THE GREAT ART OF LIGHT AND SHADOW
Archaeology of the Cinema

Laurent Mannoni

Translated and edited by Richard Crangle
Contents

List of Illustrations ix
Translator's Note xii
Foreword by David Robinson xiii
Author's Preface to the 1995 Edition xvi
Author's Acknowledgements xvii

Introduction by Tom Gunning xix

PART ONE—THE DREAMS OF THE EYE 1
Chapter One: Dark Rooms and Magic Mirrors 3
The camera obscura, or how to capture the sun, 3; The spectacle of everyday life, 6; Technical improvements to the camera obscura, 13; Magic mirrors, 17; Enter Kircher, 20; Kircher's 'new cryptology', 24

Chapter Two: Light in the Darkness 28
The lanterne vive, 28; The arrival of the magic lantern, 33;
Christiaan Huygens and Athanasius Kircher, 34;
Huygens' moving slide, 38

Chapter Three: The 'Lantern of Fear' Tours the World 46
England: John Reeves, 46; Walgenstein, the 'curious Dane', 47;
England: Robert Hooke, 52; Italy: Escinardi and Kircher, 55;
Germany: Johann Griendel and Johann Sturm, 58; Germany: Johannes Zahn, 63; The lantern in France, 66; Huygens’ last works, 69;
The lantern in China, 71
### PART TWO—TRIUMPHANT ILLUSIONS

**Chapter Four: Magie Lumineuse in the Country and the City**
- Travelling showpeople, 77; The Dauphin's magic lantern, 84; The travelling peepshow, 86; Day and night peepshow effects, 89; Cabinets of curiosities, 94; The lanternist's revolution, 98; Exit the showman, 102

**Chapter Five: 'Life and Motion': The Eighteenth-Century Lantern Slide**
- Painting on glass, 104; Slides for all, 109; Moving slides, 115; Technical evolution of the magic lantern, 122; Lenses, 124; The microscope lantern or 'solar microscope', 125; The 'Megascope', 131; Some eighteenth-century lantern manufacturers, 133

**Chapter Six: The Phantasmagoria**
- Phantasmagoria with a fixed lantern, 137; Mobile back-projection, 141; Robertson, the 'great man' of the Phantasmagoria, 147; The patent for the 'Fantascope', 153; The Phantasmagoria at the Convent des Capucines, 157; Robertson's rivals and imitators, 165; The spread of projection, 171

**Chapter Seven: From Panorama to Daguerreotype**
- Inventors and evangelists of the panorama, 177; The panorama in Paris, 178; The 'Diorama' of Daguerre and Bouton, 185; Niépce and Daguerre, 191; Daguerreotypomania, 195

### PART THREE—THE PENCIL OF NATURE

**Chapter Eight: The Pirouette of the Dancer**
- First principles, after Aristotle, 201; Eighteenth-century measurement of the impressions of light, 203; The Thaumatrope, 205; More precise measurements, 208; The Plateau Anorthoscope, 209; Faraday's Wheel, 213; Plateau's Phenakistiscope, 215; Stampfer's 'Stroboscopic disc', 217; The Phenakistiscope craze, 219

**Chapter Nine: The 'Vital Question' Resolved**
- Projection of the Phenakistiscope, 223; The lantern of Ucbatius, 225; The Duboscq Projector, 227; The lantern of Gomez Santa Maria, 230; The Wheel of Life, 232; The 'Choreutoscope', 233; The first photographic animation: the 'Stereoscope', 235; The Duboscq Bioscope, 238; Claudet's 'moving photographic pictures', 241; Cook and Bonelli's 'Photobioscope', 245
Chapter Ten: Great Expectations

Pierre Siguin's Animated Polyorama, 248; Du Mont and Ducos du Hauron, 252; Henry R. Heyl's Phasmatrope, 261

Chapter Eleven: The Magic Lantern: A Sovereign and her Subjects

The Royal Polytechnic Institution, 264; Abbé Maigno, the 'Apostle of Projection', 268; The Salle Robin, 273; The travelling lanternist's trade, 276; Mass-production of magic lanterns, 280; Louis Aubert and the Lapierre family, 282; Alfred Moltani, 286; Industrialization of lantern slide manufacture, 288

PART FOUR—INSCRIBING MOVEMENT

Chapter Twelve: The Passage of Venus and the Galloping Horse

Jules Janssen and the photographic revolver, 299; Eadweard Muybridge and the photography of motion, 304; Muybridge in Europe, 312; Zoopraxography' in Philadelphia, 317

Chapter Thirteen: Marey Releases the Dove

An explorer of movement, 320; Chronography assisted by photography, 326; The photographic rifle, 330; Georges Dumenil and the Station Physiologique, 333; The fixed-plate chronophotographic camera, 336; The paper strip chronophotographe, 340; The celluloid film chronophotographe, 342; Chronophotography across Europe, 346; Marey's chronophotographic projector, 350; The Demeny Phonoscope', 354; The Société du Phonoscope, 357

Chapter Fourteen: The Big Wheel of Little Mirrors

A disciple of Abbé Maigno, 364; The invention of the Praxinoscope, 366; The Praxinoscope-Théâtre and Toupie-Fantoches, 371; The Projection Praxinoscope, 374; The Théâtre Optique, 377; Pantomimes Lumineuses at the Musée Grévin, 380; La représentation est terminée', 384

Chapter Fifteen: Edison and his 'Films Through the Keyhole'

Edison and the 'Optical Phonograph', 387; Development of the Kinetoscope, 390; The perforated film Kinetoscope, 392; Edison's patents of 1891, 394; Exploitation of the Kinetoscope in the United States, 399; The Edison Kinetoscope films, 401; The Kinetophone, 405; The Kinetoscope in Paris, 406
Chapter Sixteen: The Labourers of the Eleventh Hour

The misfortunes of Georges Demeny, 417; The Lumière 'Domitor', 421; The Latham Panoptikon and Eidoloscope, 426; Jenkins and Armat's 'marvellous electric Phantoscope', 429; The American Mutoscope Company, 432; Joly and Pathé in France, 434; Léon Gaumont, 439; The Demeny–Gaumont 'Biographe' and 'Bioscope', 442; The first Cinémagraphe Lumière, 450; The Cinémagraphe: final modifications, 454; The Skladanovsky Bioskop, 457; The Lumière show of 28 December 1895, 458; The Gold Rush, 462

Appendix A: 469

Museums displaying interesting items relating to the history of 'pre-cinema' media

Appendix B: 470

Report of the Scientists Jamin and Richer on the Phantasmagorie of Robertson and the Phantasmaparastaie of Clisorius (17 July–2 August 1800)

Notes 483

Select Bibliography

Books 508
Periodicals 519
Patents 521

Index 538