037478

5. Palmer, Scott. 2011. Chapter 3, Space. In: *Performance Perspectives* (eds. Pitches, J. & Popat, S.) with Louise Ann Wilson and Dorita Hannah. Palgrave Macmillan, pp. 52-87. ISBN 978-0-230-24346-0

6. Palmer, Scott. 2013. *Light: Readings in Theatre Practice.* Basingstoke: Palgrave Macmillan. ISBN 978-0-230-55190-9

7. Palmer Scott. 2015. A 'choréographie' of light and space: Adolphe Appia and the first scenographic turn. *Theatre and Performance Design.* **1**(1-2), pp. 31-47. DOI: 10.1080/23322551.2015.1024975

8. Documentation of Practice-based Research in Digital Projected Light

8A. *Dancing in the Streets*. 2005.

Video excerpts

https://mymedia.leeds.ac.uk/Mediasite/Presentation/81e40d1a85c9467db0260204ea6187b41d

https://www.youtube.com/watch?v=emsYT3exUho

Website

http://www.pci.leeds.ac.uk/projectingperformance/dancinginthestreets.html

8B. *Projecting Performance: Interrelationships between performance and technology, dancer and operator* (AHRC Research Project) 2006-08.

Video excerpt

https://mymedia.leeds.ac.uk/Mediasite/Play/666f2975f01e4728a054d8ac36ea4ee51d

Website

http://www.pci.leeds.ac.uk/projectingperformance/home.html

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Introduction

This summary and supporting statement is written to accompany the submission of previously published material in books, journals and in digital form. It is designed to assist the reader in navigating the content and to place the research in context. The supporting statement is arranged in prescribed sections in accordance with the guidance and requirements outlined in the University of Leeds PhD by Published Work notification of 24th April 2014.

The title of this submission reflects the nature of the focus of the research and the need to bracket a series of outputs created over the decade 2004-2014 and published between 2005 and 2015. The materials can all be linked to ideas relating to theatrical space and to the creative use of light – a synthesis that Adolphe Appia argued should be seen as a 'choréographie' (1891-2: 46) and in recent discourse would be encompassed, and best expressed, through the contemporary use of the term 'scenography'. The title reflects writing on historic lighting practices in performance and research focusing on digital light, embodied experience of light and its manipulation in relation to bodies and space.
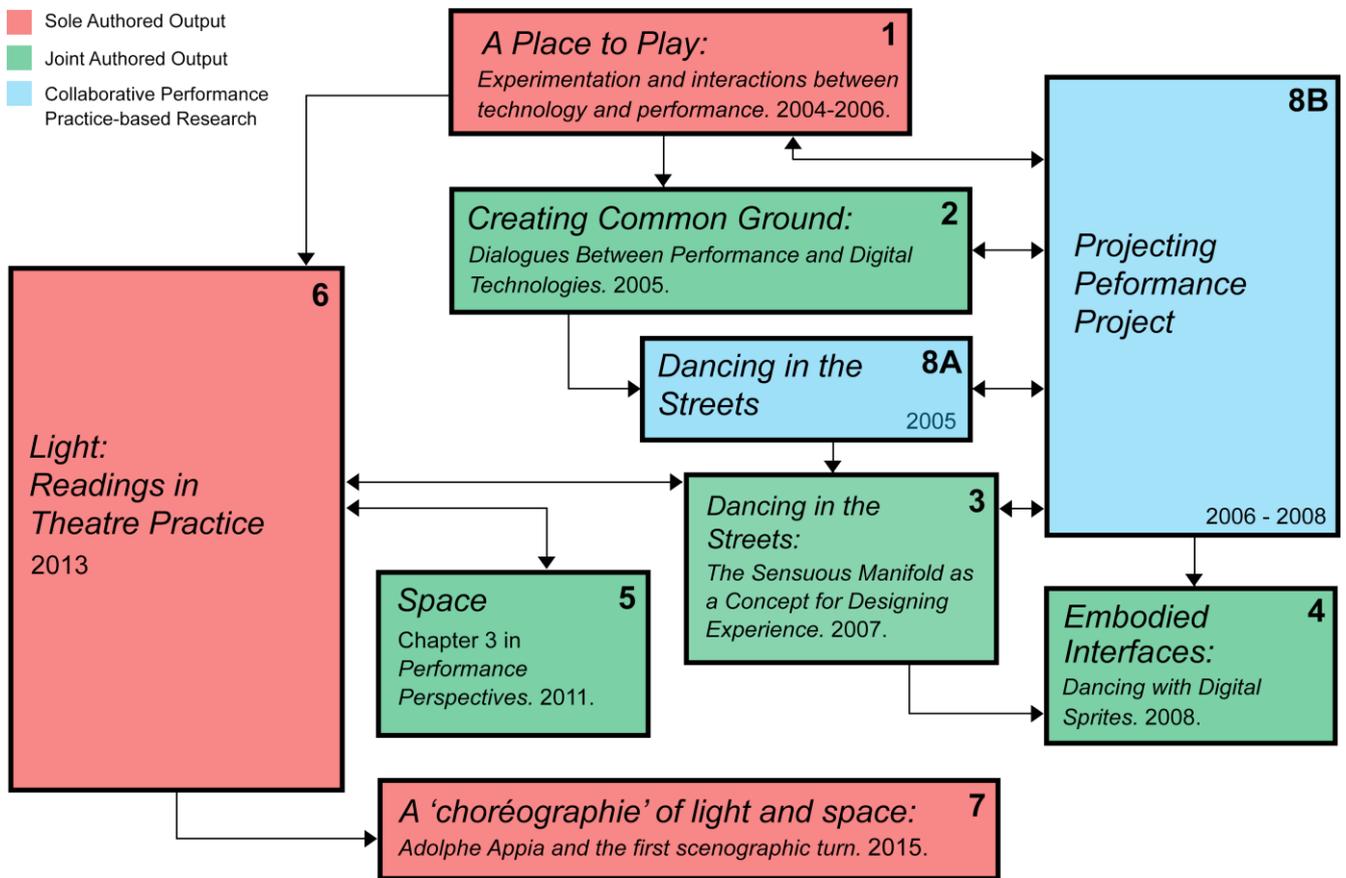
Figure 1 The relationship between collaborative and sole authored research in this submission.

Indication of work submitted under joint authorship

Figure 1 provides an illustration of the relationship between sole-authored and collaborative research included in this submission.

Writing associated with the use of digital light [2, 3, 4] emanates from collaborative research with digital media company KMA Ltd. and University of Leeds colleague Dr. (now Professor) Sita Popat. Her expertise in the choreographic aspects of the project was synthesised with my expertise in scenography, whilst we both contributed expertise in technological applications in relation to the realisation of performance work in conjunction with KMA. [8A, 8B]

Written outputs [2, 3, 4] were jointly authored with Popat and this was evidenced symbolically through alternating the first named author on each published output in turn. Whilst this is a simplification of the joint-authorship process, we have always claimed an equal 50% contribution in formal contexts such as the RAE 2008 submission.

The chapter in *Performance Perspectives*, 'Space' [5], was proposed by me and I selected one practitioner and one international academic to contribute towards the framing of new perspectives on scenography and performance space. My writing introduces, links the contributions and provides further thoughts on notions of scenographic space. I worked with Dorita Hannah on editing her contribution (which had emerged directly from her own PhD studies). The second part of the chapter is framed as an interview with Louise Ann Wilson and focuses on her professional practice. This section was co-written and edited over a significant period and represents the first published account of Wilson's work within an academic frame. My contribution to the collaborative writing in [5] was agreed with both co-authors as 50% of the overall chapter.

My contribution to all jointly authored research in this submission has been formally acknowledged by my co-authors.

I can confirm that none of the material included in this submission has resulted from work for which an earlier degree has been awarded. Neither has it been previously considered for the award of a degree.

Research Context

The research in this submission is primarily concerned with the scenographic role of light. It makes a clear contribution to contemporary thinking about scenography and specifically to the contribution of light in theatrical environments, especially in relation to; historiography and dramaturgy, embodiment and projected digital light, and the ability to make meaning, to choreograph space, and its impact on audiences' experience.

The research encompasses writings on contemporary and historical uses of light in performance, [1, 6, 7] as well as practice-led research with digital light that was part funded through the Arts and Humanities Research Council (AHRC) [3, 4, 8A, 8B]. It also embraces associated concerns relating to collaborative design processes [1, 2] and the creative use of technology within the performance domain. A linked area of concern is evidenced through an edited chapter on space in performance which explores contemporary notions of scenography and also offers perspectives on the role and importance of space (which is articulated and perceived through light) in communicating meaning as part of the theatrical event [5].

Together this body of work contributes to what has been referred to as a recent 'scenographic turn' in academic thinking that is highlighted in the Editors' introduction to the first issue of the *Theatre and Performance Design* Journal – a publication that itself provides:

> an assertion that scenography, as a way of reading
> performance that takes account of the interrelationship of all
> its constituent elements, is formally instated as a significant
> contributor to the production of knowledge, not only in
> performance studies but across a range of closely related
> fields. There is a growing body of critical writing across the
> subject area with new edited collections and monographs
> added to the canon every year. […] This rapidly expanding
> field of publication is reframing debates and changing
> established epistemologies in theatre and performance
> discourse and related cultural, historical, social and political
> fields. (Collins and Aronson, 2015: 1)

Here I am positioning my research in light and space as a unique contribution to this perceived 'turn' in theatre and performance studies, disciplines which are 'altering their direction, [and] moving into a new period' (ibid: 3) - a period in which scenography is no longer dismissed as craft-focused, stage decoration (e.g. Parker and Smith, (1963), Reid, (1996)) but has become recognized in its own right as a vital, central, aspect of understanding and making performance.

To locate my research within this context it is necessary to acknowledge recent developments in this field of study. The advent of the international journals *Scene* and *Theatre and Performance Design* (as described above) provide a clear response to a growing awareness and interest in the academic study of the visual and aural aspects of staging performance. They follow the publication of a number of ground-breaking volumes that have focused on scenography during the last decade. Baugh (2005, 2013), Hannah and Harsløf (2008), McKinney and Butterworth (2009), Collins and Nisbet (2010), have each made major contributions to academic discourse in the field of performance design, helping to reposition a neglected field of practice as an important way of thinking about theatre and performance.

These publications have coincided with a wider growing awareness and interest in aspects of performance studies that have placed greater emphasis on the non-written elements of theatre and on the phenomenological, the kinaesthetic and associated areas such as audience reception. Despite this range of pioneering publications on scenography since the millennium, the role of light, while its importance is often acknowledged, is rarely addressed directly.

Light and lighting practices have been largely ignored by scholars as areas of legitimate academic attention, even in publications that focus primarily on scenography (e.g. Howard (2002), Lotker and Gough (2013)). Surprisingly little attention has been paid to the role of light as a fundamental scenographic material that conditions the audience's reception of performance. Light is barely mentioned in Howard's seminal *What is Scenography?* (2002), an individual treatise that focuses on the role of the costume and set designer and advocates the use of 'scenography' as a

holistic term for performance design. The 2013 special edition of *Performance Research* 'On Scenography' purports to address the 'many faces' of scenography (Lotker and Gough, 2013: 3) and interrogates notions of scenography through a focus on aspects that include; sound, architecture, objects, bodily interactions and virtual spaces. However, in advocating a 'spatial dramaturgy' (ibid: 4-5), there is not a single contribution in the volume that addresses light in the theatre and that is despite over 140 submissions in reply to the call for papers which was an 'unprecedented response in the eighteen-year history of *Performance Research*' (ibid: 6).

As noted, this recent upsurge of interest in the role of scenography serves to underline the notion of a 'scenographic turn' in theatre and performance studies, but it also reveals the absence of a detailed consideration of light, a deficiency which is surprising given the critical importance of light to the reception of the theatrical event. This landscape therefore provides the background, context and indeed the need for much of the research presented as evidence in this submission.

There are a number of reasons why light has largely been absent in writings on theatre and performance studies. We do not 'see' light, although we see with it, through it and respond to its effects upon objects and spaces. "It is also something that we too often take for granted" remarks Paul Kleiman reviewing my monograph, *Light* (2015: 93). There are also significant difficulties in articulating an ephemeral material and its temporal qualities on the stage in written form. Issues associated with the documentation of the contribution of light to performance have also impacted on theatre scholarship (see Palmer, 2013: xiv-xv). Historical research has to rely upon contemporary writings, reviews and artists' impressions. Black and white sketches and engravings were often designed to represent spectacular moments on stage as a way of publicising the event to a prospective audience. They are often impressionistic rather than an accurate documentation of a moment on stage. Despite their importance to our understanding of past performances, it is important to be equally cautious of graphic illustrations and photographs as of written sources in providing definitive evidence of how stage lighting may have appeared at a particular moment in history. Acknowledging the problematics associated with attempting to analyse light when it has not been experienced at first hand in

performance is also important in understanding the context of research in this field.

Historical writings related to theatrical light have tended to focus on specific periods of theatre history and the equipment that was employed, (e.g. Penzel, (1978), Rees, (1978)), or text books that suggest methods for lighting the stage (e.g. McCandless, (1932), Pilbrow, (1979)). These contributions, often written by practitioners, represent successive attempts from the late nineteenth century to the present day to explain the technical craft of theatre lighting. These texts, summarized and critiqued within the volume *Light* (Palmer, 2013: 200-224), provide invaluable reference works that often seek to offer a taxonomy of lighting practices and in their time, advocated key principles and methods for using lighting equipment for the stage. However the proliferation of the lighting textbook has served to reinforce the perception that stage lighting is fundamentally an area of technical and specialist craft rather than an element of aesthetic concern.

Recent reviews of *Light* have identified that this volume is a deliberate and significant departure from what has preceded it in this field. Robson argues that instead of providing a technical 'bible':

> Palmer has given us a highly readable treatise on the
> nature of light in relation to performance – part
> historiography, part handbook, part discussion of
> professional practice, part philosophical examination of the
> place of lighting in modern performance. (Robson, 2015:
> 170)

There is one previous research monograph that focuses on an interpretation of the historical development of theatre lighting. Gösta Bergman's *Lighting in the Theatre* (1977) is an important reference point that provides significant detail on predominantly European lighting practices. Bergman was a professor of theatre history at Stockholm University, a director and critic who died before this volume could be completed and this partially explains why the focus is predominantly on developments prior to the twentieth century. Morgan's (2005) contribution to the field was developed from historical

research and interviews undertaken during PhD study. It focuses mainly on the evolution of equipment and techniques in seeking to chart the technical practices that resulted in the formulation of the role of the lighting designer during the twentieth century British theatre.

Baugh (2005, 2013) offers the most significant contemporary academic perspective on the impact of light on the stage in providing a detailed historical background of the role of theatrical technology in the emergence of new scenographies. My volume *Light* can be seen to build on the approach of these three authors through using existing historical writings on stage lighting to reveal new perspectives on the development of Western theatre. In bringing together disparate source material my focus is not specifically on the use of lighting technologies but rather on the dramaturgical impact of the use of light as a creative material on the stage. Unlike other scholars who have sought to explain theatrical light (e.g. Pavis, (2003, 2013), Fischer-Lichte, (1992)), my writing is also rooted in experience and in the tacit knowledge acquired through practice (Polyani, 1958, 1967). There are other contemporary practitioner/scholars who are also publishing in this field with a similar sensibility. Nick Hunt has undertaken research on lighting control and the processes of lighting design (2005, 2011), Fabrizio Crisafulli's writings have been recently translated into English (2013), while contemporary lighting designer Yaron Abulafia's monograph (forthcoming 2015) is about to add a further contribution to thinking about the poetics of light in performance.

The specific context associated with practice and that relates to choreography and digital projection of light in this submission [8A, 8B] is outlined explicitly in written materials [2], [3], and [4]. Throughout these writings and in the practice-led research using projected light, ideas relating to the embodied experience of light as operator, performer and audience are explored.

This background provides the underlying landscape or what in lighting terms would be termed the 'general cover', in which my research is located and provides points of focus. The following section expands on these specific areas and provides examples of ways that *Light* [6] together with other published material, contributes to contemporary scenographic discourse.

Significant findings and conclusions: Historiography, Embodiment and Choreography

A Historiography and Dramaturgy of Light

My monograph *Light: Readings in Theatre Practice* (2013) forms the central component of this submission [6].

The 120,000-word volume focuses on the ways in which light is used as a fundamental aspect of dramatic presentation and provides new perspectives in thinking about lighting as a creative performance practice. The focus on the impact of light on the audience's experience of performance, rather than the technical and practical aspects involved in theatrical realization, sets it apart from the majority of written material that has been published on this subject.

Unlike previous volumes in the Palgrave series this book is not designed as a Reader but rather employs the term 'readings' denoting "the sense both of a simple understanding and interpretation and of an authoritative explication, an exegesis as it were" (Shepherd in Palmer, 2013: xi). Incorporated within the volume are a selection of theoretical writings from practitioners, critics, observers and academics that together provide a new range of perspectives on the use of light in performance.

The Guardian's theatre critic Mark Fisher has commented on the volume and noted the value of my approach to re-thinking theatre of the past and how it is written about in the present (2015: 57, 177-8). My rationale was to locate, translate and place into perspective a disparate collection of writings centred on light and to frame these within a broader narrative to focus on thinking about light as a creative material of performance making. No other single volume in the English language has previously attempted to do this. Key ideas in relation to the creative use of light and its interpretation on the stage are therefore investigated through the analysis of a range of resources; from the first principles of lighting the stage in the Italian court theatres of the fifteenth century (Palmer, 2013: 1-13) to the dramaturgical importance of light (e.g. in German expressionist staging), the impact of light

on the development of artistic sensibility and dramaturgy (e.g. Fuller, Brecht, Williams, Beckett) and the processes and practices that are employed by contemporary lighting designers (ibid,: 248-270).

Light provides an extended examination of the phenomenal impact of light on performance (in all senses of this word) and employs a range of methods to draw together historical writings, eye-witness accounts and contemporary commentaries from key practitioners, academics and critics to chart the importance of light on the audience experience and the associated emergence of light as a pivotal creative element in the theatrical event.

Writing in 1977 Bergman argued that 'Theatre history research has so far paid only casual attention to the problem of light, […] and the co-creative, artistic part played by light in the performances' (1977: 11). *Light* attempts to redress such an imbalance through its selection of historical evidence and contemporary reflections on light that affect our perception of the performance event so fundamentally. It provides new knowledge through re-evaluating existing perceptions of how light was realized at particular periods of time and by individual practitioners. On one hand the volume seeks to provide an overview of the development of the creative use of light in performance but it also corrects perceived notions of lighting practice (e.g. that Brecht only used white light, (Palmer, 2013: 132-137); that di Somi rather than Wagner was the first to introduce the darkened auditorium, (ibid: 7-11) and the adoption of limelight technology in the theatre, (ibid: 181-186)). Research for the volume uncovered original writings, and historical reviews, sometimes in languages other than English, which when translated revealed new insights that directly challenge existing interpretations of key practitioners and our understanding of historic performance practices. An example of this emerged from my particular fascination with Appia's notion of moving light (ibid: 86-88) and this was developed further in writing in 2014-5 [7]. Research involving previously published work (e.g. Nicholl, (1948), Patterson, (1981)) allowed for a repositioning of earlier research with a specific attention on the impact of light on staging practice and audience experience.

Although there is a focus on a historiography of light, the volume is not organized as a chronology but structured around key themes in each

chapter. The organisation of the research in this way can be seen to be a key element of the 'significant findings and conclusions'. This approach has drawn particular attention:

> Whereas the standard lighting books tend to have a clear
> linear structure – in light terms they would have a wave
> structure – Palmer's *Light* has a particle structure, both useful
> and absorbing, in its non-linearity. (Klieman, [sic] 2015: 94)

The organization of the volume allows multiple voices to be brought together in a productive dialogue to reveal new ways of thinking about light. In addressing both a dramaturgy of light and in revisiting historical material the volume repositions our understanding of canonical practitioners in relation to their scenographic sensibility. It reveals a series of lineages that connect a number of key practitioners, including those not always thought of in terms of lighting design, (e.g. Stanislavski, Reinhardt, Piscator) and dramatists, (e.g. Brecht, Williams, Beckett) who have explored the potential of light as a key element of their practice. The range and importance of the research to other performance disciplines has been noted (e.g. Moran, 2014) while Łarionow notes that the book also demonstrates:

> how technical innovations that contributed to the growing
> importance of the role of artificial light in a spectacle changed
> the perception of not only the audience but also, and above all,
> theatre artists. (Łarionow 2014: 123)

In order to address the dramaturgical aspects of light in the theatre, the volume [6] also needed to attend to associated elements such as theatre architecture, (e.g. 2013: 44-65), scenic design and other scenographic practices and processes, in order to think through how light was considered and created by 'theatre artists', and also how it was understood and experienced by past audiences.

As has previously been noted:

we are currently undergoing a significant 'turn' towards scenography, both as a critical framework and as an expansion of practice across a broad range of theatre- and performance-related activities. (Aronson & Collins, 2015: 2)

Light: Readings in Theatre Practice [6] is part of this shift and through its particular focus makes a significant contribution to knowledge in the field of theatre and performance studies. Its approach in using a combination of historical writings, play texts, and critical narrative, together with a scenographic sensibility and technical understanding, offers new perspectives and a significant resource for future scholars interested in light, theatrical presentation and the impact of design for and as performance.

Embodied Experience of Light

A key element that emerges from both the monograph [6] and the digital lighting practice [3, 4, 8A, 8B], is a concern with the embodied experience of light, both from the audience's perspective, but also from the performer and operators' perspectives.

The embodied experience of light was central to the concept and design of the kinetic light installation *Dancing in the Streets* evidenced in practice [8A] and in writing [3]. In this installation participants were immersed within light that responded to their bodies and movement. The embodied experience of both the off-stage 'performer-operator' and the on-stage dancer was a central concern of the *Projecting Performance* research project and this is evidenced in practice [8B] and in associated writing [4]. These two projects are discussed below in relation to choreography and light.

As already noted above, the phenomenon of light is rarely considered specifically in writings on theatre practice. In *Light* [6], the materiality of light is explored throughout the volume and is exemplified in the work of key practitioners such as Appia, Craig and Svoboda.

The way light affects audience perception of stage space is central to the volume, and is foregrounded in specific chapters (e.g. Palmer, 2013: 77-117). The critical impact of light on both the dramaturgy and the audience experience is explored for example in relation to Stanislavski's evocation of Chekhovian mood, (ibid: 120-124), Brecht's notion of 'Verfremdung', (ibid: 132-137) and Artaud's conception of a 'Theatre of Cruelty' (ibid: 39-40).

The impact of light on the performer is a key area in which there is relatively little previous research. This element is explored both through the impact of technologies and practices, such as the employment of footlights, (e.g. ibid: 53-56), and the direct importance of the quality of light on the actor's craft (e.g. ibid: 123-4). The role of light as a creative material and its impact on the body both from a performer's experience and also from the audience's perspective is exemplified in the writing on dancer Loïe Fuller (ibid: 149-157). In this specific section, a key link is established between the scenography, a concern for a linked choreography of light and body, the technologies employed, and the physical experience of being in the light; themes which are also explored in my collaborative practice-led work with projected light.

Choreography and Light

This section focuses on writing and practice associated with collaborative research associated with the digital projection of light.

Projecting Performance [1, 2, 4, 8B] focused on the choreographic and scenographic exchange between dancers and projected digital images within a theatrical context. This projected light – known as a 'sprite', was controlled by a 'performer-operator' in real time in response to both the 'onstage performer(s)' and the projected digital 'sprite' establishing a tripartite inter-relationship. We sought to analyse these relationships both in terms of what was occurring in the stage space and also the working methodologies between performers (including performance academics) and technologists (see Popat and Palmer 2008a).

The concept of the 'performer-operator' was established to define the role of the operator of the digital light who in controlling the 'sprite' was also spontaneously present in the movements of this abstract digital form, literally drawn with projected light into the stage space. In making such a direct and immediate impact on the stage through controlling the 'sprite', the 'performer-operator' was therefore simultaneously performer, scenographer and choreographer in the moment of performance.

Dancing in the Streets [3, 8A] employed a similar methodology of iterative cycles of experimentation using the theatre space as a laboratory for experimentation, but over a much shorter timeframe. This interactive light work was designed for a York city centre location and its success relied upon a suitable 'place to play' in advance of the presentation which was to be realized in an outdoor space. The 'sprites' in this work responded to the body heat of participants rather than being externally controlled. The design of the interactive light employed both scenographic and choreographic processes and was undertaken in direct response to feedback from participants (and ourselves as observers/participants) working directly with the moving light forms as they responded to our bodies. This process resulted in an embodied experience of light that was designed; choreographed digitally, temporally and spatially, to open up the potential for interactive play within a public space. It constituted an urban scenography comprising a choreography of light, space and bodies.

It is important to note that the research employing digital tools to manipulate light in direct response to the body's movement was pioneering in 2004 – a period of time prior to the commercial development of surface computing, (tablets, smartphones, etc.) and embodied interfaces such as the Wii mote and the Microsoft Kinect.

The significance of the work that employed digital light is further evidenced by the inclusion of elements of the research in key publications that cross a number of disciplines.[1] These include the importance of the work to

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[1] These are not specifically included in this submission as they are either authored by others or are revised or re-edited versions of earlier published material that is included here.

choreographic processes in dance through inclusion in Butterworth and Wildschut's *Contemporary Choreography: A Critical Reader*; the impact of interactive light as urban scenography in Collins and Nisbet (2010), and innovative working processes and outcome in the computer design and user experience journal *Interactions* (Palmer and Popat 2008). The work is also featured in both Shedroff's *Experience Design 1.1* (2009: 294-5) and cited in Baugh (2013: 218).

Linking hypotheses and Research themes

There is a clear research trajectory that encompasses my involvement with light, space and its composition, (what Appia terms a 'choréographie') which assists in understanding the development of research themes and linking hypotheses. **Figure 2** illustrates both practice-led approaches and written publications that are intrinsically interlinked to the research included in this submission, which has already been identified in **Figure 1** by the solid colour boxes at the centre of the diagram. **Figure 2** maps additional research that has both informed and developed from work in this submission and also indicates the relationship to future work that is currently in progress. Both sole-authored, collaborative research and realised projects not included within this submission are indicated in red, green and blue outlined boxes respectively. **Figure 2** therefore relates the work included in this submission (at the core of this diagram) to my other research practice, which can all be encompassed within the overlapping areas of **light**, **scenography** and the **choreography of space**.
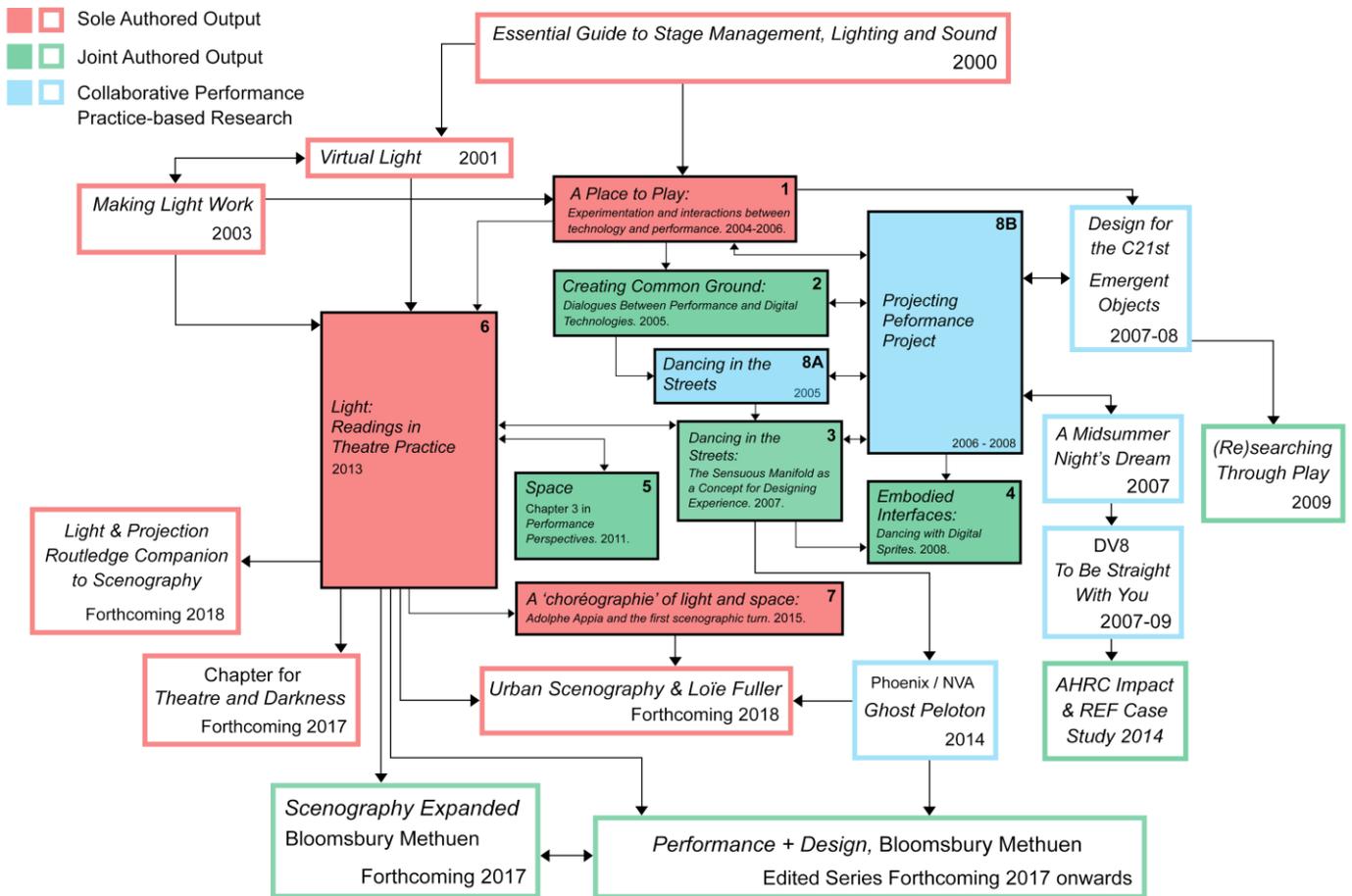
Figure 2 Overview of past, present and future research in light, scenography and choreography.

(Solid colour boxes only are included within this submission)

The largest single output, *Light* [6], was undertaken following a decade of development of earlier published work in associated areas of performance practice. My writing moved from a concern with pedagogy, technical equipment, processes and practices (exemplified in the text book *Essential Guide to Stage Management, Lighting and Sound* (2000)) to articles that focus on the use of software to communicate lighting ideas in advance of performance (2001) and the first-hand study of individual lighting designers (2003).

In 2004 I delivered a solo-authored paper at the 'Different Directions' conference at Loughborough University. This contribution explored perceived issues in employing technologies to make meaning in contemporary performance. In exploring intersections between practitioners and the potential of digital lighting, I was also able to reflect on my recent experience in working with technologists KMA in the week immediately prior to the conference. My personal account of the open-ended nature of the experimental workshop and sharing of video sequences, led directly to the invitation to contribute the chapter to *The Potentials of Spaces* [1]. This writing about our playful studio experimentation, which we had temporarily labelled as the 'Interactive Performance Telematics Project', captured the first moments of what was to become the AHRC-funded *Projecting Performance* project. This writing [1] provides an insight into the origins of our collaborative practice-based research that was to have far-reaching impact in both research and professional practice.

The collaborative research with Popat and KMA embraced both practical experimentation and written outputs. Our first jointly authored contribution [2], published in the first issue of *International Journal of Performance Arts and Digital Media,* developed ideas emerging from the initial series of workshops with KMA and prepared the ground for the AHRC-funded project. Here there is a synthesis of thinking that spans areas of performance technology, scenography and choreography and a new concern in relation to the transparency of the technological interface. This area of investigation emerged directly through our reflection on our own embodied experiences of operating and performing with light in the early workshops and was subsequently developed in later writing [3, 4]. My own direct experience, knowledge of stage lighting operation and concern for the role of the creative

technologist was instrumental in the emergence of the concept of the 'performer-operator.'

We established a way of working with iterative cycles of discovery and reflection developing from Trimingham's 'hermeneutic spiral' research model (2002)[2] that was to prove productive – both in designing interactive environments for user experience (*Dancing in the Streets*, 2005 [8A]) and in the development of work in *Projecting Performance* [8B]. Both areas of research, underpinned through writing [3, 4] provided a focus on embodied experience, including the experience of being in the light. This inspired further solo thinking and the thematic area was then developed through historical research in *Light* [6] (e.g. 'Light and the Body'). Experience in iterative cycles of research also contributed significantly to the AHRC/ESPRC *Emergent Objects*: *Designing for the 21st Century* research initiative and specifically to the *Hoverflies* project which resulted in interactive illuminated swings for outdoor public play (see Bayliss et al. 2009).

Projecting Performance [8B, 4] and *Dancing in the Streets* [8A, 3] exemplify a clear synthesis between choreographic and scenographic approaches through digital projection technologies. This was further evidenced and extended in the 2007 experimental production of *A Midsummer Night's Dream*, which I instigated and was pivotal in developing some of the principles developed in earlier research workshops. The experimental approach to creating live projections in the staging of this play ultimately led to the use of our working methods and scenographic ideas in the development of digital projection for DV8's internationally acclaimed production *To Be Straight With You.* Together with further work by KMA in developing interactive public art-works for international audiences, there is clear and extensive evidence of the professional application of our research in projected light. [3]

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[2] Trimingham developed this approach during her PhD studies at Leeds using action-research methods with my undergraduate students and which I helped to facilitate in our experimental lighting studio.

[3] See further research outputs emanating from *Projecting Performance* – a project rated as 'Outstanding' by AHRC. Impact case study for UoA65, REF2014 has

The *Space* chapter [5] draws together thinking about the composition of performance space and ways in which a choreography of elements (e.g. bodies, objects, place, etc.) makes meaning for audiences. Baugh suggests that this chapter "contributes significantly to an appreciation of contemporary scenographic dramaturgy" (2013: 263fn). The overriding concern in this research was to explore a range of spatial practices and to advocate ways of thinking about and through scenography beyond the traditional notions of theatre-based 'scenery' and to urge a more holistic view of scenography and spatial performance practices. This approach is in marked contrast to other analyses of performance space that focus on historical development (e.g. Wiles, 2003).

Some of the research explored within *Light* has already led to further investigations. My 2015 paper on Appia [7] developed from my original translations of his writing and drills down further in a desire to analyse the specific conditions which led to his emergence as the first modern lighting designer. This paper is important as it counters previous perceptions that Appia was simply a theorist who had little understanding of theatrical practice. In this study I attempt to establish what the precise conditions were for the emergence of Appia's scenographic vision; - a moment that seems to me to be of the utmost importance in the development of modern European theatre, but one that has largely been either misinterpreted or ignored. I demonstrate that the convergence of a number of key elements in Dresden between 1886 and 1890, that span the terrain of music, art, scenography, theatrical technology and production techniques were instrumental in the emergence of Appia's vision.

This research provides an example of a confluence of the key aspects of my own research trajectory. In early collaborative research with Popat, we had each remarked repeatedly on our individual sensibilities in performance making and the similarities between scenography and choreography. The discovery that Appia was also thinking about notions of 'choréographie' (even though this was at the time an archaic term not used in relation to

been selected to be featured on new AHRC Impact website.
http://impact.ref.ac.uk/CaseStudies/CaseStudy.aspx?Id=6396

dance) was a revelation and suggests that it would be helpful to re-appropriate this term in relation to performance design. An understanding of lighting techniques and an ability to undertake my own translation from French-language texts enabled me to piece together evidence to correct misconceptions of Appia in the English language and to challenge existing dominant narratives (e.g. Beacham, (1987, 1994) Volbach, (1989)). Through this research I was able to establish a clear link between Appia's emergent vision for the staging of Wagnerian opera to the technology of the time (the arc-light), and a hitherto neglected focus on his experience of stage lighting through his apprenticeship with Bähr at Dresden.

This latest publication included in this submission therefore represents a convergence of key aspects of my research. In this one paper there is a demonstration of: an engagement with historic material and techniques of theatre production; an understanding of how technologies can be appropriated for the creative use of light, and the validity of first-hand scenographic practice.

Indication of further research development and exploration

The historiographical critique offered in the paper on Appia [7] represents the first of a number of future research outputs emanating from ideas first explored in *Light*. I am already returning to a historical reappraisal of Loïe Fuller, in relation to embodied responses to light, the arc-lighting technologies of Duboscq and the urban scenography of Parisian illuminated fountains for example.

As a direct result of the monograph I was invited by Methuen Bloomsbury to become series editor (with McKinney)[4] of a new 'Performance and Design' series of books, which represents the publisher's first volumes in this area of academic study. Whilst this initiative also reinforces the notion of the contemporary 'scenographic turn' in performance studies, it also offers an exciting potential to influence the future direction of the discipline away from a focus that has hitherto largely been dominated by practice. The first volume that McKinney and I are curating; *Scenography Expanded* will be published in June 2017 and is an edited collection of contemporary writings from the foremost scholars in the discipline, (e.g. Baugh, Bleeker, Brejzek, Collins, Hannah, etc.) and seeks to explore wider notions of scenography and practice beyond the theatre building. Our extended introduction will establish the conceptual framework for both the volume and the series itself.

A combination of the monograph and my contributions at international conferences (e.g. IFTR Scenography Working Group) has also resulted in an invitation to write the opening, establishing chapter on light and audience experience in the forthcoming Alston/Welton volume *Theatre in the Dark* (2017). I have also been contracted to write chapters on light and projection in Aronson's double volume *Routledge Companion to Scenography* (forthcoming 2018).

There will be further research outcomes in relation to light and scenography emanating from the monograph. Future practice-based research is likely to

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[4] Stephen Di Benedetto has also been contracted to work on this series with us.

focus on audience experience and interactive light and a volume on light and audience experience is planned for the Bloomsbury series. These multiple prospective outputs demonstrate clearly that the research in this submission, established over the last decade, offers potential for further, significant future contributions to international studies in light and design for performance.

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Appendix A
Journal Articles

[2] Popat, Sita; Palmer, Scott. 2005. Creating Common Ground: Dialogues Between Performance and Digital Technologies. *International Journal of Performance Arts and Digital Media*, **1**(1), pp.47-65. ISSN: 14794713 DOI: 10.1386/padm.1.1.47/1

[3] Palmer, Scott; Popat, Sita. 2007. Dancing in the Streets: The Sensuous Manifold as a Concept for Designing Experience. *International Journal of Performance Arts & Digital Media* **2**(3), pp.297-314. ISSN: 14794713 DOI: 10.1386/padm.2.3.297/1

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[7] Palmer Scott. 2015. A 'choréographie' of light and space: Adolphe Appia and the first scenographic turn. *Theatre and Performance Design.* **1**(1-2), pp. 31-47. DOI: 10.1080/23322551.2015.1024975

[2] Creating Common Ground: Dialogues Between Performance and Digital Technologies

[2] Popat, Sita; Palmer, Scott. 2005. Creating Common Ground: Dialogues Between Performance and Digital Technologies. *International Journal of Performance Arts and Digital Media*, **1**(1), pp.47-65. ISSN: 14794713.

DOI: 10.1386/padm.1.1.47/1

[3] Dancing in the Streets: The Sensuous Manifold as a Concept for Designing Experience

[3] Palmer, Scott; Popat, Sita. 2007. Dancing in the Streets: The Sensuous Manifold as a Concept for Designing Experience. *International Journal of Performance Arts & Digital Media* **2**(3), pp.297-314. ISSN: 14794713

DOI: 10.1386/padm.2.3.297_1

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[4] Embodied Interfaces: Dancing with Digital Sprites

[7] A 'choréographie' of light and space: Adolphe Appia and the first scenographic turn

[7] Palmer Scott. 2015. A 'choréographie' of light and space: Adolphe Appia and the first scenographic turn. *Theatre and Performance Design.* **1**(1-2), pp. 31-47.
DOI: 10.1080/23322551.2015.1024975

Appendix B
Book Chapters [1] & [5]

These can be located in the volumes within the clam shell box

[1] Palmer, Scott. [2004] 2006. A Place to Play - Experimentation and Interactions Between Technology and Performance. In: White, C.A. & Oddey, A (eds.) *The Potentials of Spaces : International Scenography and Performance for the 21st Century*, Bristol: Intellect Books, pp.105-118. ISBN 1-84150-137-9

[5] Palmer, Scott. 2011. Chapter 3 'Space' in *Performance Perspectives* (eds Pitches, J. & Popat, S.) with Louise Ann Wilson and Dorita Hannah. Palgrave Macmillan, pp. 52-87 978-0-230-24346-0

Appendix C
Monograph [6] *Light*

This volume can be located in the clam shell box

[6] Palmer, Scott. 2013. *Light: Readings in Theatre Practice* Palgrave Macmillan ISBN 978-0-230-55190-9

Appendix D
Web-based publications [8]

Documentation of Practice-based Research in Digital Projected Light

[8A] *Dancing in the Streets*. 2005.

Video excerpts

https://mymedia.leeds.ac.uk/Mediasite/Presentation/81e40d1a85c9467db02
60204ea6187b41d

https://www.youtube.com/watch?v=emsYT3exUho

Website

http://www.pci.leeds.ac.uk/projectingperformance/dancinginthestreets.html

[8B] *Projecting Performance: Interrelationships between performance and technology, dancer and operator* (AHRC Research Project) 2006-08.

Video excerpt

https://mymedia.leeds.ac.uk/Mediasite/Play/666f2975f01e4728a054d8ac36e
a4ee51d

Website

http://www.pci.leeds.ac.uk/projectingperformance/home.html