The Magic Lantern

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

Wendy Bird

The duality of reason and folly in the age of Enlightenment was graphically expressed by Goya; his dream of light darkened by nightmare monsters of ignorance and superstition (Fig. 1). The cult of the irrational remained ever present throughout the Enlightenment years, and from the 1780s onwards visionary sects and esoteric societies flourished throughout Europe: Swedenborgian theosophy, Rosacrucianism, Freemasonry and Illuminism. The Encyclopaedists had promoted science as a substitute for religion; now the Illuminists saw belief in spirits as a science and Newtonian Physics was substituted on popular demand by Mesmer's animal magnetism. The occult 'sciences' were raised to street level from their hermetic realms and soon established at the Paris salons. At all levels of society reason was giving way to the seductive power of the irrational.

1. Goya, The Sleep of Reason brings forth Monsters, *1799 ©Trustees of the British Museum.*

This article draws attention to ways in which the popular taste for the occult manifested itself in Spanish society, focusing on the antagonistic relationship between this and the waning Spanish Enlightenment. Through unpublished documents and the writings of one of King Ferdinand VII's favourite court employees, Don Juan Mieg, it is possible to review the fashion for the irrational in Spanish society, and see how this movement re-interpreted enlightenment symbolism. It was most notably manifest in the popular phenomenon of pseudo-science, particularly optical entertainment such as the phantasmagoria, in which the double meanings of 'sight' (both optical and subliminal) and 'light' (both physical and metaphorical) were key concepts. Pseudo-scientific entertainment educated and deceived at the same time, since the light of reason had a *doppelganger* in the form of artificial light projections such as magic lanterns and phantasmagorias.

Mieg's cosmopolitan experience as expressed in his writings and reminiscences are a unique source of information. Educated during the enlightenment, his knowledge of the history of occult movements with relation to pseudo-science in various European countries was extensive. Born in Basle in 1779, he studied humanities in Fribourg, Germany, and went to Paris in 1798, to study mathematics, physics, chemistry

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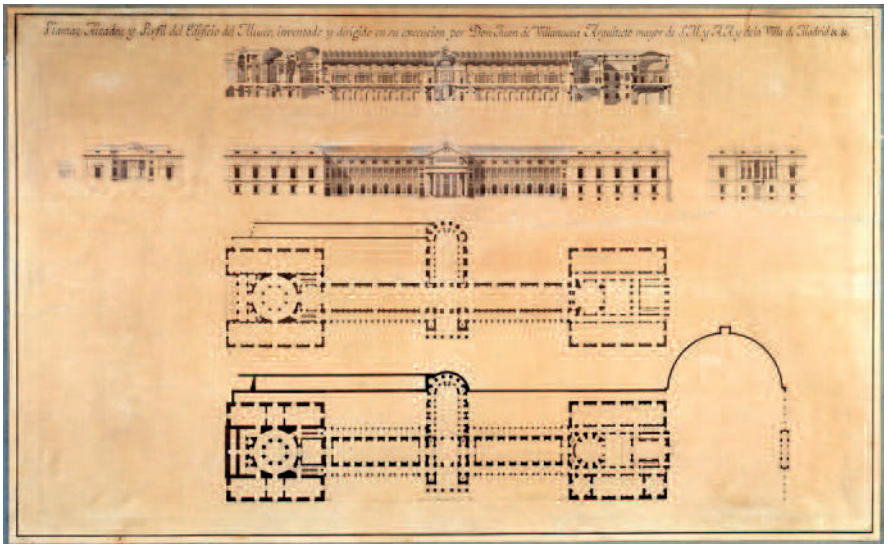


2. The Royal Natural History Cabinet (now the Prado Museum)

DON JUAN MIEG AND ROBERTSON *(continued from page 1)*

and natural history at the École de les quatre nations. He was a physicist, chemist, naturalist, entomologist, artist, linguist and writer. In 1814 he became director of the Spanish Royal Physics cabinet and stayed in Madrid for the rest of his life.

On his accession to the Spanish throne in 1759 Charles III had initiated a plan for national improvement in keeping with Enlightenment ideals. Among the projects for scientific advancement was an Academy of Science, for which was built the Royal Natural History Cabinet (now the Prado Museum) (Fig. 2). It was in 1791, during the reign of Charles IV, that the Spanish scientist Juan López de Peñalver, studying hydraulics in Paris on a government grant,[1] informed the Court that a very fine physics cabinet containing over 330 items was up for sale. Its owner, Jacques-Alexandre-César Charles (1746-1822), Professor of Physics in the Conservatoire des Arts et Métiers since 1789, had gained favour with Louis XVI, and the cabinet was installed in the Louvre. Deprived of patronage during the Revolution, Charles had offered it for sale to the State, but this had been rejected. The Prime Minister José Moñino, Count of Floridablanca, wrote to the Spanish Ambassador in Paris, Domingo de Yriarte, stating that his government wished to purchase the cabinet and charging Peñalver with preparing a list of the contents.[2] However, the French Assembly of 15th January 1792 voted to prevent the sale and the collection was declared national heritage.[3]

Two weeks later a disappointed Yriarte conveyed the news to Floridablanca, enclosing a letter from Peñalver, who stressed the importance of continuing with the project:

> ... the museum Your Eminence is establishing, which is attracting the attention and even the emulation of the whole of Europe, needs a collection of physics instruments, since this is the science that serves as an introduction to chemistry, and natural history; in short, to all cultivated knowledge in modern times ...[4]

He recommended having the instruments made in England:

> Although some of the instruments that will be made outside Spain could be made in Paris, one cannot, at this time, be at all sure of the craftsmen in this city, since they are occupied with guard duty as well as their work, and they sometimes take three months to hand over what they had promised to take three days. Moreover, it is risky to pay them money in advance, and since it will be ecessary to have some of the instruments made in London in any case, it seems to me a better course to go to England, and have them all made there ...[5]

Peñalver stressed the importance of obtaining quality materials and skilled craftsmen, to give accurate results, since he had observed errors in the Hungarian Schemnitz Cabinet.[6]

The guillotining of Louis XVI in 1793, the loss of order and bloodshed, was observed with dismay by Spanish Enlightenment thinkers. Louis XVI was Charles IV's cousin. Now the Spanish *afrancesados* (supporters of the French Enlightenment) were living in fear. In 1808 Charles abdicated in favour of his son, Ferdinand (VII), but less than two months later the Peninsular War broke out, Napoleon took the crown and the Spanish Royal Family went into exile. The *infante* Antonio Pascual de Borbón, brother of Charles IV, and his nephews, Ferdinand and Carlos, were placed under house arrest in the Chateau de Valençay, France.

During their six-year exile the bored internees passed their time doing embroidery,[7] and inviting all types of popular entertainers to their luxurious prison.[8] Mieg, who was living in nearby Loire-et-Cher and had been employed at the Collège de Blois since 1807 as a physics and modern languages teacher,[9] was invited to the chateau to teach the internees. However, considering that most of those invited were showmen, it is probable that Mieg's main attraction lay in his considerable skills in recreational science and sleight of hand.

After Napoleon's defeat in 1814 Ferdinand was restored to the throne. He had no interest in science, but was much impressed by Mieg as a showman, so he took him with him to Madrid as 'His Majesty's Physics Professor' and appointed him director of the Royal Physics Cabinet, no doubt the one assembled by Peñalver c.1795 or 1796. It was in fact property of his uncle, the *infante* Antonio, which gives further credence to the probability that this was Peñalver's cabinet.[10] Antonio died in April 1817 and Ferdinand's brother Carlos became 'protector'of the cabinet.[11] It was in the Museo de Ciencias Naturales by October 1821, and Mieg continued as curator.

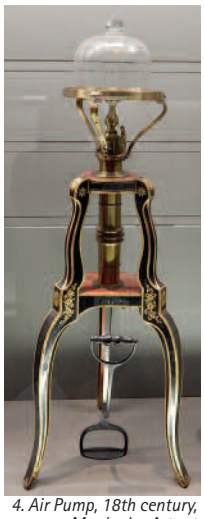
The most important surviving document relating to the cabinet is a complete twenty-two page inventory drawn up by the seventy-three year old Don Juan Mieg in 1852.[12] Apart from providing a comprehensive list of what the Royal Physics Cabinet contained, it shows how science and pseudo-science co-existed. The recreational items reflected the fashion for the occult, yet many of the objects could be encountered in the best eighteenth-century French cabinets,[13] such as three instruments designed by the famous French science populariser, Jean Antoine 'l'abbé' Nollet (1700-1770),[14] author

NOTES

1. Peñalver was also involved in assembling a Royal Cabinet of Machines. A. Rumeo de Armas, *El Real gabinete de máquinas del buen retiro*, Madrid, 1990, p.17.
2. Archivo Histórico Nacional, (hereafter AHN), Sección: Estado, Legajo: 3969, Expediente: 76.
3. Centre Historique des Archives Nationales, Paris C//144 & pièce nº173.
4. AHN. Sección: Estado, Legajo: 4.021, Expedientes: 136 & 111.
5. *ibid.*
6. *ibid.*
7. Their embroidered canopy is in Valençay Church. P. Queralt, *Fernando VII*, Barcelona, 1997, p. 73.
8. The showman Rambella took his dogs, monkeys and tightrope walking to the chateau. J. E. Varey, *Los titeres y otras diversiones populares de Madrid 1758-1840*, Estudio y documentos, London, 1972, doc. 8, p. 217-219.
9. R. Agenjo, 'Juan Mieg, físico, químico y naturalista del siglo XIX', *Arbor: ciencia, pensamiento y cultura*, 1969, Sept-Oct., LXXIV, (285-6), pp. 21-35. Mieg's obituary was written by his friend, Léon Dufour, President of the Société Entomologique de France, who had spent six years in Spain. *Notice nécrologique sur le Professeur Mieg* appears in the *Annales* of the Societé, 1861, vol. 1, series 4, pp 17-20.
10. A note, dated 1817-1818, asks Mieg if he '... knew the name of the instructor that the late *infante* used for his laboratory...' Archivo General del Palacio (hereafter AGP) 325/1.
11. AGP. Legajo: 701.
12. 412 objects and 720 books AGP. Legajo: 701.
13. See R. Taton, *Enseignement et diffusion des science en France au dix-huitième siècle*, Paris, 1986 & M. Daumas, *Les Instruments scientifiques aux XVIIe et XVIIIe s.*, Paris, 1953.
14. Nollet's *L'art des expériences*, (Paris, 3 vols.1743-50), gave instructions for the construction of machines for physics cabinets.


LEÇONS
DE PHYSIQUE
EXPÉRIMENTALE;
Par M. l'Abbé NOLLET, de l'Académie Royale des Sciences, de la Société Royale de Londres, de l'Institut de Bologne, Maître de Physique des Enfans de France, Professeur Royal de Physique Expérimentale au Collège de Navarre, & de la nouvelle École d'Artillerie de la Fère.
TOME PREMIER.
SIXIEME EDITION.
A PARIS,
Chez HIPPOLYTE-LOUIS GUERIN, & LOUIS-FRANÇOIS DELATOUR, rue S. Jacques, à S. Thomas d'Aquin.
M. DCC. LXIV.
Avec Approbation & Privilège du Roi.

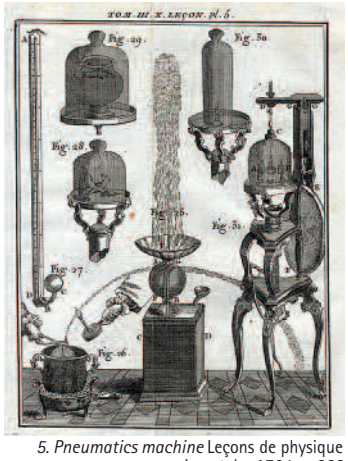
3. L'Abbé Nollet, Leçons de physique experimentale, *1749, frontispiece*
© Museum of the History of Science, Oxford



4. Air Pump, 18th century, Musée des Arts et Métiers, Paris, Inv.6923, Photo Ivana Wingham

of *Leçons de physique experimentale* (Fig. 3), which had probably been there for fifty years: a machine to demonstrate the theory of centrifugal forces, a 'pneumatics machine' (Fig. 4) and a model of a steam pump.[15] Made with high quality crystal glass, mahogany, teak, box and other noble woods, tooled leather, shining brass and ivory, they would have been decorated with floral designs in red, black and gold lacquer. They were illustrated in *Leçons de physique experimentale*, and one plate included a magic lantern (Figs. 5 & 6).

Mieg's inventory includes a number of 'recreational physics' items, all closely associated with the taste for the occult 'sciences', which were popular on the theatrical circuit, *los teatrillos*, as part of a variety show: chemistry experiments, physics demonstrations, astronomical and optical devices.[16] 'Physics professors' performed with little organisation of the public, which gave cause for concern among those responsible for law and order. Spanish enlightenment intellectuals, *los ilustrados*, disapproved of pseudo-science, and in 1790 the poet and government minister, Gaspar Melchor de Jovellanos (1744-1811), had called for the prohibition of magic lanterns and peepshows.[17]


TOM. III. X. LEÇON. Pl. 5.
Fig. 29.
Fig. 30.
Fig. 28.
Fig. 31.
Fig. 32.
Fig. 27.
Fig. 26.

5. Pneumatics machine Leçons de physique experimentale, *1764, p. 288*
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6. Nollet, Magic Lantern in a page from Leçons de physique experimentale, *1764*
© Museum of the History of Science, Oxford


TOME V. XVII. LEÇON. Pl. 10. Page 582.
Fig 23.
Fig. 24.
Fig. 22.

Years later, the city authorities called for a ban on optical entertainments in *teatrillos* because they took place in darkness, posing a threat to moral behaviour. This was their main complaint against the magic lantern and phantasmagoria showman, Juan González Mantilla, who used the revolutionary title 'citizen Mantilla'. Yet he had been working with impunity for over thirty years. In 1828 they complained to the king, who suggested that he stick to sleight of hand and card tricks. Undaunted, Mantilla argued his case. He had performed for the Royal Family in 1816,[18] and in the royal cabinet the king had his own magic lanterns and phantasmagoria apparatus. So the king permitted Mantilla to work in darkness as long as the sexes were separated in the audience.[19]

The inventory shows that the cabinet was well stocked with 'optical entertainments' and Mieg was instrumental in raising their status at court, but the ways he used them are better explained through his books, of which he wrote at least eight, published under the pseudonym '*El Tío Cigüeño*' (Uncle Stork).[20] Yet his real name appears in copies he presented to the library of El Ateneo de Madrid[21] around 1839. *A Warlock in Society: brief instructions on learning to skilfully carry out many sleight of hand tricks* (Fig. 7) was clearly intended to entertain the wider public, and there is no doubt that Mieg was the 'enthusiast of white magic' who wrote a booklet promoting the phantasmagoria of Étienne Gaspard Robert (1763-1837), better known as Robertson. It was published in 1821, after the Belgian showman's private performance for the Spanish Royal Family (14th December 1820), which was later taken to the main Madrid theatres. *Curious News about Mr Robertson's Spectacle*[22] is a unique document, not only a source of information about Robertson and other showmen, but also of the history of optical entertainments in the eighteenth century and their links with esoterism (Fig. 8).


EL BRUJO EN SOCIEDAD,
ó sea
BREVE INSTRUCCION
PARA APRENDER A EJECUTAR CON DESTREZA MUCHOS
JUEGOS DE MANOS,
Y OTRAS VARIAS SUERTES CURIOSAS Y DIVERTIDAS:
con cuatro láminas:
POR D. J. MIEG.
MADRID: 1839.
Imprenta de los Hijos de Doña Catalina Piñuela, calle del Amor de Dios, núm. 7.

7. Don Juan Mieg, El Brujo en socieded, *1839*
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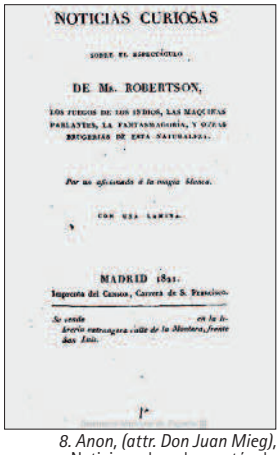
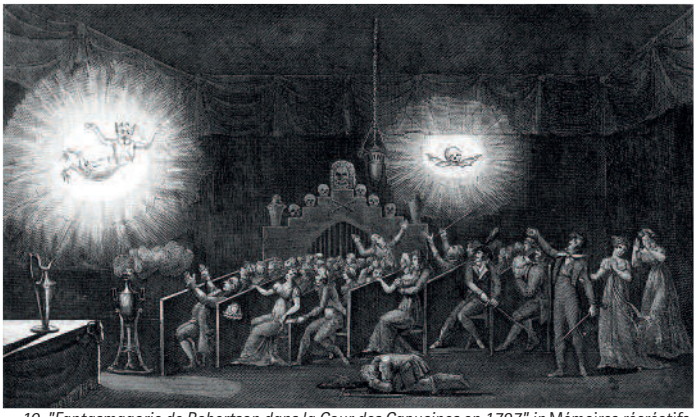

NOTICIAS CURIOSAS
DE Mr. ROBERTSON,
MADRID 1821.
Imprenta del Censor, Carrera de S. Francisco.

8. Anon, (attr. Don Juan Mieg), Noticias sobre el espectáculo de Mr. Robinson, *1821*
© Biblioteca Nacional de España

It consists of three articles: 'Indian Tricks', 'Talking Machines', and 'The Phantasmagoria and more Witchcraft of this type'. In 'Indian Tricks' Mieg describes how Robertson's partner, the 'Indian' conjurer Cossoul, performed his sword-swallowing act: '... at first the Indian practised by introducing and tolerating some long, thin, flexible object in his gullet ... and after that a thicker, harder object ... until he could stand an iron blade...'[23] The article continues with a survey of historical gargantuan gluttony, including some disconcerting anecdotes that bring to the fore the primitive state of medical theory at the time, and concludes with a description of a purgative device in the form of a bottle brush. As a member of the Madrid Medical Academy, Mieg lamented that this 'stomach brush' was out of fashion, like '... transfusion, animal magnetism and galvanism...' Mieg was clearly a follower of Mesmer.[24]

15. AGP. Legajo: 701.
16. A. M. Coe, *Entertainments in the Little Theatres of Madrid (1759-1819)*, New York, 1947 *passim*, W. Bird, Optical Entertainment in Madrid in the time of Goya, *New Magic Lantern Journal*, Vol.9, No.2, (summer, 2002), pp.19-22 and Varey, *Los titeres ... op. cit.* p. 88.
17. G. M. de Jovellanos, *Espectáculos y diversiones públicas. Informe sobre la ley agraria*, Madrid, 1790, ed. J. Lage, Madrid, 1986, p. 32.
18. Varey, *op. cit.* p. 209.
19. *ibid.* p. 249.
20. According to Agenjo, *op. cit.*, Mieg's psuedonym 'Uncle Stork' alluded to his tall, thin build and prominent nose.
21. *Lista de los señores socios del Ateneo*, 1839, 1849 and 1852, Biblioteca del Ateneo de Madrid.
22. Anon, *Noticias curiosas sobre el espectáculo de Mr. Robertson, los juegos de los indios, las máquinas parlantes, la fantasmagoría, y otras brugerías de esta naturaleza, por un aficionado á la magia blanca*, Madrid, 1821. Biblioteca Nacional, *signatura*:10405. For an anotated English translation of the article on the phantasmagoria: W. Bird, Robertson in Madrid, *New Magic Lantern Journal* ,Vol.9, No.3, (winter 2002) & Robertson in Madrid, additional note: the authorship of 'Curious News...' *New Magic Lantern Journal*, Vol. 9, No. 4, (summer, 2003) p.63.
23. *Noticias curiosas, op. cit.* pp.16-17.
24. *ibid.* pp. 21-22.

9. Henry Fuseli, Saul and the Witch of Endor, *pen and sepia ink washed, 1777*
© Victoria and Albert Museum, London



10. "Fantasmagorie de Robertson dans la Cour des Capucines en 1797" in Mémoires récréatifs, scientifiques et anecdotiques du physicien-aéronaute E.G. Robertson *(1831)*

Robertson made use of some of the recreational items in the Royal Physics Cabinet for his presentation at the palace. This led Mieg to reflect on the *teatrillo* circuit, and as an educated *ilustrado*, to lament that:

> ... this useful and agreeable science has unfortunately been prostituted in the theatre, in the houses of mere conjurers, and even in the cafes, where physics experiments can be seen not to instruct but just to distract ...

and

> ... it is not as easy as one may think to be able to present many new things to His Majesty, seeing what a beautiful collection of mechanical, electrical, magnetic and optical apparatus he owns ...[25]

Many of the items mentioned in *Curious News* ... are listed in the 1852 inventory. For Mieg, the real 'gems' of the Royal Physics Cabinet are the automatons: 'an ingenious mechanical magnetic swan',[26] '... a gold box from which emerges a beautiful little bird singing and carrying out all its natural movements...' and a life-size '... mechanism of the talking lady...'[27]

In article two, 'Talking Machines', Mieg brings to mind Cervantes' *Don Quixote: The adventure of the enchanted head*.... Made of bronze and owned by a wealthy Barcelona merchant, it answered questions, but was destroyed by the Inquisition. Cervantes himself described the workings of this illusion, achieved with a speaking tube and a siphon, the speaker hidden in a room below.[28] The 'talking lady' in the Royal Physics Cabinet functioned in almost exactly the same way.

Robertson had also brought along a 'talking doll' that uttered a few French words, produced by an internal barrel organ mechanism. Yet, Mieg states that most 'automatons' used an 'acoustic artifice...' He took pains to write: 'The mechanical imitation of the articulate voice of man, of this precious prerogative conceded to the master work of the Creator, offers such a complicated problem, that no mechanic has until now been able to resolve it completely'. This served to '... increase our admiration and gratitude towards the Supreme Being for showing us the superiority of his works in comparison with our own.'[29]

Ferdinand was a devout Catholic, and he had re-established the Inquisition, so Mieg was being cautious. He was aware of the sceptical argument that the ear is being deceived when it hears supernatural voices,[30] since this rendered suspect the claim that God spoke to human beings. To support their arguments the sceptics drew on the popular biblical story of the 'Witch' of Endor (Samuel 28:3-25), the subject of pictures by Mieg's co-patriot, Henry Fuseli (Fig. 9) and others. It was also represented in Robertson's phantasmagoria (Fig. 10). After the death of the prophet Samuel, King Saul '...had put away those that had familiar spirits, and the wizards, out of the land'. Yet fearing the outcome of a battle with the Philistines, Saul visits a woman 'that hath a familiar spirit'. She summons up the ghost of Samuel, which predicts the loss of his kingdom. Sceptics argued that she used some device to deceive Saul, though the idea that persisted in Spain was that Samuel appeared 'by divine permission'.[31]

However risky the controversy surrounding The Witch of Endor, Mieg made clear that all these illusions, both optical and aural, were produced by trickery:

> It is known that Schwedenbourg *[sic]*, Schroepfer, Cagliostro and other impostors, and probably even the Egyptian prophets and the Jews (Who does not remember here the spirit of the prophet Samuel conjured up by the soothsayer of Endor?), employed these illusions to greater or lesser perfection in order to make the multitude believe that they found themselves in relation with the spirits, ...[32]

11. K. Von Eckartshausen, Aufschluse zur Magie aus gepruften Erfahrungen uber verborgene philosoph, *4 vols., Munich, 1788-91.*
Brown University Library, Providence, RI

Mieg concluded 'Talking Machines' with a description of an aural illusion produced with two hidden parabolic mirrors. He called it 'catoptrics', a term also used to refer to visual illusions using mirrors. The system was applied to talking 'automatons' and was used by the German magician, Karl von Eckartshausen to give voices to the ghosts he raised (Fig.11).[34]

In his third article, 'The Phantasmagoria and more Witchcraft of this type', Mieg described Robertson's use of optical devices to produce visual illusions, with reference to the history of the techniques and providing numerous examples. He described the phantasmagoria as a 'sublime' entertainment, which also served to enlighten, since it proved that the supernatural was the result of an over-stimulated imagination.

End of part one.

Dr Wendy BIRD is an art historian, specialised in Goya, whose book *This is Goya* was published by Lawrence King in 2015. She has a particular interest in optical devices and popular theatre. She has lectured widely on the subject in England and Spain and has published a number of articles.

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25. *ibid.* 25-7.
26. Perhaps similar to the18th century automaton at the Bowes Museum, Barnard Castle, England. S. Kane, '"The Silver Swan": The biography of a curiosity', *Thing*s, 5, winter 1996, pp. 39-57.
27. Kane, *op. cit.* pp. 31, 38
28. M. de Cervantes, *Segunda parte del Ingenioso Caballero Don Quixote de la Mancha*, 1st pub.1615, reprint, Madrid, 1994, cap. LXII, pp. 493-505.
29. *Noticias curiosas ... op. cit.* pp.29, 32.
30. L. E. Schmidt, 'From Demon Possession to Magic Show: Ventriloquism, Religion, and the Enlightenment', *Church History* 67:2, June 1998, pp. 274-304.
31. M. García de la Fuente, *La busqueda de Dios en el antiguo testamento*, Madrid, 1971, p. 323.
32. *Noticias curiosas ... op. cit.* pp. 54-5. Emanuel Swedenborg (1688-1772), the Swedish naturalist, mystic visionary and theosophist, who founded The New Jerusalem Church; Schroepfer's 'ghost raisings' anticipated the phantasmagoria; Giuseppe Balsamo di Palermo (1743-95), 'Conde de Cagliostro', the Italian adventurer and charlatan, prominent in Paris, professed to have lived for centuries.
33. *Noticias curiosas ... op. cit.* pp. 39-40.
34. Karl von Erckartshausen (1752-1803) of Munich wrote sixty-nine books on natural philosophy, science, theology, alchemy, magic and other subjects. In *Aufschlüsse zur Magie aus geprüften Erfahrungen über verborgene philosoph*, (Munich,1788-1791, 4 vols.) he described uses for the magic lantern.