Chapter 7

The Architecture of Knowledge: Science, Collecting and Display in Eighteenth-Century Naples

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Before the age of the 'modern' museum – understood as an institutionalized space for education and entertainment, structured according to standard criteria of classification – the passions of curiosity and wonder materialized in eclectic collections that defied the borders between art, science and nature.[1] In cabinets of rarities and in Wunderkammern, mathematical instruments and fossils often shared the same space as paintings, sculptures and ancient vases. If lack of standard classification systems was characteristic of such modes of display, the accumulation and exhibition of objects was not left entirely to chance. Different notions of order informed the ways in which space was manipulated and used for display in the early modern period.[2] Items were pulled together to satisfy the collector's idiosyncrasies, yet the existence of a market of curiosities suggests less heterogeneity than one would assume.[3] Although the visual representations of early cabinets of curiosities and Wunderkammern illustrate

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[1] O. R. Impey and Arthur MacGregor (eds), *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Oxford, 1985); Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150–1750* (New York and Cambridge, Mass., 1998); Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley, 1994); Robert John Weston Evans and Alexander Marr (eds), *Curiosity and Wonder from the Renaissance to the Enlightenment* (Aldershot, 2006); Giuseppe Olmi, *L'inventario del mondo: Catalogazione della natura e luoghi del sapere nella prima età moderna* (Bologna, 1992).

[2] See the entry on 'order' in Diderot's *Encyclopédie*, for example, in which cabinets and libraries are said to be organized according to a 'contingent order'. A very useful analysis of changing notions of order and classifications in early modern collections is in Eva Schulz, 'Notes on the History of Collecting and Museums', in Susan M. Pearce (ed.), *Interpreting Objects and Collections* (London and New York, 1994), pp. 175–87. On 'methodizing museums', see Peter Burke, *A Social History of Knowledge: From Gutenberg to Diderot* (Cambridge, 2000), pp. 106–9. An excellent article on order in early modern libraries is Eric Garberson, 'Libraries, Memory and the Space of Knowledge', *Journal of the History of Collections*, 18 (2006): 105–36.

[3] Pamela H. Smith and Paula Findlen (eds), *Merchants & Marvels : Commerce, Science, and Art in Early Modern Europe* (New York, 2002).

modes of display that may be unfamiliar to us, they also point to similarities in patterns in the spatial arrangements of collections and even in the architecture of museums.[4] Modes of display altered over time: if the Enlightenment museum adopted taxonomic schemes that were indebted to contemporaneous systems of classification in natural history, sixteenth- and seventeenth-century museums were constructed as 'theatres of the world', organized according to the ideal of humanist encyclopedism or to the aesthetics of the marvellous.[5] The scenographies of sixteenth- and seventeenth-century collections of *naturalia* and *artificialia* were based on contemporary notions of the natural world, in which individual objects were to be seen and understood in relation to the whole. In such theatrical microcosms, the physical space of display was not accidental: on the contrary, it played an important role in drawing the visitor's attention to the collector's tastes and connoisseurship, just as did shelves, boxes, cabinets and even the museum's guardian.[6] The emergence of the natural history museum, the art gallery and the physics cabinet as distinct spaces of display at the end of the eighteenth century corresponded to new epistemologies and representations of knowledge in which the relationships between science, art and nature assumed new forms and meanings. In the 'modern' museum, the connections between *naturalia* and *artificialia* typical of early modern collections were lost: artworks, scientific instruments and natural specimens were spatially differentiated and allocated differing taxonomies.[7]

The library and museum of Ferdinando Spinelli, prince of Tarsia – which opened to the public in 1747 and soon became one of the most attractive Neapolitan destinations for educated travellers and Grand Tourists – was a space for learning and display that defied all classifications. It was not purely a library, as it also housed an important collection of scientific instruments, and yet it was not a physics cabinet like those of the universities of Padua and Turin or of the Bologna Institute of Sciences.[8] It was the property of one man, but it was open to the public. It was Neapolitan, but it enjoyed an international reputation. Although not a Wunderkammer, the display principles that governed the spatial disposition of the prince's collections were strikingly similar to those that shaped

[4] Schulz, 'Notes'. See also, for a similar discussion in the case of art galleries, Andrew McClellan, *Inventing the Louvre: Art, Politics, and the Origins of the Modern Museum in Eighteenth-Century Paris* (Cambridge, 1994).

[5] Schluz,'Notes'; Olmi, *L'Inventario del mondo*; Findlen, *Possessing Nature*.

[6] The guardian of Ferdinando Cospi's museum in Bologna was a dwarf. See Findlen, *Possessing Nature*, p. 27.

[7] McClellan, *Inventing the Louvre*; Peter Galison and Emily Thompson (eds), *The Architecture of Science* (Cambridge, Mass., 1999).

[8] M. Pancino and G. A. Salandin (eds), *Il teatro di filosofia sperimentale di Giovanni Poleni* (Padua, 1986); Stefano Belli, 'Le 'Camere' di fisica dell'Istituto delle Scienze di Bologna', unpublished PhD thesis (Università di Bari, 1994).

earlier cabinets of curiosities: manuscripts, books, artworks and instruments were gathered together in its rooms as the princely collections of the sixteenth and seventeenth centuries. Yet, the space served as a house for the advancement of knowledge, in the guise of contemporary scientific academies in Paris, London, Bologna and other European capitals. The singularity of this space was evident to contemporaries who referred to it variously as a library (its official name was Biblioteca Spinella) or as a museum (Museo Tarsia), and regarded it as a wonderful temple of knowledge or an outdated ostentation of luxury.

Focusing on this original space of learning and display, this chapter is a contribution to the history of Naples as well as to the history of collecting and display, and to the history of science. It moves from the consideration that displaying collections entails a manipulation of space that is shaped by contemporary conceptions of knowledge and of the social functions it should serve. Hence, I investigate the symbolic significance of the scientific instruments exhibited in this place of polite sociability, representation and experimentation. I situate Spinelli's collections within the space – both physical and historical – in which they were displayed: I analyse the physical location of the Biblioteca Spinella in the city of Naples and within the prince's palace; then, I examine the spatial disposition of the objects in the four rooms that made up the museum and library and suggest that the Biblioteca Spinella was a space of representation that made public the prince's cultural visions and political ambitions. The final sections investigate its impact on Naples' scientific life, casting light on the academy of science that was founded in the Museo Tarsia; I consider Spinelli's museum and library as a space for the production of knowledge and show that the academicians' expectations differed profoundly from the prince's vision. I argue that the chasm between the museum as a space for the representation of knowledge and as a place for the production of knowledge was responsible for the academy's fleeting existence. The failure of the cultural projects that brought several Neapolitan savants to Palazzo Tarsia rendered the Biblioteca Spinella an emblem of the ephemeral and, as such, the target of learned satire.

Architecture of Display

Palazzo Tarsia was designed by the most celebrated Neapolitan architect, Domenico Antonio Vaccaro, upon the commission of Ferdinando Vincenzo Spinelli, prince of Tarsia (1691–1753).[9] As Knights of Malta since the

[9] Several recent works have discussed Palazzo Tarsia from the perspective of the history of art, the history of architecture and the history of libraries, but they have only briefly mentioned Spinelli's collection of scientific instruments: Vincenzo Rizzo, *Ferdinando Spinelli di Tarsia. Un principe napoletano di respiro europeo (1685–1753)* (Aversa, 1997); Elena Manzo, *La merveille dei principi Spinelli di Tarsia: Architettura e artificio a Pontecorvo* (Naples, 1997); Vincenzo Trombetta, *Storia e*

seventeenth century, and marquises of the Holy Roman Empire, the Spinelli were one of the wealthiest and most powerful families in Naples. The building of the palazzo absorbed Spinelli for decades. He began to invest in the project in the 1730s and died before it was finished. The prince worked closely with Vaccaro in the process of designing the building and in the supervision of a constellation of artists, artisans and skilled labourers selected from among the best Naples had to offer. Ambitious as it was, Palazzo Tarsia was never completed. The data offered by architectural evidence and archival records are fragmented, yet an engraving by Antonio Baldi on Vaccaro's design offers an extraordinary – if virtual – vision of the project in all its magnificence (Figure 7.1). By a clever alteration of the perspective, the engraving exalts the sense of splendour and architectural grandeur that Spinelli wanted his palace to materialize. It presents a bird's-eye view of the palazzo, complete with annexes, gardens and decorations, most of which were still to be built at the time of publication (1737). Vaccaro's print was an exquisite manifesto of the prince's political and cultural ambitions. It is no accident that Spinelli commissioned it from Vaccaro in 1735, the year of the crowning of the Bourbon King Charles. After centuries as a province under the viceroys, Naples became home to its own king in 1734. The arrival of King Charles aroused great hopes of cultural rebirth among the Neapolitan nobility and marked a significant change in the city's cultural life: in the span of a few years the king promoted the reorganization of the university system and the digging of the archaeological site of Herculaneum, founded new academies and opened the San Carlo theatre.[10] The sparkling renovation of Palazzo Tarsia constituted an astounding example of the enthusiasm that the arrival of the king excited in the Neapolitan aristocracy. It was a material expression of support for Bourbon rule on the part of a family that had a centuries' old history of royal connections. Although the palace was still being built at the time, the engraving of Vaccaro's project was a spectacular anticipation of what was to come. The prince made sure it circulated widely, ordering 2,000 copies – half of which were printed in large format on expensive paper.[11] Vaccaro inserted long captions that described the various areas in the present tense, giving the impression that the palace was already in place. He pitied the viewers, who had to content themselves with an outline of the exteriors and could not visualize the lavishly decorated interiors: 'this prospect sketched out on paper gives but some samples of the interior splendours: who will ever be able to imagine them without seeing what they are?'[12]

cultura delle biblioteche napoletane: Librerie private, istituzioni francesi e borboniche, strutture postunitarie (Naples, 2002).

[10] Franco Venturi, *Settecento riformatore*, vol. 1: *Da Muratori a Beccaria* (Torino, 1969); Raffaele Ajello, 'La vita politica napoletana sotto Carlo di Borbone', in *Storia di Napoli* (Naples, 1971–78), vol. VII, pp. 461–984.

[11] Rizzo, *Ferdinando Spinelli*, p. 83.

[12] Left caption in Figure 7.1. Unless otherwise stated, all translations in this text are mine.

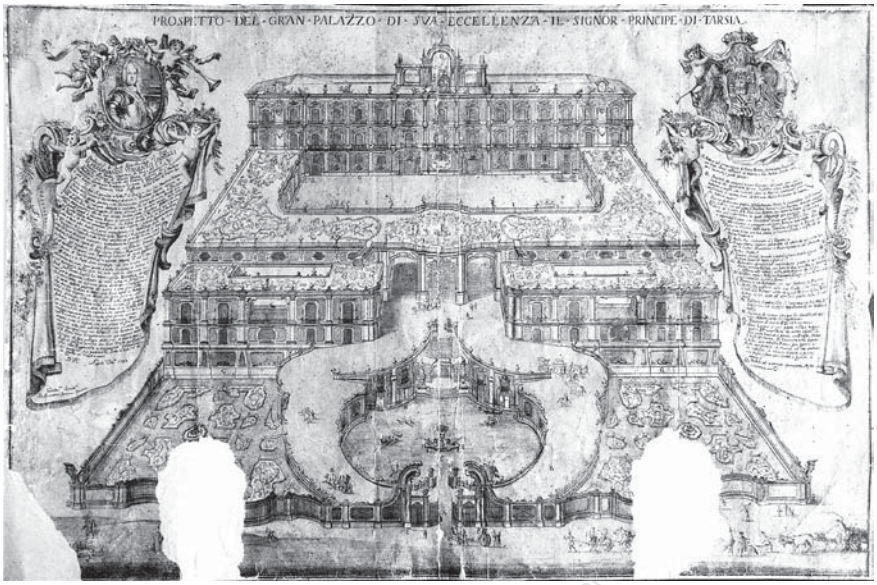

Figure 7.1 Domenico Antonio Vaccaro, *Prospetto del Gran Palazzo di Sua Eccellenza il Principe di Tarsia*, 1737. Courtesy of the Biblioteca Napoletana di Storia Patria

In 1738 Spinelli became a member of the Reale Ordine di San Gennaro, a knightly order instituted the same year by King Charles. The knighthood was granted to a selected elite of local aristocrats particularly faithful to the monarchy, who obtained various religious and civil privileges. The fact that Spinelli was selected among the first members of the order testifies to the success of his efforts to signal his support for Bourbon rule. His membership, representing a close relationship with the crown, became one of his favourite status symbols, and one that became inseparable from his public appearance. Soon after being awarded the knighthood, Spinelli commissioned a portrait from Francesco Solimena, in which he proudly flaunts the rich mantle and decorations of the Order (Plate 4).

Palazzo Tarsia was a celebration of the prince's position in Neapolitan society and of his support of the new king. As Norbert Elias, Chandra Mukerji and Gérard Labrot have incisively argued, the architecture of aristocratic residences materialized social hierarchy and notions of power both by displaying the symbols of eminence and rank and by allowing selective access to the various areas of the estate.[13] Spinelli and Vaccaro designed the Palazzo as a marvel of

[13] Norbert Elias, *The Court Society* (New York, 1983); Chandra Mukerji, *Territorial Ambitions and the Gardens of Versailles* (Cambridge, 1997); Gérard Labrot, *Palazzi napoletani: storie di nobili e cortigiani* (Naples, 1993).

nature and art, where luxury, imagination, knowledge and technical skills conjured together to overwhelm visitors with a sense of victory over limits and constraints. Hydro-mechanical devices were meant to transform the steep frontage into a spectacular aquatic park with little golden gondolas, while beasts roaring in iron cages greeted the prince's visitors with visions of colonial trade and imperial expansion. The allure of the domesticated exotic winked also from the prince's gardens, where foreign varieties shared space with more common natural plants and flowers. Although these imported commodities were to celebrate the alliance with the new Spanish king and the imperial power of his family, Palazzo Tarsia was quintessentially Neapolitan. Its location in the Pontecorvo, an area recently taken up by local aristocrats, offered breathtaking views of the gulf of Naples and Mount Vesuvius. While admiring the valuable collection of paintings in sumptuous reception rooms, the prince's most illustrious guests would simultaneously enjoy the most emblematic vistas of the city.[14]

As did other early modern aristocratic families, the Spinelli collected not only expensive artworks, but also books. Ferdinando brought back to Naples the rich library that his father, Carlo Maria Spinelli, had organized in his fiefdom in Calabria.[15] The prince devoted a large section of his palace to learning and display in a series of rooms that came to be called the Biblioteca Spinella (or, less frequently, Museo Tarsia), in which he placed books, artworks and scientific instruments.[16] It was the fame and reputation of this museum and library, open to the public three times a week, that made Palazzo Tarsia renowned in the Republic of Letters and a destination for Grand Tourists and learned travellers arriving in Naples.

Designing the House of Knowledge: The Temple of Minerva in Naples

As Cardinal Mazarin's librarian, Gabriel Naudé was keenly aware that a library could be a means to achieve cultural prestige and political eminence. A library characterized by outstanding beauty, perfection and completeness – ideally

[14] Spinelli owned an impressive collection of paintings, which included works by Giotto, Raphael, Titian, Michelangelo, Andrea del Sarto, Veronese, Caravaggio, Caracci, Rubens, Van Dyck, Guido Reni and Tintoretto among many others. For a full list of painters, see Carlo Celano, *Delle notizie del bello, dell'antico, e del curioso della città di Napoli per gli signori forastieri* (4th edn, Naples, 1792), vol. 6, pp. 61–2. Another, shorter eighteenth-century description of Palazzo Tarsia is in Giuseppe Sigismondo, *Descrizione della città di Napoli e suoi borghi* (Naples, 1789), vol. 3, pp. 122–3.

[15] Trombetta, *Storia e cultura*, p. 77.

[16] According to Vaccaro's captions in the engraving of Palazzo Tarsia, the library was 138 × 46 Neapolitan *palmi* (approximately 36 × 12 metres). This contrasts with the larger measurements recorded in later descriptions of the actual library (Vaccaro's engraving was a projection), which I will use in the remainder of the chapter. The larger size indicates that the library – and the collection of instruments – acquired more importance as the building progressed.

open to the public – would reflect on its owner, magnifying his reputation. In his famous *Advice on establishing a library* (first published in 1627), he pointed out that in designing a perfect library modern architects did not have to conform to Vitruvian prescriptions. He suggested that an ideal library, as a house of knowledge, should be located in a quiet area, far from living rooms and bedrooms and all other areas of ordinary daily life, possibly in the courtyard, at first or second floor level (to keep humidity and winds away from the books) with relaxing views of pleasant gardens. The library's aesthetics were functional to its educational purposes: embellishments and decorations were meant to make the environment conducive to study and concentration rather than to astonish and distract visitors. So, it was proper to have a few busts of famous authors, globes and mathematical instruments, which would remind visitors and readers of the books' contents.[17] The library of Palazzo Tarsia corresponded in significant ways to Naudé's ideal library. As the 'Biblioteca Spinella', it blended its name and reputation with that of its owner, who opened it to the public three times a week. The library had an independent entrance, which distinguished readers and visitors from the prince's guests, and it was composed of four rooms detached from the palace's main body, with two galleries that overlooked the gardens. As Naudé recommended, its head librarian was also a scholar (who was in charge of new acquisitions), while an assistant librarian and a lackey took care of the readers' requests. Between Naudé's ideal library and the Biblioteca Spinella, however, there were significant differences: the French librarian privileged completeness (universality) over beauty, whereas luxury and lavish decorations were distinctive features of Spinelli's library.

The prince spared no financial outlay in making his library pleasant to the eye. He spent considerably on *indorature*, the gilding that coated all the banisters, frames, stuccoes and other decorative elements in the palazzo. The noblest metal, symbol of opulence and prosperity, was also deployed generously on the leather bindings of books and on the carved cabinets that housed them. The abundance of gilding in the library was dazzling and it became one of its most striking features. Travellers often remarked on its sumptuous decorations, whether with admiration or contempt: Ireneo Affò, librarian at the Biblioteca Palatina in Parma, praised its 'generous embellishments' that made it 'most beautiful and extremely desirable', whereas Johann Joachim Winkelmann remarked sardonically that 'the gilding cost much more than the books'.[18] Even when the library became a memory of Naples' lost treasures it was remembered

[17] Gabriel Naudé, *Advis pour dresser une bibliothèque* (Paris, 1644).

[18] Ireneo Affò's comments are cited in Manzo, *Merveille*, p. 90; Winckelmann's in Franco Strazzullo, *Il carteggio Martorelli-Vargas Macciucca* (Naples, 1984), p. 77n.

as the 'gilded library', while contemporary satire ridiculed Ferdinando Spinelli as the *indorato*, the 'gilded prince'.[19]

The list of expenses that the prince sustained reveals his desire to spare nothing to produce a magnificent house of knowledge for the cultivation of science, culture and the arts.[20] It was to be a library as well as a 'museum', in the literal sense of a temple of the muses, where the learned would find inspiration. The heterogeneity of the items displayed in the Biblioteca Spinella reminded contemporaries of the collections of the Medici in Florence, where objects of art and objects of science coexisted.[21] However, the Museo Tarsia was not simply the product of a collecting activity guided by learned curiosity, nor was it a display of connoisseurship styled upon earlier princely cabinets or Wunderkammern. Ferdinando Spinelli entrusted the gathering of books and of scientific instruments to local dealers and scholars, some of whom furnished him with pre-existing book collections. In addition to his father's library, he acquired another Neapolitan library for the considerable sum of 12,000 scudi. Moreover, every year the librarian Niccolò Giovio would allocate 7,200 scudi to the acquisition of new volumes from the most reputed European publishers.[22] Similarly, Spinelli purchased a valuable collection of seventeenth-century mathematical instruments from the bookseller Porcelli and commissioned from a Dutch instrument maker, most probably Peter van Musschenbroek, the manufacture of several physics instruments for experimental demonstrations.[23] More than simply representing Spinelli's involvement in culture, his library and museum was a statement about his intention to create in Naples a space where cultural activities could be carried out under his (and the king's) patronage.

Ideal architectural structures were often invoked in early modern writings on human learning. In the seventeenth century, the biblical images of the garden, the ark, the tower and the temple were commonly referred to as metaphors of knowledge.[24] Spinelli resorted to classical imagery: in the wake of the enthusiasm

[19] See below the discussion of the manuscript kept in the Biblioteca Napoletana di Storia Patria: 'Satira. Nota dei libri pervenuti dalla Libreria Efimera dell'Ecc.mo Principe di Tarsia Indorato', MS XXIII C 5, f. 11.

[20] Vincenzo Rizzo has usefully transcribed and published Spinelli's payments and expenses as described in several records kept in the Archivio del Banco di Napoli, see note 9.

[21] Gherardo Degli Angioli (De Angelis), *Orazioni. Parte I* (4th edn, Naples, 1763), pp. 276–7.

[22] These data are contained in a manuscript description of the library now in the Biblioteca Comunale at Palermo, Ms Qq.H.96 n. 41, and published in Trombetta, *Storia e cultura*, pp. 100–102. The name of the former owner of the library purchased by Spinelli is unknown; Giovio was a member of the Arcadia.

[23] Rizzo, *Ferdinando Spinelli*, p. 109.

[24] J. A. Bennett and Scott Mandelbrote, *The Garden, the Ark, the Tower, the Temple: Biblical Metaphors of Knowledge in Early Modern Europe* (Oxford, 1998).

for the ancient roots of Naples triggered by the digging of Herculaneum, he designed his museum and library as the Temple of Minerva – the goddess of knowledge born from Jupiter's brain.[25] An epigram composed by the philosopher Giambattista Vico, engraved in gold above the entrance door, greeted visitors to the Temple, sealing the relationship between knowledge and power that the Biblioteca Spinella materialized: 'Born in heaven from Jupiter's brain, Minerva/ Dwells here on earth in golden shelters worthy of Jupiter.'[26]

Minerva was the learned offspring of the most powerful of the gods. Her sacred abode on earth was a site that invited the respectful celebration of ancient cultures and called for the advancement of knowledge. Similar to Francis Bacon's House of Solomon, the Temple of Minerva was a site for observation, learning and experiment, yet it did not exist in an imaginary Bensalem but in the flourishing Bourbon city of Naples. It was there that learned elites could now find a new patron for the sciences and the arts.

The Biblioteca Spinella was simultaneously a Neapolitan object and a cosmopolitan place. It represented the prince's vision of a centre of learned sociability that connected Naples to other European cultural capitals, under the aegis of the Spinelli family and of the Bourbon dynasty. As in early modern 'pictures of collections', the physical proximity between books, artworks and instruments signified the connections between knowledge, culture and political power as envisioned by the prince.[27] Whether travellers or scholars, visitors who entered the Tarsia museum and library walked through a series of rooms that represented to them the position of Ferdinando Spinelli and his family in the cultural history of Naples and the central role that the new site of knowledge would play in the cultural awakening to follow the arrival of the Bourbon king.

The library consisted of four rooms and two galleries. The first, and largest, room housed Latin, Greek and Italian books mostly bound in Neapolitan style.[28] The library had an independent entrance for readers, but the portrait

[25] On antiquarianism in eighteenth-century Naples, see 'Antiquarianism, Museum, and Cultural Heritage: Collecting and its Contexts in Eighteenth-Century Naples', special issue of *Journal of the History of Collections*, 19 (2007).

[26] 'Heic Jovis e cerebro quae in coelo est nata Minerva/Digna Jove in terris aurea tecta colit', in Placido Troyli, *Istoria Generale del Reame di Napoli* (Naples, 1752), p. 141.

[27] The genre of 'pictures of collections' (paintings that represent often idealized collections of curiosities, including sculptures, paintings, antiquities and mathematical instruments) is discussed in Alexander Marr (ed.), 'Picturing Collections in Early Modern Europe', special issue of *Intellectual History Review*, 20 (2010).

[28] Troyli, *Istoria generale*, p. 141. According to Celano, this room was 120 × 40 Neapolitan *palmi* (approximately 31.1 × 10.5 metres) (Celano, *Delle notize del bello*, vol. 6, pp. 70–72). In the 1740s Neapolitan bookbinding was characterized by gold and silver floral decorations framed within a series of concentric gold rectangles. The covers were often made of marbled leather. See Federico e Livio Macchi, *Dizionario illustrato della legatura* (Milan, 2002), p. 326.

of Ferdinando Spinelli in a central position above its main door reminded them that the Temple of Minerva was part of Palazzo Tarsia. At the opposite end of the room, facing Ferdinando's portrait, hung that of his father, whose book collection constituted the original core of the library. Just as Naudé encouraged the use of busts of famous authors as embellishments to connect the library's physical space with its contents, so the prince used portraits of himself and his family to situate the Temple of Minerva within the Spinelli family's cultural patronage in Naples. Marble statues of each of the four seasons, standing in the room's four corners, reminded visitors of the course of time, which culminated in Naples' alliance with the Spanish crown. Such alliance was materially represented by a remarkable pyramidal cabinet designed especially by local artisans, placed at the centre of the room. Made of ebony, turtle shell and gold-plated copper, this quintessential symbol of hierarchy and power stood upon a carved gilt pedestal and was crowned by a double clock that gave Italian and Spanish hours.[29] Two armed lodestones, symbols of the force of attraction that draws people together, were placed on the sides of the pyramid, which served as a display case for an exquisite collection of seventeenth-century mathematical instruments made by the French instrument maker Nicholas Blondeau.[30] The collection (which included gold and silver items) had belonged to a previous Neapolitan collector who had sold it to Porcelli for re-sale. It was unusual for eighteenth-century collectors to display historical instruments, and contemporary descriptions of the Museo Tarsia did not miss the opportunity to emphasize the fine craftsmanship of 'the distinguished and famous Blondon'.[31] In placing the collection at the centre of the main room in an attractive display case Spinelli set the scientific activities of the museum in continuity with previous local traditions. Along the corridor, visitors were invited to admire a terrestrial and a celestial globe made by Vincenzo Coronelli, a seventeenth-century Venetian cosmographer whose superb craftsmanship embellished also the galleries at Versailles.[32] Other expensive astronomical instruments, such as a valuable astronomical quadrant, signed by the English maker Sisson, and a semicircle with telescopic sights, were also on display in this room. This was

[29] The clock was made by two English clockmakers who worked for the prince, Oliver Robinson and Charles Tredman. See Rizzo, *Ferdinando Spinelli*, p. 10.

[30] Blondeau was a French maker who moved to Milan in the late seventeenth century and operated in Naples around 1694. I am grateful to Anthony Turner who helped me identify in Nicholas Blondeau the otherwise unknown 'Nicola Blondone' or 'Blondel' mentioned in eighteenth-century descriptions of the Biblioteca Spinella. It is likely that an existing sector signed 'Blondeau, Naples' made in 1694 was among the instruments purchased by the prince of Tarsia from Porcelli.

[31] Troyli, *Istoria generale*, p. 241. See also Celano, *Delle notize del bello*, vol. 6, pp. 61–8. On eighteenth-century collectors' preference for new instruments, see Anthony Turner, 'From Mathematical Practice to the History of Science', *Journal of the History of Collections*, 7 (1995): 135–50.

[32] Hélène Richard, *Les globes de Coronelli* (Paris, 2006).

probably on a temporary basis only, as according to Vaccaro's drawing a 'noble and decorated observatory' was to crown the entire palace (Figure 7.1, letter Q).[33] When the French astronomer Jerôme de Lalande visited Palazzo Tarsia in 1766, however, he described its astronomical instruments, but did not mention an observatory.[34] It is likely that the death of the prince in 1753 prevented the completion of this project. Indeed, no description of the observatory exists.

The library's second room was dedicated to foreign cultures. It hosted foreign books with French binding, and its central piece was a magnificent orrery (mechanical planetarium) made in England, a machine that in the eighteenth century was employed to illustrate the Newtonian system of the world.[35] This expensive device, a fashionable conversation piece in European courts, was handle-operated and, by means of a series of hidden gears, displayed the ordered movements of celestial bodies according to the heliocentric system. Spinelli's model could also be modified so as to illustrate the geocentric system. A series of portraits of the Spinelli princes, arranged according to their genealogy starting with their tenth-century progenitor, decorated the walls around the orrery. Above the door leading to the next room an epigraph engraved in gold letters on touchstone glorified Ferdinando Spinelli for making his collections available to the public.

Access to the working areas of the library implied an obliged choreography through these two rooms in which knowledge was represented as emanating from Spinelli's munificence. Readers had no other way to reach the reading room, where they could sit on chairs covered with crimson silk embroidered with gold, and work on Chinese desks coated with black leather and gilded decorations. Here, portraits of illustrious men hung from the walls. Between the reading room and the physics cabinet (the fourth room) there was a gallery where two local savants, the astronomer Felice Sabatelli and the naturalist Giovanni Maria Della Torre, built a meridian line modelled on those made by Gian Domenico Cassini for the Church of St Petronio in Bologna and by Francesco Bianchini for the Church of Santa Maria degli Angeli in Rome.[36] The works for the meridian,

[33] It should be noted that the observatory in Vaccaro's design seems more an idealization than a realistic project. See Troyli, *Istoria generale*, p. 241 and Tommaso Di Costanzo, *Ferdinandi Vincentii Spinellii Tarsiae principis bibliothecae index aplphabeticus secundum authorum cognomina dispositus* (Naples, 1780), p. 128. Troyli erroneously describes the quadrant as a Dutch instrument and lists also an electrical machine in this room, which appears in the second room in Di Costanzo's inventory. The differences may be due to the different dates of publication.

[34] Jérôme de Lalande, *Voyage d'un françois en Italie* (Paris, 1769), vol. 6, pp. 199–200. The observatory is not mentioned in later revised editions of this work either.

[35] Troyli, *Istoria generale*, p. 141. According to Celano this room was 50 × 20 *palmi* (approximately 13 × 5.2 metres) (Celano, *Delle notize del bello*, vol. 6, pp. 61–8). For a synoptic comparison between French and Italian bookbinding see Macchi, *Dizionario*, p. 195.

[36] On meridians built inside churches, see John Heilbron, *The Sun in the Church: Cathedrals as Solar Observatories* (Cambridge, Mass., 1999).

according to an epigraph engraved in it, started in 1749 and were completed in 1759.[37] The gallery marked the transition from spaces of study (reading room) and display (first two rooms) to one of exhibition and performance: the physics cabinet. In this room, which hosted the collection of philosophical instruments, the prince and his guests enjoyed the spectacle of experiments staged as theatrical performances. Spinelli owned the most representative machines, covering all branches of mid-eighteenth-century experimental philosophy: mechanics, astronomy, optics, electricity, magnetism, hydrostatics and pneumatics.[38] In line with the international character of contemporary science, the instruments came from a variety of places. Most of them came from Holland, mostly likely made in the famous workshop of Petrus van Musschenbroek, the Dutch instrument maker who furnished the physics cabinets of the University of Padua and of the Istituto delle Science in Bologna. A few items carried the signature of renowned English makers, and others were manufactured locally.[39] The cosmopolitan nature of this space was emphasized by four marble statues of the known continents placed in the four corners, similar to the arrangement of the library's first room. Architectural drawings and engraved cameos embellished the walls with *vedute* of the useful applications of the new philosophy, while silk *chaises longues* were available to the prince's guests for the comfortable enjoyment of the spectacle of science.[40] The decorative pattern of this room accorded with the rest of the Biblioteca Spinella: crimson silk covered walls and chairs, the wooden cabinets were gilt and carved as were the frames for the paintings on the walls.[41] Unlike

[37] Troyli, *Istoria generale*, p. 141.

[38] From the records of Spinelli's expenses published in Rizzo, *Ferdinando Spinelli*, we can provide a chronology of a number of instruments purchased by the prince of Tarsia: the 'machines from Holland' arrived in 1745, when he requested the master woodcarver Ponsiglione to make decorated armoires to house them; in 1746 he acquired from the bookseller Porcelli Blondeau's mathematical instruments, a brass armillary sphere for the Copernican system and a Newtonian telescope; in 1747 he purchased two armed loadstones and commissioned a balcony for a camera obscura and a 'newly invented' microscope (probably a solar microscope) from the carpenter Marazzo; in 1748 the gilder Pane varnished and decorated an electrical machine. Musschenbroek often acted as a retailer for instruments made in England, so it is likely that the orrery, the Sisson quadrant and the other astronomical instruments arrived from Holland in 1745. In 1780 the lawyer Di Costanzo published an inventory of the books from the library of the prince of Tarsia. At the end of the volume there is a list of Spinelli's scientific instruments: comparing it with the description of the library by Troyli (1752) it appears that no significant additions were made between 1752 and 1780. See Di Costanzo, *Ferdinandi Vincentii*; Troyli, *Istoria generale*.

[39] On the Musschenbroek workshop, see P. R. De Clercq, *At the Sign of the Oriental Lamp: The Musschenbroek Workshop in Leiden, 1660–1750* (Rotterdam, 1997). De Clercq mentions a commission to Musschenbroek in 1744 for a 'distinguished place in Italy'; it is possible that it was Palazzo Tarsia.

[40] The marble statues were made by the Neapolitan sculptor Sanfelice (Troyli, *Istoria generale*, p. 243).

[41] Troyli, *Istoria generale*, p. 243. According to Celano, this room was 40 × 18 *palmi* (approximately 10.4 × 4.7 metres (Celano, *Delle notize del bello*, vol. 6, pp. 61–8).

other rooms in the library, however, the cabinet of experimental philosophy was a space for dynamic display: the instruments were used to stage spectacular experimental demonstrations, not just to be looked at. The air pump made by Musschenbroek showed the dramatic effects of the lack of air on a flame, a ringing bell or a small bird which could be left to die or be saved, according to the will of the audience. The solar microscope astonished spectators with terrifying images of magnified insects projected on a wall, while the electrical machine produced loud sparks and made bodies jolt.[42]

In larger physics cabinets, such as those of the University of Turin and the Bologna Institute of Sciences, instruments were assembled together according to the particular branch of experimental philosophy they illustrated: mechanics, hydraulics, pneumatics, optics, electricity or magnetism.[43] In the Museo Tarsia, instead, the philosophical instruments were arranged according to size, as were books in most early modern libraries: smaller items were shelved in wooden cabinets, while the largest ones were placed in the centre of the room.[44] The coexistence of new cultural trends and older modes of display was a distinctive feature of the Museo Tarsia; it reflected also how the prince saw himself in relation to the activities that took place in his physics cabinet.

Old Models for a New Space of Knowledge Production

Although mathematical instruments were usually present in early modern princely collections, the eighteenth-century physics cabinet was a new space of learning and display and a new site for the production of natural knowledge. The success of Newtonian natural philosophy across Europe was due also to the activity of itinerant lecturers who made their living by the experimental demonstration of the laws of nature. The vast array of 'philosophical' instruments employed in their spectacular lectures rapidly became cultural commodities and new objects of collecting. The most expensive collections of instruments were found in institutions such as universities and academies, but there were also individual savants who spent fortunes on their physics cabinets. Voltaire, to mention a famous case, spent over 10,000 *livres* to equip his *cabinet de physique* in one of the galleries of Madame Du Châtelet's palace at Cirey.[45] In Naples,

[42] Barbara Maria Stafford, *Artful Science: Enlightenment, Entertainment and the Eclipse of Visual Education* (Cambridge, Mass. and London, 1994).

[43] This arrangement would become typical in the later eighteenth century. On the physics cabinet of the Bologna Institute of Sciences, see Belli, 'Le camere di fisica'.

[44] On book arrangement in early modern libraries, see Garberson, 'Libraries, Memory and the Space of Knowledge'.

[45] Jean-François Gauvin, 'Le cabinet de physique du château de Cirey et la philosophie naturelle de Mme Du Châtelet et de Voltaire', in Judith P. Zinsser and Julie Candler Hayes (eds), *Emilie du*

before the adventure of the Temple of Minerva began, the prince of Scalea, Francesco Maria Spinelli (unrelated to Ferdinando), gathered a collection of instruments that he used to advance his knowledge.[46] Thanks to the emerging taste for 'philosophical collections', instrument makers in Leiden, Paris and London became international celebrities, with customers in Europe and its colonies, while lesser known makers obtained status and prestige at the local level. As with cabinets of curiosities and Wunderkammern, the instrument trade created a certain degree of uniformity in these collections: items such as the air pump and the electrical machine were almost fetishized, and even the most parsimonious of collectors would have a few brass instruments signed by a famous English maker.[47] The names of George Adams, Edward Nairne, Jesse Ramsden and Jeremiah Sisson became synonymous with a new aesthetics of precision that turned scientific instruments into luxury items for the learned. Physics cabinets exhibited more than skilful craftsmanship, however. Philosophical instruments on display represented a new manipulative approach to natural knowledge that distinguished the cabinet of experimental philosophy from previous forms of scientific collecting. They were the means by which the spectacle of nature could be recreated at will, the totemic embodiments of natural powers tamed and put to use for the 'benefit of mankind'. Philosophical instruments on display could be admired per se, as icons of the new natural knowledge founded on experiment, but more interestingly they could be taken off the shelves and used for unprecedented forms of spectacle that blended the domains of the natural and the artificial.[48]

The theatrical nature of experimental philosophy elicited a variety of responses on the part of the audiences, ranging from the enjoyment of a new form of spectacle to participation in experimental research. As we shall see in

Châtelet: Rewriting Enlightenment Philosophy and Science (Oxford, 2006), pp. 165–202. Voltaire was by no means the only Parisian to invest in collections of physics instruments: see Christopher Hill, 'The Cabinet of Bonnier de la Mosson (1702–1744)', *Annals of Science*, 43 (1986): 143–74.

[46] In his visit to Naples, the abbé Nollet remarked with a degree of surprise about the prince of Scalea's handling of instruments. See Jean Antoine Nollet, 'Journal du voyage de Piémont et d'Italie en 1749', Bibliothèque Municipale de Soisson, Ms 150, f. 181.

[47] To appreciate this point further it is useful to compare existing collections of eighteenth-century scientific instruments displayed in contemporary museums, such as the Galileo Museum in Florence, the Oxford Museum of the History of Science, the George III gallery in London, the Museum Boerhaave in Leiden, the Conservatoire des Arts et Métiers in Paris, the Padua University Museum and the Harvard History of Science Collection.

[48] See Larry Stewart, *The Rise of Public Science: Rhetoric, Technology and Natural Philosophy in Newtonian Britain, 1660–1750* (Cambridge, 1992); Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760–1820* (Cambridge, 1992); Simon Schaffer, 'Natural Philosophy and Public Spectacle in the Eighteenth Century', *History of Science*, 21 (1983): 1–43; Geoffrey V. Sutton, *Science for a Polite Society: Gender, Culture, and the Demonstration of Enlightenment* (Boulder, Col., 1995).

detail, the physics cabinet of Ferdinando Spinelli played a double role as a stage for amusing performances as well as a site where a group of Neapolitan savants transformed themselves from spectators of experimental demonstrations to producers of new knowledge. This crucial transformation stood at the basis of the creation of a scientific academy that in a short span of time made visible the contrasting cultural visions that met in the Biblioteca Spinella: that of the prince of Tarsia and that of the academicians.

Spinelli did not engage directly with the new natural philosophy; he sponsored the experimental activities that took place in his physics cabinet by fashioning himself as a patron of the sciences. In doing so, he emulated the powerful Florentine family of the Medici, who owned a fine collection of mathematical instruments, on display in the *Stanzino delle matematiche* of the Uffizi Gallery, and supported the activities of the first experimental academy, the Accademia del Cimento, which gathered in the prince's palace.[49] Spinelli invested in his scientific collection during a short span of time, around 1745, most likely as a result of the closure, one year earlier, of the Neapolitan academy of science, which had been founded by Celestino Galiani in 1732.[50] His purchase of seventeenth-century mathematical instruments and their ostentatious display in the Biblioteca Spinella was an indication of his wish to support scientific activities in continuity with earlier attempts.[51] In 1747 Spinelli encouraged the formation of a new academy, tellingly named Accademia Spinella, which gathered in his physics cabinet. Its organization was due to the Somaschan cleric Giovanni Maria Della Torre, a physics professor at a local religious school, who also worked as the curator of the physics cabinet. Della Torre, whose duties were similar to those of the librarian, was responsible for the acquisition of new instruments and for the staging of experimental demonstrations to entertain the prince's guests.[52] He gave a clear Newtonian orientation to the physics cabinet of Palazzo Tarsia, requesting a Newtonian telescope and several prisms, in addition to the large orrery on display in the library's second room.

[49] On the Medici's collections of scientific instruments, see Filippo Camerota, 'The Medici Collection of Mathematical Instruments: History and Museography', in Giorgio Strano *et al*. (eds), *European Collections of Scientific Instruments, 1550–1750* (Leiden and Boston, 2009), pp. 129–48.

[50] Rizzo, *Ferdinando Spinelli*, *passim*. Vaccaro's engraving does not mention any instrument in the description of the library. Although in 1749 Spinelli discussed with the abbé Nollet the possibility of enlarging his physics cabinet, there is no evidence that he actually commissioned any item from the French maker, see note 38 above.

[51] Eighteenth-century collections of scientific instruments were self-consciously 'modern' and, normally, did not include older objects, even if they had belonged to celebrities such as Isaac Newton. See Turner, 'From Mathematical Practice to History of Science'.

[52] When Nollet visited Palazzo Tarsia, Della Torre 'made some experiments at the presence of a few ladies that the prince invited': Nollet, 'Journal', f. 176.

The Physics Cabinet as a Space of Cultural Experimentation

Focusing on the acquisition practices that led to the formation of specific collections, historians of scientific instruments have cast light on the extensive circulation of instruments related to the emergence of the physics cabinet in the eighteenth century.[53] I would like to suggest that this new space of display, which was often a place where experimental activities took place, produced also new forms of social interaction. The physics cabinet of Palazzo Tarsia proved crucial for the self-promotion of the people who gathered there. Thanks to its collection of instruments and to the ambitions of Della Torre, it attracted several savants interested in pursuing experimental research. Their activities quickly focused on electricity, a new experimental science that in the course of 1746 became fashionable, in the Italian countries as in the rest of Europe. During that year, a group of itinerant lecturers from the German countries toured the Italian peninsula with a new device, a portable 'electrical machine' that produced thrilling spectacles of sparks and glows. Starting in the Veneto, they exhibited the marvels of electricity in aristocratic palaces and university halls throughout Italy. Electrical phenomena were as spectacular as they were mysterious and such performances met with overwhelming success.[54] In early 1747, Peter Johann Windler, after performing repeatedly in Rome in the palaces of 'eminentissimi Sig[no].ri Cardinali' and at the university, moved to Naples.[55] Following in the cardinals' footsteps, Spinelli invited Windler to perform in his Temple of Minerva. Thus, the Biblioteca Spinella became the theatre of the most spectacular experimental demonstrations ever enjoyed by Italian audiences. Several years later the memory of those exciting days was still alive: 'when the electrical machine first appeared among us, everybody crowded around it, everybody admired it as a prodigy'.[56]

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[53] See, for example, the works by Pancino, Salandin, Hill, De Clerq and Gauvin referred to above; see also Alan Q. Morton and Jane Wess, *Public and Private Science: The King George III Collection* (Oxford, 1993); Rómulo de Carvalho, *História do Gabinete de Física da Universidade de Coimbra* (Coimbra, 1978); Lewis Pyenson and Jean-François Gauvin (eds), *The Art of Teaching Physics: The Eighteenth-Century Demonstration Apparatus of Jean Antoine Nollet* (Quebec: Sillery, 2002); *Journal of the History of Collections*, 7 (1995); Paola Bertucci, 'Public Utility and Spectacular Display: The Physics Cabinet of the Royal Museum in Florence', *Nuncius*, 21 (2006): 323–36.

[54] I have detailed the peregrination of the electrical machine in the Italian peninsula in my *Viaggio nel paese delle meraviglie. Scienza e curiosità nell'Italia del Settecento* (Turin, 2007), chs 5, 7–10.

[55] *Diario ordinario* (23 dicembre 1746) n° 4589, p. 7. I am grateful to Federica Favino for this reference that has obliged me to revise the interpretation of Della Torre's role in the publication of *Tentamina* I offered in *Viaggio*.

[56] [Mariangela Ardinghelli], 'To the reader', in Jean Antoine Nollet, *Lettere intorno all'elettricità* (Naples, 1761), p. 3. The note to the reader was by the anonymous translator of Nollet's text. In my 'The In/visible Woman: Mariangela Ardinghelli and the Circulation of Natural Knowledge between Paris and Naples in the Eighteenth Century', *Isis* 104 (2013): 226–49, I show that the translator of

The electrical shows turned the Biblioteca Spinella into a showcase for the savants who ordinarily gathered there. During Windler's demonstrations the 16-year-old Mariangela Ardinghelli distinguished herself by the questions on the nature of electricity that she asked in fluent Latin. Trained in the natural sciences by Della Torre, Ardinghelli elicited admiration for her language skills and mastery of natural philosophy. Her participation in the experimental activities of the Biblioteca Spinella was crucial to the making of her reputation in the local cultural scene.[57] Windler's experiments also inspired Niccolò Bammacaro, a professor of moral philosophy, who published a book on electricity that reached an international audience.[58] Della Torre, for his part, learnt how to perform Windler's experiments and in 1748 he described them in his *Scienza della natura*, a multi-volume compendium of natural philosophy that placed strong emphasis on demonstrations and apparatus.

Spinelli was greatly satisfied with the visibility that the Biblioteca Spinella obtained thanks to the electrical performances and, after Windler's departure, requested a local maker to build a large electrical machine, in the hope of keeping the excitement alive. The instrument was then varnished and gilded in accordance with the library's style and it was entrusted to Della Torre.[59] With the new machine, Della Torre entertained the prince's guests several times, forming chains of up to a hundred people, and making them jolt together as they experienced the 'commotion' (an instantaneous electric shock).[60]

For some time, Spinelli's ambition to act as a patron of the sciences in the style of Leopoldo de' Medici went hand in hand with the expectations of the savants who gathered in the physics cabinet of Palazzo Tarsia. They found in him a protector who sponsored their activities and, in exchange, their work made visible his commitment to the advancement of knowledge. In 1747 the Neapolitan publisher Porsile printed Windler's *Tentamina de causa electricitatis*, a text that presented Windler's experiments and theory and that was a public celebration of Spinelli's patronage of the sciences. It was prefaced by a long dedication that exalted the prince of Tarsia and his library as the perfect place for experimental research.[61] The circumstances leading to the publication of *Tentamina* indicate that for a group of learned Neapolitans the physics cabinet of the Biblioteca

Nollet's text was Mariangela Ardinghelli, who was involved in the experimental activities that took place in Palazzo Tarsia in the 1740s.

[57] Giammaria Mazzuchelli, *Gli scrittori d'Italia, cioè Notizie storiche e critiche intorno alle vite e agli scritti dei letterati italiani* (Brescia, 1753), vol. 1, pp. 979–80. On Ardinghelli, see my 'The In/visible Woman'.

[58] Niccolò Bammacaro, *Tentamen de vi electrica ejusque phaenomenis* (Naples, 1748).

[59] Rizzo, *Ferdinando Spinelli*, p. 121.

[60] Giovanni Maria Della Torre, *Scienza Della Natura* (2 vols, Naples, 1748), vol. 2, p. 316.

[61] Petrus Joannes Windler, *Tentamina de causa electricitatis* (Naples, 1747), unpaginated dedication.

Figure 7.2 Plate from Petrus Joannes Windler's *Tentamina de causa electricitatis* (Naples, 1747). Courtesy of the Bakken Museum and Library of Electricity in Life

Spinella served as a crucial space for cultural and social experimentation. As did other German itinerant lecturers, Windler toured Italy with manuscript notes in which he annotated the details of his experiments and his electrical theories. Upon the request of the friends he had made in Palazzo Tarsia, he agreed that such notes be published in Naples soon after his departure.[62] Windler entrusted the revision of the manuscript to Della Torre, who did not miss the opportunity to capitalize on the excitement that the new experiments had engendered. By

[62] Windler, *Tentamina*, p. 1n.

inserting a few anonymous footnotes in the text, Della Torre constructed for himself the role of a ghost writer whose identity could easily be guessed by local readers: he added the description of other experiments that had been carried out in Palazzo Tarsia since Windler's departure and explained that he was the curator of the Museo Tarsia.[63] If the anonymous footnotes apparently separated the identities and the roles of the two authors, Della Torre was in fact insinuating that he was solely responsible for the book. His claim to exclusive authorship was explicitly expressed in the plates that accompanied *Tentamina*. The first of the three plates presents an unusually detailed scene: in a setting whose decorations and structure are strikingly similar to the galleries of the Biblioteca Spinella, a group of people performs electrical experiments (Figure 7.2).

They are represented much more realistically than in similar plates illustrating philosophical experiments. Local readers who attended Palazzo Tarsia would have realized that the plate was in fact a group portrait: they would not have failed to recognize Della Torre in the cleric who operates the electrical machine on the right, and who enigmatically looks at the viewer (Figure 7.3).

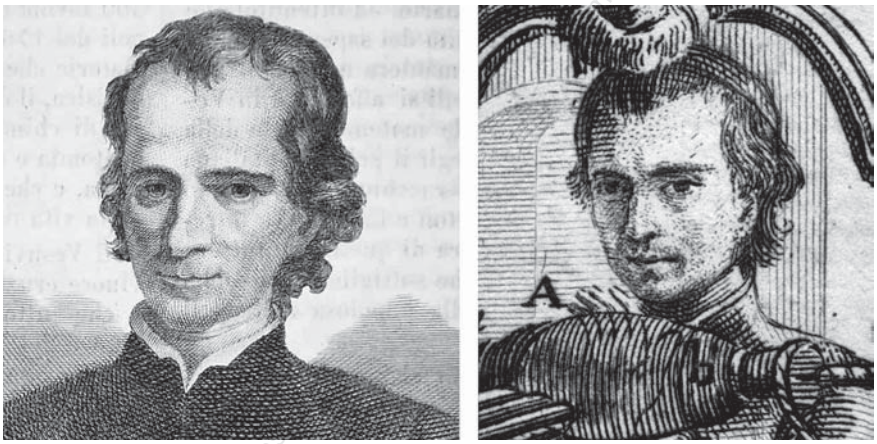

Figure 7.3 On the left a portrait of Giovanni Maria Della Torre, from *L'Album. Giornale letterario e di belle arti*. On the right, detail from Figure 7.2

[63] Windler, *Tentamina*, p. 1n. This footnote has been overlooked by Nastasi and Trombetta, who believe that Windler was the curator of Spinelli's physics cabinet. See Pietro Nastasi, 'I primi studi sull'elettricità a Napoli e in Sicilia', *Physis*, 24 (1982): 237–64; Aldo Brigaglia and Pietro Nastasi, 'Bologna e il Regno delle Due Sicilie: Aspetti di un dialogo scientifico (1730–1760)', in Renzo Cremante and Walter Tega (eds), *Scienza e letteratura nella cultura italiana del Settecento* (Bologna, 1984); Trombetta, *Storia e cultura*. Della Torre admitted that he inserted 'a few footnotes' in Windler's texts several years after the publication of *Tentamina*. See Giammaria Della Torre, *Elementa Physicae* (8 vols, Naples, 1757–69), vol. 5, p. 330.

This subtle, yet locally explicit, claim to authorship became bolder as the memory of Windler's visit to Naples faded. Della Torre included this very plate in his *Scienza della Natura*, published one year later by the Porsile, as well as in his *Institutionae Physicae* (Porsile, 1753–67) and *Elementa Physicae* (Raimondi, 1757–69). In 1749, when he met the abbé Nollet, he openly declared that he wrote *Tentamina* under the name of Windler.[64]

It is likely that to eighteenth-century Neapolitan viewers the plates of *Tentamina* conveyed a message that modern viewers are only partially able to retrieve: if Della Torre's attempt to place himself at the centre of the scientific activities of Palazzo Tarsia is clear, the plates portrayed other protagonists that I have been unable to identify. Details such as the mustachios in the figure on the left in Figures 7.2 and 7.4 and the foreign costume of one of the people holding hands in Figure 7.4 must have been clear hints of who these people really were. The young woman, however, can confidently be identified as Della Torre's pupil, Mariangela Ardinghelli.

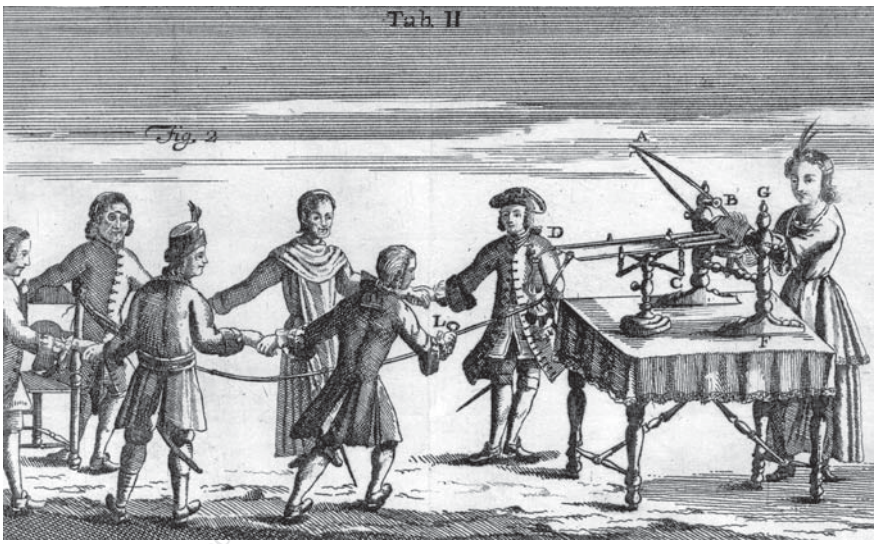

Figure 7.4 Plate from Petrus Joannes Windler's *Tentamina de causa electricitatis* (Naples, 1747). Courtesy of the Bakken Museum and Library of Electricity in Life

She is represented at the centre of the experimental scene, wearing a cuff and non-aristocratic clothes, gently reclined on her right side, while she is engaged in drawing sparks from a metallic rod with her finger. This visual representation

[64] Nollet, 'Journal', f. 169.

accords with the central position that Ardinghelli occupied at Palazzo Tarsia during Windler's performances and with the modest behaviour that foreign travellers often indicated as one of her most distinctive features.[65] As the daughter of a disinherited patrician, she would wear the kind of dress that is illustrated in the picture, as well as the cuff, which is also present in other known portraits of her.[66] A similar female figure, portrayed less realistically, appears also in a smaller illustration in the *Tentamina* (fig. 5): there, she operates the electrical machine, an action that was often performed by women during electrical soirées. The same smaller plate shows a man wearing glasses, a detail that points to Niccolò Bammaccaro, whose severe myopia was well known.[67] These plates show that the experiments that took place in the Biblioteca Spinella involved aristocrats and members of the middle classes, clerics and lay people, gentlemen and ladies. They also unmistakably point to Della Torre's self-presentation as the main protagonist of the experimental activities in Palazzo Tarsia, as well as to the momentary convergence of Spinelli's ambitions with those of his experimenters.

The Ephemeral Academy

Although experimental activities were well under way in the Museo Tarsia, Spinelli waited until 22 July 1747 to formally open the library to the public and to form the Accademia Spinella a few days later. The memorable ceremony, which cost him as much as his daughter's wedding, was delayed until the birth of Filippo, the crown prince.[68] The prince of Tarsia organized the inauguration of his library as a public feast in honour of the king and his newborn heir. The event once again was a representation of Spinelli's alliance with the crown. Over a hundred guests composed celebrative poems, mostly dedicated to Charles of Bourbon (with only a few dedicated to Spinelli), which they recited during the party. The librarian Niccolò Giovio opened the ceremony with an inaugural discourse that exalted the Bourbon monarchy, published in the following months together with all the poems. Spinelli commissioned from Antonio Baldi an engraving of a portrait of the king to be included in the first 400 copies of Giovio's

[65] See, for example, Marie-Anne Du Boccage, *Recueil des oeuvres de Madame Du Bocage*, vol. 3 (Lyon, 1764), p. 295.

[66] A medallion representing Ardinghelli, sculpted by Jean Jacques Caffieri in 1753, is kept in the Archives de l'Académie des Sciences, Paris. Another portrait, of an aged Ardinghelli, is published in *Biografia degli uomini illustri del Regno di Napoli*, vol. 12 (Naples, 1837).

[67] Nollet commented on Bammacaro's thick glasses ('Journal', f. 169).

[68] Rizzo, *Ferdinando Spinelli*; Camillo Minieri Riccio, 'Cenno storico delle Accademie fiorite nella città di Napoli', *Archivio Storico per le Province Napoletane*, 5 (1880): 349–67.

collection.[69] Participants included lawyers, physicians, aristocrats, savants and notaries, as well as Cardinal Giuseppe Spinelli (unrelated to Ferdinando), who was engaged in the reform of religious education and supported Della Torre throughout his career. Although the circle of the prince of Tarsia was aligned towards Newtonian natural philosophy, Eleonora Barbapiccola – the Italian translator of Descartes' works – attended the inauguration and contributed a poem to Giovio's volume.[70] Ardinghelli, on her part, recited a poem in Latin in which she exalted the Museo Tarsia and the prince's collection of instruments that allowed the cultivation of Newtonian science.[71] After such a pompous inauguration, the prince was in an ideal position to pursue his emulation of the Medici: the Accademia Spinella, which boasted of his patronage even in its name, was constituted on 30 July 1747.

The members of the academy embraced Spinelli's support of the Bourbon monarchy. One of their first formal acts was the notification of the newly formed institution to the Académie Royale des Sciences in Paris. In an official communication to Georges Louis-Leclerc, comte de Buffon, they declared their desire to engage in 'scientific commerce' with their French colleagues. They hoped that the former French ambassador in Naples, the marquis de l'Hôpital, would be willing to act as a mediator. They explained that their primary concern was with natural history, aware that the study of Mount Vesuvius and of places such as the Campi Phlegraei was of great interest to Buffon and, more generally, to the international Republic of Letters.[72] Clearly, the attempt to attract the interest of the Académie Royale des Sciences had to do not only with the prestige of the institution, but also with Spinelli's links with the monarchy: it was a branch of the Bourbon family that ruled France.

However, the Neapolitans' letter to Buffon revealed ambitions that contrasted with the old model of the 'prince's academy' dear to Spinelli. They manifested their intention to shape the Accademia Spinella following its fellow institution in Paris, a striking statement when one considers that the French members received a salary from the king.[73] The attempt to create a scientific academy in Naples modelled upon the Académie Royale des Sciences in Paris had also characterized Galiani's failed project, which the Accademia Spinella was aiming to revive. Natural history was the primary interest of Galiani's academy and the document sent to Buffon made explicit the connection with

[69] Niccolò Giovio, *Componimenti diversi per la Sacra Real Maestà di Carlo Re delle Due Sicilie, nella solenne apertura della Biblioteca Spinella del Principe di Tarsia* (Naples, 1747).

[70] Giovio, *Componimenti*, p. 39.

[71] Giovio, *Componimenti*, pp. 40–42.

[72] Buffon read accounts of eruptions of Vesuvius in Parisian salons. See H. Nadault De Buffon (ed.), *Buffon. Correspondance générale* (Geneva, 1972), vol. 1, pp. 76–7. See my 'The In/visible Woman' for a discussion of the provenance of such accounts.

[73] Archives Académie des Sciences, Paris, *Procès Verbaux*, 1748, p. 31.

his project: 'our still nascent academy ... after various vicissitudes, and various fortunes, has lately been welcomed by His Excellency Signor Prince of Tarsia'.[74] Although no list of members of the new academy exists, Della Torre referred to Domenico Sanseverino and Michelangiolo Roberti, who came from Galiani's academy, as members of the Accademia Spinella.[75] He also mentioned that the former secretary of Galiani's academy, Francesco Serao – author of well-received works on Vesuvius – acted as the new academy's secretary.

Similar though their research agendas might have been, however, the Accademia Spinella did not elicit any sympathy on Galiani's part, who never participated in its activities. Although Serao tried to weave connections with some former members of Galiani's academy, the famous mathematicians Nicola and Pietro De Martino and the professor of experimental physics at the University of Naples, Giuseppe Orlandi, did not join the new academy, which they despised.[76] After the closing of Galiani's academy, they gathered for some time in the palace of Faustina Pignatelli, duchess of Columbrano, and never interacted with Della Torre and his associates. The hostility between these two groups has been interpreted as the result of their different orientations with respect to the new natural philosophy: that of Palazzo Tarsia, experimental; that of Palazzo Pignatelli, mathematical.[77] However, such division does not account for people such as Ardinghelli who, while participating in experimental activities in Palazzo Tarsia, was known internationally for her mathematical contributions, which earned her the attention of Alexis Clairaut at the Académies Royale des Sciences in Paris.[78] The hostility between the two groups can be better understood by taking into account the reactions to the old-fashioned patronage of the sciences that Spinelli was offering: the Temple of Minerva as envisioned by him was not attuned to the ideal of knowledge that Galiani and his followers were seeking to establish in Naples. For them, the whimsical patronage of a prince was ill-suited to the advancement of the sciences. Indeed, it was due to insufficient funding that Galiani's academy ceased its activities in 1744: the financial support of the prince of Scalea first, and of the cardinal Acquaviva later, proved inadequate for the academy's research needs.[79] The model of the prince's academy was

[74] Archives Académie des Sciences, Paris, *Procès Verbaux*, 1748, p. 31. On Galiani's academy, see Vincenzo Ferrone, *Scienza, natura e religione sistema newtoniano e cultura italiana nel primo Settecento* (Naples, 1984) and, for the English translation, *Intellectual Roots of the Italian Enlightenment: Newtonian Science, Religion, and Politics in the Early Eighteenth Century* (Atlantic Highlands, NJ, 1995); Fausto Nicolini, *Della società nazionale di scienze lettere e arti e di talune accademie napoletane che la precederono* (Naples: Società Nazionale di Scienze, Lettere e Arti, 1974).

[75] Della Torre, *Scienza Della Natura*, vol. 2, pp. 159, 250.

[76] Brigaglia and Nastasi, 'Bologna e il Regno delle Due Sicilie'.

[77] See Brigaglia and Nastasi, 'Bologna e il Regno delle Due Sicilie'.

[78] Diego Vitrioli, *Elogio di Angela Ardinghelli* (Naples, 1874), pp. 41–2.

[79] Ferrone, *Scienza, natura e religione*, pp. 486–525.

seen as despicable by Galiani and his closest collaborators. On hearing of the inauguration of the Biblioteca Spinella, Orlandi bitterly wrote:

> If Signor Prince of Tarsia, with his conceit of *gran signore*, wanted to dispense [genuine] literary magnificence, he could make himself really glorious other than with the opening of the Library with Music and refreshments.[80]

Orlandi's criticism of the Biblioteca Spinella anticipated a crucial divide between Spinelli's and the academicians' understanding of the role of the Temple of Minerva in Naples' cultural life. Whereas for the former it was a place of ostentation and display, the latter saw it as an opportunity to secure support for their experimental research. For the prince it was a place that represented his patronage of the sciences; for the latter it should have been a place where they would work to produce new knowledge. Their expectations diverged, and condemned the academy to a very short existence. In June 1749 Della Torre confessed to a correspondent that the academy was dying and Spinelli himself did not regard it as worth mentioning a few months later, when he had a long conversation about his physics cabinet with the abbé Nollet.[81] It is significant that Della Torre, in his *Scienza della Natura* published in 1748, referred to the academy not as the Accademia Spinella, but as the 'Accademia Napoletana that under the auspices of His Majesty the King of Two Sicilies gathers in the renowned Biblioteca Spinella'.[82] In addressing readers in and outside Naples, Della Torre worried that Spinelli's outdated patronage might detract authority from the scientific activities of the academy's members.

However, thanks to the prince of Tarsia's connections with the royal family and the patronage of Cardinal Spinelli, Della Torre obtained various prestigious positions in the newly founded Reale Accademia Ercolanense, in the Museo Farnesiano, in the Stamperia Reale and in the royal library.[83] His successful trajectory, begun in the Biblioteca Spinella and continued in royal institutions, was emblematic of the contrast between Spinelli's cultural

[80] Giuseppe Orlandi to Celestino Galiani, 25 July 1747: 'Se il Sig. P.pe di Tarsia colla sboria di gran signore volesse spendere magnificenze letterarie, ci sarebbe da rendersi veram.te glorioso meglio che coll'apertura della Libreria con Musica e rinfreschi' (Biblioteca della Società Napoletana di Storia Patria, Naples, XXXI B19, f. 159v).

[81] Della Torre to Paciaudi (24 June 1749), cited in Trombetta, *Storia e cultura*, p. 92. In this letter Della Torre refers to two academies that gathered in the Biblioteca Spinella. I have found a reference to an 'Academy of Poetry' supported by the prince of Tarsia in Carlantonio de Rosa, *Opuscoli di Giovanni Battista Vico* (Naples, 1818), p. 358. Nollet, 'Journal', f. 181.

[82] Della Torre, *Scienza della Natura*, vol. 2, p. 159.

[83] See Elvira Chiosi, 'Academicians and Academies in Eighteenth Century Naples', *Journal of the History of Collections*, 19 (2007): 177–90; Anna Maria Rao (ed.), *Editoria e cultura a Napoli nel 18.mo secolo* (Naples, 1998).

vision and the expectations of Neapolitan savants. Della Torre obtained his positions thanks to his participation in Spinelli's project, which allowed him to benefit from the prince's connections with the crown, yet the success of his individual trajectory corresponded to the failure of the collective project of the Accademia Spinella. The ambition to establish in Naples a scientific institution modelled upon the Académie Royale des Sciences in Paris depended on the endowment of salaried positions, something that an individual patron such as the prince of Tarsia – just as the prince of Scalea years earlier – could not achieve. It is significant that members of the Accademia Spinella such as Roberti and Sanseverino did not hold any university position at the time of their membership, unlike other scholars who had participated in Galiani's academy but evinced no interest in the new one (such as the above mentioned De Martino brothers and Giuseppe Orlandi, among others).[84] Their hopes to secure research positions through the prince of Tarsia were frustrated by the rapid ascent of Della Torre who, after obtaining his appointments, lost interest in the academy. In spite of professed intentions, his interactions with the Biblioteca Spinella unfolded according to a patron–client relationship typical of the court system.

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Ferdinando Spinelli envisioned the Temple of Minerva and the Accademia Spinella respectively as Neapolitan adaptations of the *Stanzino delle Matematiche* of the Uffizi Gallery and of the Accademia del Cimento. Yet, while the Medici were the ruling family in Florence, Spinelli had to compete with many other aristocrats for the king's attention in Naples. The Accademia Spinella was one of many attractions that Palazzo Tarsia offered to the king, who did not deliver the support that the academicians expected. Although Gherardo Degli Angioli's funeral oration glorified Spinelli's emulation of the Medici, the Temple of Minerva came to be perceived as Spinelli's outdated Wunderkammer, a space of ostentation and display subjected to the whimsical inclinations of its powerful, yet uneducated owner who, as a contemporary put it, seemed to appreciate books more for their size than for their contents.[85]

Spinelli's death in 1753 put an end to the building of Palazzo Tarsia. The library remained open to the public for a couple of decades, until his heirs sold most of its collections to the king.[86] No more experimental activities took

[84] For a list of members of Galiani's academy of science, see Ferrone, *Scienza, natura e religione*, p. 502.

[85] Degli Angioli, *Orazioni*. 'Ho riso molto in sentire che il principe di Tarsia apprezzi i Libri per la mole, e non per ciò che contengono', Cardinal Passionei to Paolo Maria Paciaudi, 16 December1746, in Alfredo Settai, *Domenico Passionei e la sua biblioteca* (Milan, 2004), p. 608.

[86] Trombetta, *Storia e cultura*, pp. 104–6.

place in the Temple of Minerva, yet the Palazzo remained a destination for Grand Tourists and a place where local aristocrats, including the king, liked to promenade.[87] To Neapolitan savants, Palazzo Tarsia and especially its library became the emblem of inconsequential enterprises. The caustic satire titled *Note of the books from the ephemeral library of the most excellent the gilded prince of Tarsia* indicates the irremediable divergence between the cultural vision of a prince who fancied himself a new Maecenas and that of pragmatically oriented intellectuals. The *Note* provides a long list of impossible books, whose fake titles, authors and publishers mock the catalogue of the Biblioteca Spinella to sketch a grotesque microcosm of vanity, affectation and pretentiousness.[88] This harsh alternative vision of the Biblioteca Spinella testifies to the failure of the architecture of knowledge materialized in Spinelli's Temple of Minerva. Like the fantastic engraving of Vaccaro's design of Palazzo Tarsia, Spinelli's cultural vision came to be perceived more as a frivolous mirage than as a viable project.

[87] Guido Donatone (ed.), *William Hamilton. Diario segreto napoletano (1764–1789)* (Naples, 2000).

[88] Biblioteca della Società Napoletana di Storia Patria, MS XXIII C 5, f. 11: 'Satira. Nota dei libri Pervenuti dalla Libreria Efimera dell'Ecc.mo Principe di Tarsia Indorato'. The manuscript is anonymous and undated, yet it seems modelled upon the catalogue of Spinelli's library published in 1780. To give at least a flavour of this interesting document, I cite here three of the twenty-five titles listed in the manuscript: 'L'amor coniugale, opera della duchessa di Aguara con l'aggiunta della duchessa di Flenorito e note critiche della principessa di Ottasiano dell'Incurabili, nella stamperia del Mal Francese lire 6'; 'L'innocenza sacrificata alla Libidine ed avarizia de Conjonti, Opera dell'Innocente e nobile principessa di S. Lorenzo con le note della duchessa Consa ed aggiunta della Satriano, in Amsterdam nella Libraria della Lussuria in 4° lire 13'; 'La moglie dissoluta e bella ridotta dal marito cieco cascato in povertà con le note critiche di andrea Foncoli un tempo fa letterato esimio e spenditore con il denaro altrui, in Pariggi nella stamparia della Sfacciatagine in foglio lire 9'.