

**New Century,  
New Light**

The role of design  
in the transition to  
LED technology

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## Certificate Of Original Authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as part of the collaborative doctoral degree and/or fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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## Contents

Certificate of originality	III
Acknowledgements	IV-V
Abstract	XV
<b>Introduction</b>	<b>1</b>
<b>Chapter 1 – The LED</b>	<b>24</b>
Part 1. A brief history of the development of LED technology	26
Part 2. How LEDs work	30
Part 3. The experience of LED-generated light	33
<b>Chapter 2 — Technology Transitions</b>	<b>44</b>
Part 1. Concepts drawn from actor-network theory	46
Part 2. Scenarios of change	50
Part 3. The transition to digital lighting – the Light Emitting Diode	62
<b>Chapter 3 — Introducing the practice-led experiments</b>	<b>76</b>
Part 1. Developing a practice-led approach	78
Part 2. Principles of light mediation	81
<b>Chapter 4 — Getting to know the technology</b>	<b>92</b>
Part 1. The <i>Isis</i> installation	99
Part 2. <i>Web of Light</i>	103
Part 3. Taking practice forward	109
Part 4. What was learned from <i>Isis</i> and <i>Web of Light</i>	112

<b>Chapter 5 — Bringing technology and context together</b>	120
Part 1. Challenging assumptions around domestic lighting	128
Part 2. Practice-led experiments	132
Part 3. Evaluating the practice-led experiments	138
Part 4. Feedback from the evaluation process	155
Part 5. Taking the practice-led experiments forward	161
Part 6. What was learned from the practice	165
<b>Chapter 6 — Adding dimension and control to light</b>	170
Part 1. <i>Cumulus</i>	174
Part 2. <i>The Nimbus</i>	188
Part 3. Taking practice forward	202
<b>Chapter 7 — The Unexpected Gifts</b>	208
<b>Chapter 8 — Findings</b>	226
Part 1A. New design approaches	228
Part 1B. New lighting applications using LED technology	240
Part 2. Implications for lighting	242
Part 3. How the game has changed for design	252
Part 4. Reflections on the research	258
Appendix 1. The age of ‘scarce’ light	263
Appendix 2. Why do chandeliers sparkle?	264
Appendix 3. Feedback from subjects in evaluation process	265
Appendix 4. Feedback from subjects in evaluation process	267
Appendix 5. Feedback from subjects in evaluation process	270
Appendix 6. Feedback from subjects in evaluation process	272
Glossary of terms	275
References	287

## Illustrations

### Tables

Table 4.1 <i>Isis</i> summary	96-97
Table 4.2 <i>Web of Light</i> summary	105-106
Table 5.1 <i>Reflection Lightlouvre</i> summary	123-124
Table 5.2 <i>Diffusion Lightlouvre</i> summary	125-126
Tabel 6.1 <i>Cumulus</i> summary	175-176
Table 6.2 <i>Nimbus</i> summary	189-190

### Figures

Figure 1.1 Radiation emission from the junction of a semiconductor during flow of electricity (Kitsinelis 2011, p.128)	29
Figure 1.2 Light-emitting diode (LED) diagram (Kitsinelis 2011, p.130)	29
Figure 1.3 Components in LED light source showing heat sink and optics (Cree 2013, p.6)	30
Figure 1.4 Spectral distribution of a) phosphor LED and b) mixed RGB LED. The broken line is the spectral distribution of overcast daylight (Shur Zuskauskus 2005, p.1695)	30
Figure 1.5 Narrow angles of LED light (Kitsinelis 2011, p.132)	31
Figure 1.6 Bling light (McDermott 2008)	37
Figure 1.7 A View of the Fire-workes and Illuminations at his Grace the Duke of Richmond's at Whitehall on the River Thames on Monday 15 May 1749. Performed by Charles Frederick Esq. (Anonymous 1749)	38
Figure 1.8 <i>Lunar Nets</i> (McDermott & Baxter 2014)	38
Figure 1.9 iColorFlexMX (Philips 2014, p.2)	39



Figure 2.1 <i>Anglepoise 1227</i> (Carwardine 1935)	52
Figure 2.2 <i>Anglepoise 1228</i> (Grange 2004)	52
Figure 2.3 <i>Kerosene lamp</i> (Anonymous 1857-1865)	54
Figure 2.4 MR-16 Tungsten halogen lamp (Illuminating Engineering Society 2015)	55
Figure 2.5 Acrylic 'window' for bombers in WWII (Fenichell 1996 p.54)	56
Figure 2.6 Nelson, G. 1950 <i>Bubble Lamps</i> (Abercrombie & Nasatir 1996, p.120)	57
Figure 2.7 Panton, V. 1960 <i>Spiral lamps</i> (Fiell & Fiell 2005, p.190)	57
Figure 2.8 Nummi, Y. 1960 <i>Skyflier Hanging Light</i> (Fiell & Fiell 2005, p.62)	58
Figure 2.9 Map of gas lines in London 1814 (Tomory 2011, p. 90)	59
Figure 2.10 <i>Gasolier</i> (Anonymous c. 1879)	61
Figure 2.11 <i>Luminous Canopy</i> (McDermott & Baxter 2015)	63
Figure 2.12 CFL Lamp with E27 base (Philips 2015)	65
Figure 2.13 Type-A halogen lamp with E27 base (Philips 2015)	65
Figure 2.14 LED bulb (Compact 2017)	65
Figure 3.1 Refraction at the boundary of two optically different materials (Julian 2011, p.40)	81
Figure 3.2 Prism with non-parallel faces (Julian 2011, p.44)	81
Figure 3.3 <i>Candelabrum 1705</i> (Bluhm Lippincott 2000, p.58)	82
Figure 3.4 Law of Reflection (Rea 2000, p.31)	83
Figure 3.5 Specular reflection (Rea 2000, p.31)	83
Figure 3.6 Diffuse reflection (Rea 2000, p.31)	83
Figure 3.7 <i>Girandole</i> (Chippendale 1762-1765)	84
Figure 3.8 Noguchi, I. 1951 <i>Akari light</i> (Kida 2003, p.32)	85
Figure 3.9 <i>Moshabak</i> (Babaei et al. 2013, p.157)	85

Figures 4.1-4.4 <i>Isis</i> installation (McDermott 2009)	95
Figure 4.5 Experiment A	99
Figure 4.6 Experiment B	99
Figure 4.7 Experiment C	99
Figure 4.8 Visual of screen with <i>Isis</i> pattern	100
Figure 4.9 Image of 3D modelling of final installation	100
Figure 4.10 eW Cove MX Powercore (Philips 2009, p.5)	100
Figure 4.11 Laser cut acrylic with eW Cove MX Powercore Red	101
Figure 4.12 Experimental mock-up	101
Figure 4. 13 View of mock-up with eW Cove MX Powercore module	102
Figure 4. 14 Plinth upside down showing ‘shelves’ for mounting LEDs	102
Figures 4.15-4.18 <i>Web of Light</i> (McDermott & Baxter 2009)	104
Figure 4.19 Making the <i>Web of Light</i>	107
Figure 4.20 <i>Web of Light</i> in frame	107
Figure 4.21 Mock-up of <i>web</i> detail interior	107
Figure 4.22 Mock-up of <i>web</i> detail exterior	107
Figure 4.23 Mock-up on adjustable rig	108
Figure 4.24 Mock-up on rig raised	108
Figure 4.25 eW Graze Powercore (Philips 2011, p.6)	108
Figure 4.26 Installing the <i>Web of Light</i>	108
Figure 4.27 Example of transom windows and side lights in an historic building (Stacey 1968, p.27).	110
Figure 4.28 Contemporary example of borrowed light (Tilse 2016, p.24)	111
Figure 4.29 GIO LED downlight with heatsink (ACDC 2009, p.10).	113
Figure 4.30 <i>Web of Light</i> illuminating adjacent surfaces	114
Figure 4.31 <i>Isis</i> installation in exhibition context with light spill on ceiling	114
Figure 4.32 MR-16 halogen downlight (Illuminating Engineering Society 2015)	117
Figure 4.33 T8 fluorescent tube (Osram 2017)	117
Figure 4.34 60W incandescent lamp (Philips 2015)	117
Figure 4.35 Mock-up of <i>Isis</i> detail	118

Figure 5.1 <i>Diffusion Lightlouvre</i> (McDermott 2011)	121
Figure 5.2 <i>Diffusion Lightlouvre</i> (McDermott 2011)	121
Figure 5.3 <i>Reflection Lightlouvre</i> (McDermott 2011)	121
Figure 5.4 <i>Reflection Lightlouvre</i> (McDermott 2011)	121
Figure 5.5 Light seen through louvres	133
Figure 5.6 An early visual of a louvre-type fitting	133
Figure 5.7 Curved louvre	134
Figure 5.8 ‘Gull-wing’ louvre	134
Figure 5.9 Front view of ‘gull-wing’ development	135
Figure 5.10 Side view of ‘gull-wing’ development	135
Figure 5.11 Philips eW Cove modules (Philips 2009)	135
Figure 5.12 Model A showing profile	135
Figure 5.13 Model A whole artefact	136
Figure 5.14 Model A showing the mirrored underside	136
Figure 5.15 Model B painted acrylic	136
Figure 5.16 Model C An opalescent acrylic	136
Figure 5.17 Custom made LED light source	137
Figure 5.18 <i>Reflection Lightlouvre</i> (McDermott 2011)	137
Figure 5.19 <i>Reflection Lightlouvre</i> (McDermott 2011)	137
Figure 5.20 <i>Diffusion Lightlouvre</i> (McDermott 2011)	138
Figure 5.21 <i>Diffusion Lightlouvre</i> (McDermott 2011)	138
Figure 5.22 Households/lay subjects for study	144
Figure 5.23 Professional subjects for study	145
Figure 5.24 SDS scale for light	149
Figure 5.25 SDS scale	150
Figure 5.26 SDS relating to experience	150
Figure 5.27 SDS relating to appearance	150
Figure 5.28 <i>Diffusion Lightlouvre</i> in Household 1	151
Figure 5.29 <i>Reflection Lightlouvre</i> in Household 3	151
Figure 5.30 <i>Reflection Lightlouvre</i> in Household 4 in vestibule area	151
Figure 5.31. <i>Diffusion Lightlouvre</i> in Household 4 in television room	151
Figure 5.32 <i>Diffusion Lightlouvre</i> in Household 4 in television room on wall	152
Figure 5.33 Both <i>Lightlouvres</i> in professional studio	154
Figure 5.34 Visual of <i>Lightlouvre</i> using wood veneer	163
Figure 5.35 Visual of <i>Lightlouvre</i> with perforated edge	164
Figure 5.36 <i>Garland Light</i> (Boontje 2004)	165

Figure 6.1 <i>Lustre</i> (Anonymous c1690)	173
Figures 6.2-6.4 <i>Cumulus</i> (McDermott & Baxter 2012)	174
Figure 6. 5 Early visual of <i>Cumulus</i>	177
Figure 6. 6 Screen shot of 3D model	177
Figure 6.7 Card models	177
Figure 6. 8 Perforated aluminium (Arrow Metals 2012)	178
Figure 6.9 Corner detail	179
Figure 6.10 Workshop drawing of mock-up	180
Figure 6.11 Full view of mock-up	180
Figure 6.12 Lengthways pieces for <i>Cumulus</i>	181
Figure 6.13 View of manufacturing	181
Figure 6.14 View of laser-cut pieces	182
Figure 6.15 Crossways pieces for <i>Cumulus</i>	182
Figure 6.16 Image of LMX system (Philips 2012, p.12)	183
Figure 6.17 Individual LMX node (Philips 2012, p.13)	183
Figure 6.18 Mock-up to test lights	184
Figure 6.19 Image of full-size model used for light testing	184
Figure 6.20 Close-up of lighting effect in mock-up	184
Figure 6. 21 Laying out modules to get the correct shape	185
Figure 6.22 North and east elevations of rigging to be constructed for <i>Cumulus</i>	185
Figure 6.23 Arrival of <i>Cumulus</i>	186
Figure 6.24 Raising of <i>Cumulus</i> on a scissor lift	186
Figure 6.25 Daylight view of <i>Cumulus</i>	186
Figure 6.26 Sparkle	187
Figures 6.27-6.30 Views of <i>Nimbus</i> installation (McDermott & Baxter 2015)	188
Figure 6.31 Early visual of small <i>Nimbus</i>	193
Figure 6.32 3D modelling render of <i>Nimbus</i> in a plastic finish	193
Figure 6.33 Cardboard model of <i>Nimbus</i>	194
Figure 6.34 MX lights with model	194
Figure 6.35 Samples of white Satinice	194
Figure 6.36 Sample of colour Satinice	194
Figure 6.37 Small plastic mock-up	195
Figure 6.38 Mock-up with lights	195
Figure 6.39 Sample of different cuts for notching detail	195
Figure 6.40 Pieces of mock-up	195
Figure 6.41 Image of site in Milan	196

Figure 6.42 3D Model of site	197
Figure 6.43 Showing suspension heights	197
Figure 6.44 Mock-up of perforated metal detail	198
Figure 6.45 Samples of gold anodised pieces	198
Figure 6.46 Testing the gold with lights	198
Figure 6.47 iColor Flex MX (Philips 2014, p.2)	199
Figure 6.48 Application of MX (Philips 2014, p.3)	199
Figure 6.49 Tridonic LED system	199
Figure 6.50 Plan of LED lights	199
Figures 6.51-6.54 Assembly of silver <i>Nimbus</i>	200
Figures 6.55-6.56 Assembly of white <i>Nimbus</i>	201
Figures 6.57-6.58 Illuminated white <i>Nimbus</i>	201
Figure 6.59 Assembly in Milan	202
Figure 6.60 Installation in Milan	202
Figure A.1 Christ in the Carpenter's Shop (de la Tour 1645)	263
Figure A.2 Lead crystal (Kentfield Lighting 2010, p.5)	264



## Abstract

This thesis is concerned with a particular moment of technological change – the emergence of LED technology in the early part of the 21st century as a viable architectural light source. The advent of this technology into the provision of artificial light has not been straightforward, since LEDs have created many design challenges not seen in the lighting technologies of the 20th century.

This thesis therefore examines both the challenges and potential of LED technology. Additionally, it explores both the ways LED lighting can be used to take advantage of the benefits this technology offers and new design processes that may be required for that purpose.

A series of practice-led experiments were undertaken to gain a greater understanding of the nature of LED light. An approach based on ‘frames for practice’ was adopted to guide these experiments, which themselves were supported by the technical and scientific literature that discusses the way light is generated, measured and experienced.

LEDs are part of a wider technological change from industrial to digital technologies. Actor- network theory (ANT) has provided the lens through which moments of technological change in lighting in the past and the current transformation are examined.

Research outcomes include a suggested method of working with LEDs and possible new uses of LED light in different lighting scenarios. Above all, a fuller understanding of the move from industrial to digital lighting and its implications was gained.