

# The Magic Lantern

## DON JUAN MIEG AND ROBERTSON: THE SPANISH ROYAL PHYSICS CABINET REDISCOVERED

Part two

Wendy Bird

Most Spanish intellectuals believed that physics would provide rational explanations for 'supernatural beings'. Edith Helman drew attention to the not infrequent appearance of such 'beings' in the works of artists and writers, especially the *ilustrados*, who delighted in debunking them, such as Friar Benito Feijóo (1675–1764) (Fig. 12) who '... contributed perhaps more than anyone else to keeping these creatures alive ... to recreate them vividly in order to attack them later ... whilst he condemned them in the name of reason or common sense, he enjoyed presenting, as if in a magic lantern, the whole phantasmagoria of

12. Engraving by Juan Bernabé Palomino from a lost portrait of Feijoo by Francisco Antonio Bustamante c.1733 (Biblioteca Nacional de Madrid)



apparitions and vampires, of witches and demons ...'<sup>35</sup> Indeed, Feijóo made reference to a magic lantern in *Goblins and Familiar Spirits*, from *Cartas eruditas y curiosas* (Madrid, 1742) (Fig. 13) in which he cited an anecdote about the nightly apparition of 'figures in a strange light' in the bedroom of a French count where a servant was performing the illusion on the orders of the countess.<sup>36</sup> This was clearly a magic lantern projection – the rationalist Feijóo called it a 'toy'.

Feijóo was a man of the Enlightenment, but in the Baroque tradition the magic lantern was a symbol of the deceptive nature of appearances.

In a poem by the Mexican nun, Juana Inés de la Cruz, (Fig. 14) *Sueño* (Dream) (published in Seville

in 1692), it occurs as a literary metaphor.<sup>37</sup> Sor Juana's knowledge of the magic lantern would no doubt have derived from *Ars magna lucis et umbrae*, by the Jesuit polymath Athanasius Kircher (1602–80) (Fig. 15). The 1671 edition included illustrations of magic lanterns (Fig. 16) which were used by the Jesuits to disseminate missionary propaganda, as recorded in China from c.1670.<sup>38</sup> Also around that time Christiaan Huygens was using the magic lantern to illustrate his medical lectures,

### NOTES

35. E. Helman, *Moratin hijo y Goya: sobre duendes y brujos*, in *Jovellanos y Goya*, op. cit. pp. 157–82.

36. B. Feijóo, *Duendes y espíritus familiares* from *Teatro crítico universal*, vol. II, Madrid, 1941, p. 13.

37. W. Bird and R. Crangle, 'Sor Juana's Dream', *New Magic Lantern Journal*, vol. 9, No. 5, (winter 2003), p. 79.

38. Jerome Ch'en, *Studies in the Social History of China and South-East Asia: Essays in Memory of Victor Purcell*, Cambridge, 1970, p. 218.

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Francisco de Goya y Lucientes, *El Conjuró o Las Brujas* (1797–1798). N° de inventario 2004. Óleo sobre lienzo © Museo Lázaro Galdiano, Madrid



13. First edition of Book 1 of *Cartas eruditas y curiosas* de Feijoo (Madrid, 1742) (Biblioteca del IFES XVIII)



14. Juan de Miranda, *Retrato de Sor Juana Inés de la Cruz*, 1680 (Universidad Nacional Autónoma de México (UNAM))

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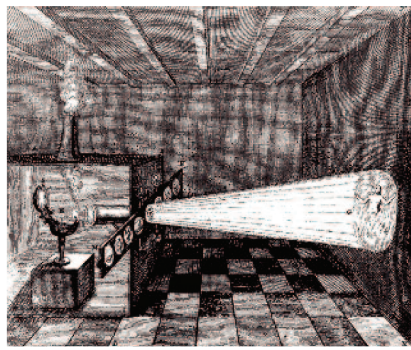
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15. (left) Athanasius Kircher, engraving from the catalogue of the Collegio Romano, 1678 (With permission of the Master and Community of Campion Hall, University of Oxford).  
16. (right) Engraving from *Ars magna lucis et umbræ*



but he rejected it because it was being adapted to what he regarded as 'foolish' purposes.<sup>39</sup> Despite its usefulness as a teaching aid, the magic lantern was mostly used for entertainment, becoming incorporated into the phantasmagoria in the late eighteenth century.

The origins of the phantasmagoria lie in the 'ghost raisings' of the German 'magician' Johann Georg Schröpfer (1730–74)<sup>40</sup> mentioned by Mieg. Yet Robertson's phantasmagoria was a multi-sensory horror show, projecting imagery 'from beyond the grave' (witches, ghosts, skeletons and eminent corpses), with a fearsome commentary, sound effects and burning incense.

Using back projection, sometimes onto smoke, with mirrors, lenses and concave reflectors,

Robertson's wheeled 'phantascope' (Fig. 17)<sup>41</sup> made ghostly apparitions advance and recede.

Mieg headed his numerous publications with Latin epigraphs such as *Somnia, terrores magicos, miracula, sagas, Nocturnos lemures, portentaque Thessala rides*.<sup>42</sup> These appear in *The Phantasmagoria* and also in *A Warlock in Society* where it is clear Mieg's intention was to pour scorn on the supernatural: '... magicians and witches with all their miracles, spells and enchantments, I no longer fear them, and I pour ridicule on them with as much serenity as Horace when he says *Somnia, terrores magicos* ...'<sup>43</sup>

Helman drew attention to the frequency with which this passage was quoted '... whenever an author seeks authorisation for treating supernatural themes'.<sup>44</sup>

This fashion for citing the Roman poets and philosophers was ridiculed by the *ilustrado* José de Cadalso y Vázquez (1741–82) in *Carta LXVII* of his satirical novel in epistolary form, *Cartas Marruecas*: '... we see a thousand modern books that have nothing good about them except the epigraph'.<sup>45</sup> Following this is a fictitious response to Feijóo's *Goblins and Familiar Spirits*:

... I can prove, in disagreement with the method of his very illustrious reverence, that cases of goblins, witches, vampires, zombies, poltergeists and ghosts, are very common, and as a legitimate consequence not so rare, and are all authenticated by reliable people, like children's nurses, grandmothers, old men of the village and others with equal authority. I am of a mind to publish it soon with fine plates and exact maps, and a distinctive print on the frontispiece, which represents the field of Barahona<sup>46</sup>

DON JUAN MIEG AND ROBERTSON (continued from page 1)

with a general assembly of all the nobility and commoners of witchcraft, and for this purpose we will go back and knock on Horace's door, though it be midnight, and ask him for another text for this business, we will take from his hand that one about *Somnia, terrores magicos* ...'<sup>47</sup>

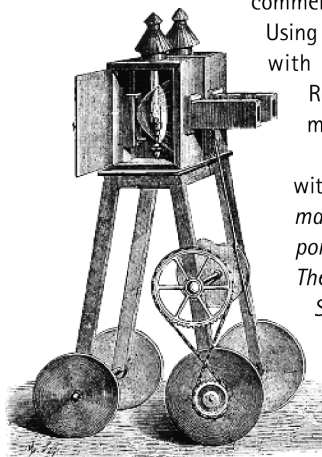
Helman related this passage to the witchcraft imagery in Goya's *Los caprichos*.<sup>48</sup> The strange floating figures in his *Disparates* print series (c.1810–21) and those in 'The Black Paintings' (c.1821–5) also bring to mind magic lantern projections.<sup>49</sup> In 1798 Goya had executed six witchcraft paintings for the Duke and Duchess of Osuna and at least two of these represented scenes from the theatre in which magic lanterns were used to produce special effects. In one of these, 'The Stone Guest', from Zamora's *Don Juan*, a ghost appears in a halo of light projecting from behind Don Juan's chair (Fig. 18).<sup>50</sup> Folkloric belief in witches and the supernatural was still widespread in Spain at that time, but the *ilustrados*, which included Cadalso, Leandro Fernández de Moratín (1760–1828), Goya, Jovellanos, Tomás de Yriarte (1750–92) and Juan de Meléndez Valdés (1754–1817), while purporting to ridicule such beliefs, showed such a lively interest in 'supernatural' entertainment and it is clear they were seduced by the popular taste for 'magic shows' and 'the theatre of horror'.

G. Levitine also drew attention to this when identifying possible literary sources for Goya's *The Sleep of Reason Produces Monsters* (Fig. 1).<sup>51</sup> Beginning with a poem by Meléndez Valdés, he traced the idea back through Hobbes' *Leviathan* and Addison's *Pleasures of Imagination* to Horace's *Ars poetica*: 'one of the most often quoted and the most often imitated of the treatises of this type', which was translated by Yriarte in 1777. Horace's references to the 'dreams of delirious sick men' and criticism of 'harmful, vulgar beliefs,' provided a classical precedent for enlightened arguments against ignorance and superstition and Mieg inherited this tendency.

And so did the phantasmagoria showmen, who justified their performances by presenting them as a means towards educating the public against fraud and charlatanism. On the other hand Robertson's illusions were primarily intended to create terror, as pointed out by Castle.<sup>52</sup> In the frontispiece to his *Mémoires* (Fig. 10) gentlemen draw their swords, people raise their arms or cover their faces, and one throws himself to the ground. Yet this was an effective piece of propaganda, like the reports of hysteria in some audiences. The educational and scientific arguments were no more than a pretext for the continuation of these 'sublime' entertainments, which fulfilled the highly influential aesthetic ideals of Edmund Burke (1727–97): '... dark, confused, uncertain images have a greater power on the



18. Goya, *The Stone Guest*, 1798 (present whereabouts unknown) (photo Fundació Institut Amatller d'Art Hispànic, Arxiu Mas, Barcelona)



17. Robertson, *Phantascope magic lantern on wheels*

39. D. Rossell in 'The True Inventor of the Magic Lantern', *New Magic Lantern Journal*, vol. 9, no. 1, p. 7.

40. From 1768 Schröpfer projected 'ghosts' onto smoke using mirrors and magic lanterns. R. Crangle, M. Heard, I. van Dooren (eds), *Realms of Light*, London, 2005, pp. 14–15.

41. Constructed by the Parisian Dumotiez scientific instrument makers (active 1770s to 1810s). According to Robertson (*Mémoires* ... *op. cit.*) they could be found '... from the borders of Siberia to the far end of Spain, even in Ceuta'.

42. Quintus Horatius Flaccus (68–5 BC), *Epistles*, Book 2, epistle II. Translation into English is a challenge, but in essence Horace is laughing at nightmares, magic, witches, ghosts and so on.

43. Mieg, *El Brujo en Sociedad* ..., *op. cit.*, p. 4.

44. Helman, 'Caprichos and Monstruos of Cadalso and Goya', *Hispanic Review*, XXVI, 1958, pp. 200–22.

45. J. Cadalso, *Cartas Marruecas/Noches lúgubres*, ed. Joaquín Arce, Madrid, 1984, *Carta LXVII*, pp. 236–46.

46. A famous coven. L. Fernández de Moratín, *Obras póstumas*, 3 vols, Madrid, 1868, II, pp. 73–4.

47. Cadalso, *Cartas* ... *op. cit.*, pp. 242–3.

48. Helman, 'Caprichos' ... *op. cit.*, p. 221.

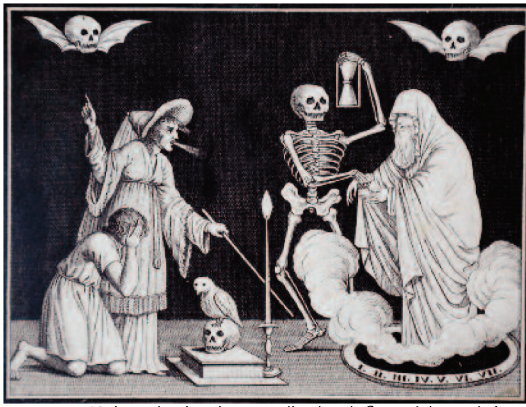
49. Bird, *op. cit.*

50. Bird, 'Oh Monstrous Lamp!', *Apollo*, March 2004, pp. 13–19.

51. G. Levitine, 'Literary Sources of Goya's Capricho 43', *Art Bulletin*, vol. 37 (1955), pp. 56–9.

52. T. Castle, 'Phantasmagoria: Spectral Technology and the Metaphorics of Modern Reverie', *Critical Inquiry*, Autumn 1988, vol. 15, no. 1, pp. 26–61.





19. *La pythonisse évoquant l'ombre de Samuel devant le jeune Saul*, illustration from a fantasmagorie programme at the Convent des Capuchines (Bibliothèque Universitaire, Paris 8-St Denis (Cote: 791.43(091) LEV CDU m3))



20. *The nun*



21. Antonio Carnicero, *Allegory*, c.1800 (private collection, photo Caylus, Madrid)

fancy ...' and '... passions ... are delightful when we have an idea of pain and danger, without being actually in such circumstances ...'<sup>53</sup>

As curator of the royal physics cabinet Mieg was bound to promote scientific knowledge as a means towards banishing irrational beliefs. In *White Magic Rediscovered*<sup>54</sup> he used the popular epigraph *Felix qui potuit rerum cognoscere causas*<sup>55</sup> (Happy is he who knows the causes). It also appears in *A Warlock in Society* in which Mieg stated: '... the study of natural magic serves efficaciously to banish errors, and moreover presents to society an endless source of honest and agreeable diversions.'<sup>56</sup> He cited Pliny the Elder: *Est natura hominum novitatis avida*<sup>57</sup> (It is man's nature to be avid for novelty) to underline his convictions. According to Mieg the phantasmagoria was '... innocent white magic, the enemy of superstition and ignorance' but it was also '... probably known to the Ancient Egyptian priests ...'<sup>58</sup> who used it to propagate '... the so-called art of necromancy ... [an] abominable superstition ...'<sup>59</sup>

Indeed, Robertson's most popular 'apparitions' were based on biblical magic: 'The Magic of the Egyptians' and 'The Pythoness Evoking the Shadow of Samuel before the Young Saul', which appeared as an illustration on the programmes (Fig. 19).<sup>60</sup> The image, in which vapour shoots out of the pythoness's mouth, brings to mind Mieg's reference to Schöpfer's ghosts, which appeared '... in the form of vapour, imitating only the voice, perhaps through the art of ventriloquism.'<sup>61</sup> This clearly refers to the pythoness's use of ventriloquism. Mieg concluded: 'All this pretended art of making the dead appear, is no more than a chimera or pure fraud ... We give thanks to the Supreme Being that such an art does not exist.'<sup>62</sup> Robertson's phantasmagoria would serve to guard against such charlatanism. It was: '... executed with all the illusions that optics, mechanics, electricity, acoustics and chemistry can supply it with', and 'Ever since physics and chemistry have been included among the subjects of a refined education in all the cultured nations, there are very few people imbued with this dangerous form of superstition, and if there are still some, they are always from the most ignorant classes.'<sup>63</sup>

In fact, long before Robertson arrived in Madrid phantasmagorias had become well known in the *teatrillos* and some of his mechanisms were already in the Royal Physics Cabinet: a skeleton, 'the ghost of a nun with a dark lantern' (Fig. 20) and 'the dance of the witches'.<sup>64</sup> The latter inspired a poem, *La fantasmagoria*, published in 1815 by Mieg's contemporary, the court poet Bartolomé José Gallardo (1776–1852).<sup>65</sup> In 1803, Juan Bautista de Arriaza (1790–1837), who became court poet to Ferdinand VII, had evoked the phantasmagoria in a poetic satire on the 'theatre of horror'.<sup>66</sup>

Other items from the Royal Physics Cabinet bring to mind the use of special stage lighting effects in Madrid. They were already being used in many European theatres. There were twelve 'pictures' (decorated transparent screens) for 'pyrrical or Chinese fires' (which reproduced firework effects) and fourteen for 'Chinese shadow plays'.<sup>67</sup> There is evidence for the application of 'Chinese shadows' to experimental stage sets not only in the *teatrillos* but in the main theatres, as suggested by the painting *Allegory* (c.1800, Madrid, private collection) (Fig. 21)<sup>68</sup> by Antonio Carnicero (1748–1814), who was employed as a scenery painter in *El Teatro de la Cruz*.<sup>69</sup> The 'Chinese Shadow Theatre', was extremely popular in the Madrid *teatrillos* and in private houses.<sup>70</sup> The shadow puppets, articulated cut-out silhouettes in black paper, soon fell under the influence of the phantasmagoria, when life-size or gigantic 'supernatural' figures, intended to provoke fear, become popular.<sup>71</sup>

These effects are reflected in literature. Cadalso's *Noches lúgubres* (Lugubrious Nights) (first published 1789–90), in which darkness and shadows form part of the scenario, appears to be a parody of the gothic novel<sup>72</sup> and is believed to have been inspired by Edward Young's verse poem *Night Thoughts* (1742–5). It predates Robertson's phantasmagoria scene of 'Young Burying his Daughter' (included in his Madrid programme) by over thirty years.<sup>73</sup> Most of the action in Cadalso's novel takes place in a graveyard, where the main character, Tediato, has taken to passing his waking hours. During a dialogue with the gravedigger (whom he has hired to

53. E. Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*, 1757.

54. *La Magia Blanca Descubierta, ó bien sea Arte Adivinatoria, con varias demostraciones de física y matematicas*, por J.F. corregido y considerablemente aumentado por el presbítero Don Joaquín Eleuterio García y Castaner, Mieg, Valencia, 1833, p. VIII.

55. Publius Vergilius Maro (70–19 BC), *Georgics*, Book 2, verse 490.

56. Mieg, *El Brujo en Sociedad*, op. cit., pp. VI–VII.

57. Gaius Plinius Secundus (23–79 AD), *Historia Naturalis*, 12/1:11.

58. *ibid.*

59. *Noticias curiosas*, op. cit., p. 47.

60. See F. Levie, Étienne-Gaspard Robertson. *La vie d'un fantasmagore*, Brussels, 1990, pp. 96, 255 and 306. Sir Walter Scott, in *Letters on Demonology and Witchcraft* (1830) described the ghost of Samuel raised by the 'Witch of Endor' as a 'phantasmagoria' (Castle, op. cit., p. 44).

61. *Noticias curiosas*, op. cit., p. 50.

62. *Noticias curiosas*, op. cit., pp. 49–54.

63. *ibid.*

64. 'Fantasma de una monja con su lampara sorda', 'Aparato para el baile de las brujas'. The skeleton, the nun and the 'dance of the witches' were mechanical contraptions designed and constructed by Robertson. AGP. Legajo:701.

65. It compared the work of Goya with the phantasmagoria. L.R. Tobar, 'Goya y la Literatura de su tiempo' in *Francisco de Goya y Lucientes, su obra y su tiempo*, Saragossa, 1997, pp. 69–70.

66. *Memorial Literario*, XXXIII, 1803, pp. 217–19. See J. Campos, *Teatro y sociedad en España* (1780–1820), Madrid, 1969, pp. 133, 136.

67. 'Doce cuadros para fuegos pirricos ó chinoscos Et Catorze cuadros pintados transparentes para sombras chinoscas'. AGP. Legajo:701.

68. Illustrated in R. Kasl and S.L. Stratton, *Painting in Spain in the Age of Enlightenment. Goya and his Contemporaries*, The Spanish Institute, New York, ex. cat., spring 1997, pp. 117, 209, 260–1.

69. Coe, op. cit., pp. 48–57.

70. The German showman, Josef Brunn, gave a show for the Duke and Duchess of Osuna in 1787. J.M. Serrera, *Goya, los caprichos y el teatro de sombras chinoscas in Francisco de Goya y Lucientes, su obra*, op. cit., pp. 171–97, p. 176 note 12.

71. *ibid.*

72. Popular gothic novels were avidly read in Spain. In *Journal in Portugal and Spain for the years 1787–88* (London, 1954), William Beckford, author of the gothic novel *Vathek*, records attending a literary reunion organised by the Duchess of Osuna's mother. F. Irving Heckes, *Goya y sus seis 'asuntos de bruja'*, Goya, no. 295–6, julio-octubre 2003, pp. 197–214. The Osuna library contained a copy of *Della magia naturale del Signor* by Giovanni Battista della Porta (1540–1615) in which there is a description of a luminous spectacle using the camera obscura. AHN, Archivo de Osuna, Legajo 3521.

73. Levie, op. cit., p. 308. It had been shown over twenty years earlier at the Convent des Capuchines as described in Robertson's *Mémoires*, I, op. cit., p. 297 and in Valey, *Robertson's Phantasmagoria II*, op. cit., p. 88.



exhume the body of his dead lover), he describes an experience highly reminiscent of a phantasmagoria or one of Schröpfer's 'ghost-raisings'. Tediato has been locked in the temple of the graveyard:

*I was left in those shadows, surrounded by tombs, touching images of death, shrouded in darkness, and hardly breathing ... I saw, do not doubt it, I saw coming out of a grave near to this one a being, which moved, its eyes shining in the light of this lamp, which was going out. It was white, though somewhat ashen-grey. It took a few slow and deliberate steps towards me ... I hesitated ... I called myself a coward ... I got up ... went towards it ... and as I went to touch it, the horrible thing came towards me, and in that critical moment of so much confusion ... the light went out completely.<sup>74</sup>*

The experience turns out to be the product of Tediato's feverish imagination, a Horatian dream of a delirious, sick man. The gravedigger's dog, a pale mastiff, had also been left by accident in the graveyard, sleeping over the freshly dug grave from which the ghostly 'being' emerged. The rational conclusion is humorous, but it also represents the power of reason over imagination.

Cadalso, like Miege, refers to God as 'the Supreme Being', in the *afrancesado* manner, yet unlike Miege he was a gifted satirist. His very use of the name 'Tediato' implies tedium, and is most likely a direct reference to Young's rather tedious poem. In the previously discussed *Carta LXVII* he envisages a publication of *Noches lúgubres* in conformity with the current full mourning conventions, in burlesque tone: 'The edition would be on black paper with yellow lettering, and the epigraph would be *Crudelis ubique. Luctus, ubique pavor, et plurima noctis imago* (Virgil, Aen., 2, v. 368)<sup>75</sup> (which quote did in fact appear on the front page of the first edition). Notwithstanding this mockery, Helman saw Cadalso as delving into 'the new sensibility' (of the sublime) and anticipating romanticism.<sup>76</sup> That may be so, but it is the acuteness of Cadalso's contemporary social satire, the very actuality of his burlesque, that has left its mark.

At the end of *Noticias curiosas* Miege referred to a mechanical device designed to project astronomical phenomena:

*Various artists, amongst others Don Francisco Lorenzo,<sup>77</sup> skilful engineer of this Court, have found clever and instructive applications for this kind of optical illusion, substituting the spectres and phantoms for images of the celestial bodies which belong to our planetary system, and these images, animated by ingenious mechanical movements, are projected onto a large backdrop, representing the principal astronomical phenomena in an instructive way.<sup>78</sup>*

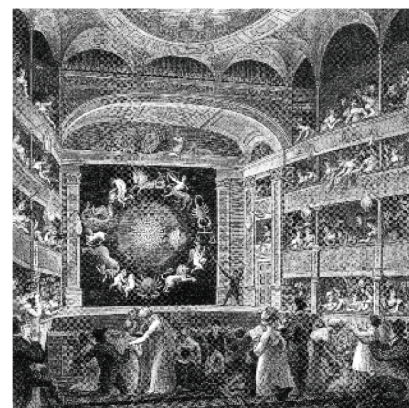
This brings to mind an Eidouranian, the 'transparent orrery', invented c.1781 by Adam Walker (1731?–1821)<sup>79</sup> and used to illustrate astronomical lectures with the projection of images over six metres in diameter. There is no record of Walker's Eidouranian having been shown in Spain, but an astronomical spectacle called 'The Temple of Urania' was advertised in a *teatrillo* in 1795.<sup>80</sup> The Spanish Royal Physics Cabinet contained a 'Loxocosm' or 'machine to explain the principal positions of the Earth with respect to the sun' and a 'machine to explain the eclipses'<sup>81</sup> (Fig. 22). These were clearly educational resources.

The inventory lists all the necessary items for a phantasmagoria: 'A transparent theatre curtain prepared with wax, for phantasmagoria experiments, etc.', 'A large phantasmagoria apparatus on a cart with

a Quintet lamp, a parabolic mirror, painted glass plates and objects for the lucernal megascope'. Indeed there are six pages listing objects that were used in optical entertainment (Fig. 23)

Miege died aged 81 in 1860, and eight years later a successor had still not been appointed. It was '... difficult to find people who are educated in Physics to the level of up-to-date knowledge.<sup>82</sup> Under his dedicated and meticulous direction, the Royal Physics Cabinet had been a well-equipped working unit, designated for the teaching of scientific principles in a practical and engaging manner and representative of practically the entire history of physics up until the early nineteenth century. One of the most recent additions was a daguerreotype kit, with wooden tripod and plates, complete with photographic chemicals.<sup>83</sup> The invention of photography by the Frenchman Louis Daguerre (1789–1851) was a relatively recent event – the secret of the technique had been made public in 1839. It heralded the advent of an age in which diffusion of imagery was to reach unimaginable proportions and it would not have displeased Miege to observe how soon it was adapted to optical entertainment. In 1869 the Spanish Inland Revenue ordered an inventory and valorisation of the Royal Physics Cabinet, then owned by the 'ex-infante' Sebastian and the 'ex-queen' Isabel. When the local authorities asked for the items to be donated to the University of Madrid and other institutions many had already been sold off.<sup>84</sup> Finally they disappeared without trace.

One aspect of Miege's writing that made it unique in Spain was his knowledge of important figures in the world of esoterics and occultism, no doubt in part owing to his Swiss origins. It would be difficult to find Spanish texts that mention Swedenborg, Schröpfer, Cagliostro and others. Charlatans were known of in Spain – Goya ridiculed a number of charlatans in *Los caprichos*. Mesmer was, of course, famous and Lavater's *Physiognomia* could be read by learned Spaniards in French. Yet the Spanish *afrancesados* were careful about whom they chose to take seriously. Their own particular recreational occult taste drew mainly on Spanish folkloric sources, tales of witchcraft and sorcery, and rarely delved into the esoteric realms of illuminism. It seems probable that Miege wanted to introduce Robertson into Madrilenian society and his *Noticias curiosas* served to inform the general public of modern tendencies about which they probably knew very little. His main justification for the propagation of recreational science was to educate the mind, but he well knew, as a showman himself, that what the public really wanted, from the workers to the aristocracy, was to be flabbergasted on the level of the senses.



22. Eidouranian



23. Optica, page from the inventory of the Spanish Royal Physics Cabinet in the Archivo General del Palacio de Madrid, AGP Legajo: 701

74. Cadalso, *Cartas...* op. cit., pp. 318–21.

75. 'La impresión sería en papel negro con letras amarillas, y el epigrafe ... sería el de *Crudelis ubique. Luctus, ubique pavor, et plurima noctis imago* (Virgil, Aen., 2, v. 368) (The original is *mortis not noctis*), *ibid.*, p. 241.

76. See Helman, 'Caprichos...', op. cit., p. 212. Cadalso was devastated by the death of his fiancée and this gave rise to the belief that *Noches lúgubres* was autobiographical, but the parodic tone of *Carta LXVII* contradicts this. No doubt Cadalso's intention was to parody the English graveyard genre, though sources of Spanish origin have been proposed. N. Glendinning, 'The Traditional Story of 'La difunta pleiteada' Cadalso's *Noches lúgubres* and the Romantics', *Bulletin of Hispanic Studies*, 1961.

77. According to a receipt signed by him in 1818, Lorenzo was chief engineer at the Royal Observatory. AGP. Legajo: 701.

78. *Noticias curiosas*, op. cit.

79. R. Altick, *The Shows of London—A Panoramic History of Exhibitions, 1600–1862*, Cambridge Mass. and London, 1978, p. 81.

80. It took ten years to build at great expense. Coe, op. cit., p. 93.

81. 'Transparente ó telon grande preparado con cera, para los experimentos de la Fantasmagoria, etc., Aparato grande de fantasmagoria sobre su carro, con lampara de Quintet, espejo parabolico, cristales pintados, y objetos para el megascopio lucernal. Loxocosmo ó maquina para explicar las principales posiciones de la tierra respecto del sol. Maquina para explicar los eclipses'. AGP. Legajo: 701.

82. AGP Co 24/2 no. 1.

83. 'Daguerrotipo completo, con planchas, tripode de madera, y botiquin completo'. AGP. Legajo: 701.

84. AGP. Legajo: 701.