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# Anamorphosis: Between Perspective and Catoptrics

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## Abstract

This essay is conceived in two parts: the first part deals with the perspectival and artistic work of the Minim Father Jean François Nicéron (1613–1646). Nicéron is the author of two volumes (the second published posthumously) that have become milestones concerning studies on perspective in the Seventeenth-century – *La perspective curieuse* (Paris, 1638) and the *Thaumaturgus opticus* (Paris, 1646). Nicéron’s expressive world developed into acutely deceptive works at a very early stage of his life.

The second part describes a digital interpretation of a non-executed project for a scientific Villa where we could have found instruments of Wonder employing mirrors and lenses commissioned by Cardinal Camillo Pamphilj (1622–1666). The project was conceived by the architect Francesco Borromini (1599–1667) and Father Emmanuel Maignan (1601–1676) at the end of the first half of the Seventeenth century. Borromini, who is well known for his architectural work, drew both building plan and façade using two different symmetrical solutions. Maignan wrote a list of 21 scientific games, most of them scaled

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architectonically, representing the experimental research in the Baroque period on optics, gnomonic, void, acoustics, magnetism and so on. As well, optical ‘games’ adopting conical mirrors that create catoptric anamorphosis, and flat mirrors conceived to project sunrays in the building and develop catoptric sundials, will also be examined.

Niceron’s and Maignan’s epistemological research intersected Cartesian and Hobbesian thought. Their works often became a true reflection of contemporary philosophical positions, while nevertheless preserving their stylistic autonomy both in content and form.

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### Keywords

Anamorphosis · Perspective · Optics · Catoptrics · Dioptric · Baroque

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## Introduction

The term *ἀναμόρφωσις* (anamorphosis) is etymologically derived from the Greek, in the suffix *ἀνά* (upwards, backwards, back to) and the root *μορφή* (form) (De Rosa and D’Acunto 2002). According to Jurgis Baltrušaitis (Baltrušaitis 1984) the word first appeared in a treatise by Gaspar Schott (1608–1666), *Magia Universalis naturae et artis* . . . (Paris 1657–1659) and is confirmed in the *Oxford companion to Art*.

In the field of art anamorphosis refers to a precise category of planar images or to tridimensional structures that are represented in a strongly deformed perspective. These images aren’t immediately recognizable in their real – frontal – configuration, but can only be fully understood if observed from a precise point of view. In other cases anamorphoses are recognizable due to their reflection upon a convex, spherical, cylindrical, conical or pyramidal mirror called an anamorphoscope (Kuchel 1979). According to Kirsti Andersen, we can talk about a direct anamorphosis in the first case, while the adjective “catoptric” refers to the second (Andersen 1995). Anamorphic images are inextricably connected – both in their geometrical creation and fruition – to the rules of linear perspective (*perspectiva artificialis*). As affirmed by Baltrušaitis, they can be considered virtuoso expressions of perspective constituting a kind of projective ‘depravation’. These unconventional images – derived from rigorous and strict Euclidean construction – first of all consider that a personal point of view is unique, as if the observer had only a single eye (as a monocular observer).

Considering the representative conventions exposed in the treatises by Leon Battista Alberti (1435/1973) and Piero della Francesca (1472/1984), the anamorphic image exceeds the typical Renaissance need of combining the space of representation with the one of natural optical experience. An anamorphic image appears to the observer, even if geometrically correct, like a graphic enigma in which specific representational choices are combined with strong mystic symbolism, even with magic and ritual. These characteristics are set forth by the strong deformations. In the first half of sixteenth century the upheaval of *perspectiva artificialis* rules

was almost completed. The observer's oblique position, compared to the rules of 1400s perspective representation, is just one of the transgressive characteristics of anamorphosis. These variations on the traditional Renaissance perspective are described in the treatises of the upcoming century and become a reference for the artist that starts to be a "... showman whose spectacular displays strike sparks of wonder and mystery, intriguing concealments and sudden revelations" (Gilman 1978). It is inevitable that the most important authors or scientific disseminators of the anamorphosis phenomenon were opticians and students who studied perspective belonging to religious orders (Cojannot-Le Blanc 2006) such as the Jesuits and the Minims. During the Baroque period monks used this technique of representation to convey messages or hidden allegories using the archaic code of *perspectiva secreta*.

According to Baltrušaitis "... the procedure is stated as a technical curiosity but contains abstraction, a powerful mechanism of optical illusion and a philosophy on artificial reality. Anamorphosis is a puzzle, a monster, a prodigy. Although it belongs to the world of oddities that have always had a cabinet and a shelter in manhood, it often goes beyond the hermetic frame" (Baltrušaitis 1984).

During the Seventeenth century the study of the anamorphic genre reached levels of theoretical depth and graphic virtuosity that had only received a momentary glance in previous treatises or in artistic achievements. The theme of anamorphosis was taken into consideration at the beginning of the century by Salomon de Caus (1576–1626), and then by Pierre Hérigone (1580–1643), but the subject finds its most exhaustive exegesis in the scientific texts written by two religious authors living in Rome. The most precise is *La Perspective Curieuse* (1638) by the Minim Friar Jean François Nicéron that was published in Latin (1646), and edited and integrated by Father Marin Mersenne with the new title of *Thaumaturgus opticus* after the Friar's death.

This last work must be considered as a partial realization of the editorial project that Nicéron had been following for many years. Unfortunately, the commitments of the religious order and his early death prevented him from completing it. The story of direct and indirect anamorphosis develops exactly around the figure of Nicéron and his friend Emmanuel Maignan, who both lived and worked in the Roman convent of Trinità dei Monti in the first half of the Seventeenth century (Martin late XVIII century).

## Anamorphosis Between Paris and Rome: A Catoptric Relationship

The portrait (Fig. 1) depicts a young gaunt-faced monk with a barely visible beard wearing a tunic with the typical cap of the religious Order of Minims (Withmore 1967). He is holding the *planche* of his latest treatise on which he was still working just before his death on the 22nd of September 1646. Since Nicéron passed away before his book was published, the engraving by Michel Lasne (1595–1667) actually appears as a space-time paradox. In fact, although he is represented holding the book, his work will not be published until after his death. On the *planche* that Nicéron is holding upright we can read: "F. Iacon Franciscus Nicéron/Delinea Romæ

**Fig. 1** M. Lasne, R. P. Joannes Franciscus Niceron ex Ordine Munimorum, egregiis animi dotibus et singulari matheseos peritia celebris, obiit Aquis Sextiis 22 septembris an. Dni 1646, Aetat 33. Engraving, Paris, first half of the XVIIth century



ano Sal. 1642/Ætatis Suæ 29". These words give a hint of the period when the first draft was drawn out. At the time, which coincided with the second stay of Niceron in Rome (post January 1641–April 1642), he was writing the Latin edition (Niceron 1646), with the relative plates of his *La Perspective Curieuse* (1638). This treatise unlocked the aberrant secrets of perspective known as *anamorphosis*. As the treatise was written in French it prevented other European students from reading it. The illustration selected by Niceron is number 13 and depicts the *Propositio Trigesima* dedicated to the perspectival representation of a “spherically stellated solid with a square based pyramid” (Niceron 1646). The choice of the subject was probably connected to the new theme that symbolized – proposing it graphically – the expansion of the Latin edition as compared to the French.

Niceron was born in Paris on July 5th 1613 (Withmore 1967; Roberti 1902–1908); he joined the Order of Minims at the convent of Nigeon-Chaillot (now Passy), where he served as a *novice*. On the 26th of January 1632, after he had completed his *novice*, Niceron was admitted to the *profession* and went to the convent of Place Royale (Paris). He was given the second name Jean after his



**Fig. 2** J.F. Nicéron, *Anamorphic portrait of Jacques d'Auzolles de Lapeyere*. Engraving. Archives Départementales du Cantal, Aurillac Cedex (Auvergne), 1631

uncle who was also a Minim monk. In 1631, at the age of 18, during his novitiate, Nicéron created his first artistic work: an anamorphic portrait (Fig. 2) of Jacques d'Auzolles de Lapeyere (1571–1642), a well-known author of *Mercure charitable* (d'Auzoles de Lapeyre 1638). This work included chronological details on the back cover. It is an aberrant image, outlined and engraved by Jean Picard, that appears distorted if seen on a horizontal surface, but becomes recognizable if reflected in a cylindrical mirror put inside. The image identifies the writer's 'rectified' portrait – medal-shaped – defined by Nicéron as 'princeps chronographorum'. At the time of Jacques d'Auzolles' portrait, it is evident that Nicéron could not have read some of the seminal works by René Descartes (1596–1650) (Rodis-Lewis 1997), such as *Dioptrique* (1637) or *Géométrie* (1637), which focused on the theme of perception by working out the inevitable mistakes in terms of the senses. A following consultation among the authors is certain, since both studied in the Convent's Library of the Order of Minims in Place Royale (Paris) (Krakovitch 1981). This structure gathered many students who attended the intellectual circle of Father Marin Mersenne (1588–1648), *secrétaire de l'Europe savante*, besides the precious volumes and *incunabula*. These meetings were organized every Saturday

in his monastic cell. From his first artistic and scientific experience, Nicéron's work is an attempt to escape from the inexorable idea of mechanical laws, in order to identify "... a strategy to avoid the reduction of appearances to the laws of inert matter, or rather, to find a way through which, in itself, the appearances of material bodies were recognizable and oriented themselves to the spirit, reflected their otherness and their principle, not to be reduced to the size of the *res extensa*, the strict mechanistic model and spatial *partes extra partes*" (Baitinger 2006).

It is likely that Nicéron had seen the first catoptric anamorphoses in 1627 in Paris. They were probably similar to exotic samples imported to France by the painter Simon Vouët (1590–1649) on his return trip from Constantinople where he had acquired these techniques between 1611 and 1612. There are four oil on canvas paintings by Nicéron in Paris around 1635 (50 × 66.5 cm) that belong to this class of images and can be included in the category called catoptric regenerative devices; these are settled through their reflection on cylindrical mirrors. Today they are kept at the National Gallery of Ancient Art in Palazzo Barberini (Rome). They portray: *Louis XIII before a crucifix*, *Louis XIII*, *San Francesco di Paola*, and *a Nuptial scene*. The amazing effect of this reflective reconstruction created from deformed images is obtained by Nicéron by applying the geometric constructions revised and edited after his death. These structures are also present in his 'vernacular' treatise (1638) and were based on those developed for students by the French mathematician Jean-Louis Vaulezard (\* – \*) in his *Perspectivae cilindrique et conique ou traite des apparences vues par le moyen des miroirs . . .* (Paris 1630).

The young Jean François showed a special inclination towards mathematical studies and a remarkable interest in catoptric and dioptric optics, without neglecting his previous studies in theological and philosophical disciplines (in his first treatise). During the same year the 25 year old Nicéron published *La Perspective Curieuse, ou magie artificielle des effets merveilleux . . .* in Paris for Pierre Billaine (1638) (Fig. 3). This was influenced by Salomon de Caus' and the Jean-Louis Vaulezard's texts mentioned previously, which in fact was far more original than most of his famous predecessors. The folio volume consists of 20 unnumbered pages, 120 numbered pages (including the *Preludes geometriques*, the *Definitions nécessaires* and the books I–IV), two further unnumbered pages and 25 plates (Vagnetti 1979). The illustrations were engraved by Joan Blanchin and based on Nicéron's drawings, whose graphic abilities in the world of art, as confirmed in his prior texts, seem to be unquestioned.

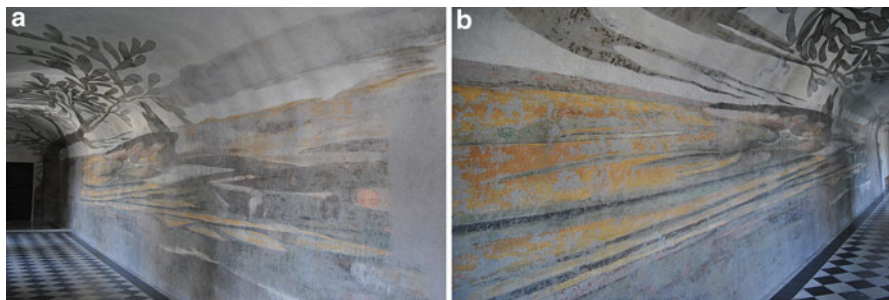
Nicéron, well aware of the level of sophistication that perspective technique had achieved between the Sixteenth and early Seventeenth century, approaches the problem of deformation that nowadays could be defined as 'projective' *avant la lettre*. He actually abandoned the practical expedients widely exploited until then, "... because it is a matter of small weight and for which it is not necessary to have any knowledge of perspective" (Nicéron 1638).

Nicéron shows a deep understanding of perspective theories in his treatise just as his Italian, French and German predecessors. The Minim Father assumes a leading role in the development of the discipline. Rather than Platonic, he followed an 'Archimedean' approach in the expository issues, which are more focused on



**Fig. 3** J.F. Nicéron, *La Perspective Curieuse, ou magie artificielle des effets merveilleux . . .*, chez Pierre Billaine, Paris 1638

application rather than on the speculative abstract. The directorship of optics is quickly established. Descartes asserted in his preface to *La Dioptrique* that sight dominates among all senses. Nicéron proposes and solves many problems of linear perspective with a clear and rigorous language. The theoretical explanation is reinforced by beautiful etchings on plates by Blanchin. Father Nicéron had no intention of supplying a critical document representing a summary of the best previous treatises, but to actually deal with “. . . kindness of the curious perspective,



**Fig. 4** (a, b). J.F. Nicéron, *St. John the Evangelist writing his Gospel in the island of Patmos*, 1639–1640. Colored mural painting. Convent of Trinità dei Monti, Rome. Images of anamorphosis. (Photo by the Author)

which, as they have amused him and distracted from the seriousness of theological studies, may not be disagreeable to the curious” (Niceron 1638).

From a critical point of view, Niceron’s theoretical and practical work appears to be closely linked to the works of Father Emanuel Maignan (1601–1676). The relationship between these two men obliges us to investigate the speculative and artistic activities of our *thaumaturgus opticus* on the Roman monastery site. Nowadays the extraordinary catoptric astrolabe (1637) (De Rosa 2013) can still be admired in the convent’s corridor facing north. The corridor, when walking clockwise, is then followed by a second long corridor hosting the ‘perspectival painting’ (1639–1640) made by Father Jean-François Niceron using tempera paint. Niceron admits that this anamorphosis’s light-headed effect inspired the following anamorphic work by Father Maignan (1642) which is a grisaille painting depicting the founder of the Order, St. Francis from Paola (Fiorini Morosini 2000). The mural paintings were probably depicted within a quiet atmosphere of collaboration between the two confrères in the Roman convent. At the age of 29 Niceron and Maignan’s fellow Brother had also lived in the same College of Trinità dei Monti during Niceron’s first Italian stay from the 25th of May (1639) to the 28th of March (1640) (AGM n.d.).

It was precisely here that Niceron carried out the large anamorphic colored mural between 1639 and the early 1640s, which was then replicated – although with significant differences – in Paris (Minim’s Motherhouse in Place Royale) in 1644. It depicted *St. John the Evangelist writing his Gospel in the island of Patmos* (De Rosa 2013) (Fig. 4a, b). Father Maignan also created the anamorphic grisaille portrait representing the founder of the Order in this very same place in 1642: *St. Francis of Paola in prayer* (Ceñal 1952; Baltrušaitis 1984; De Rosa 2013) (Fig. 5). Although the work was restored (February 2009), and even with a few parts of Niceron’s painting missing, the artwork remains completely understandable. At first the mural was considered a fresco-secco. This information is significant because the analysis on Niceron’s *curriculum vitae et studiorum* has not yet revealed any particular reference of an advanced artistic apprenticeship. Since the anamorphosis





**Fig. 5** E. Maignan, *St. Francis of Paola in prayer*, 1642. Grisaille mural painting. Convent of Trinità dei Monti, Rome. Image of anamorphosis. (Photo by the Author)

of *St. Francis of Paola* and the catoptric sundial (Fig. 6) – both painted by Maignan – were created with the same technique, we can deduce that this method was chosen by the two scholars because it required an lesser degree of expertise. Nicéron, who had already demonstrated remarkable skills in the fields of decoration and design, probably chose fresco-secco painting due to its overt performance, simplicity and velocity. Moreover, it represented a sort of ideal technique capable of translating a complex optical-mathematical theorem quickly into painting. Nicéron considered the fresco as a whole and didn't contemplate checking and correcting the image while in process, as the strong optical deformity produced by the oblique position would have probably made it difficult to control every work carried out daily (“giornata”).

Although we have no references regarding *St. Francis of Paola*, the transference of *St. John* to an oblique image – from a projective and not mechanical point of view – was already present in *Proposition II*, in particular in the three following corollaries and the plates 12 and 13 of *La Perspective Curieuse's* Book II (1638), where Nicéron states: “Provide the method to describe any kind of figure, images and pictures, in the same way as the chairs of the previous statement, that is to say, in such a way that they appear confused in appearance, and from a certain point [of observation] they perfectly represent a proposed object” (Nicéron 1638). As recalled by Nicéron in his *Thaumaturgus Opticus*, on the mural painting, a long ancient Greek inscription arises on the book spine and reads as follows: “The Apocalypse of Optics, the Eyewitness of the Apocalypse” (Nicéron 1646; De Rosa 2006) (Fig. 7). The reference is clearly about the power of epiphany (*apokalypsis*

**Fig. 6** E. Maignan, *Catoptric sundial*. Convent of Trinità dei Monti, Rome. Image of the corridor with sundial and the window sill where the gnomonic mirror is positioned. (Photo by the Author)



meaning revelation) implying on one hand the anamorphic magic of the work itself, which discloses its contents only when observed from a specific point of view (geometrically and spatially fixed), and on the other hand the theological role played by St. John (Bessot 2005; Fratini Moriconi 2010; De Rosa 2013). St. John was the only human being to be sharp-eyed enough, which allowed him to contemplate the *True Light of the Word*. In fact, as in the theriomorphic attribute to the Evangelist, eagles are the only living beings able to soar in the sky's heights and look into direct sunlight without going blind. Niceron portrays the eagle next to and slightly forward of the Saint so that, when viewed from the front, its beaked head and one of its spread wings (the other, covered by part of the wall where the mural painting appears to be seriously damaged, is lost) become part of the background. It is a Biblical landscape where a descending sun is darkened by thick smoke representing a prelude to the *Parousia*. Perhaps the choice of such an atypical subject (for Niceron's mural painting) is to be found in this critical connection. Since it wasn't the object of a special veneration by the French Minims, St. John's figure must have been chosen for its complex ethical-philosophical meaning. On the one hand he was able to bring the word *Logos* (greek for *verb*) to God, thus reconciling Christian culture to a Jewish-Hellenistic vision of the world. On the other hand, not having deliberate abstraction that characterized his testimony of



**Fig. 7** J.F. Nicéron, *St. John the Evangelist writing his Gospel in the island of Patmos*, 1639–1640. Colored mural painting. Convent of Trinità dei Monti, Rome. Detail. (Photo by the Author)

faith, in his Gospel he only referred to “. . . what we have heard, which we have seen with our eyes, what we beheld, and what our hands have touched . . . life was made manifest.” He was therefore the eyewitness of the living Logos, an epithet with which John loved to be defined as (First Epistle of John). Even the Minim fathers (contemporaries of Nicéron’s pictorial work) were the first witnesses of anamorphosis’ scopic *catastrophe*: they were first startled and then reassured by its ongoing optical composing and decomposing. In this act of witnessing, assigned by Nicéron to the ocular nature of his painting, it is still possible to see an item imputed to Cartesian speculation.

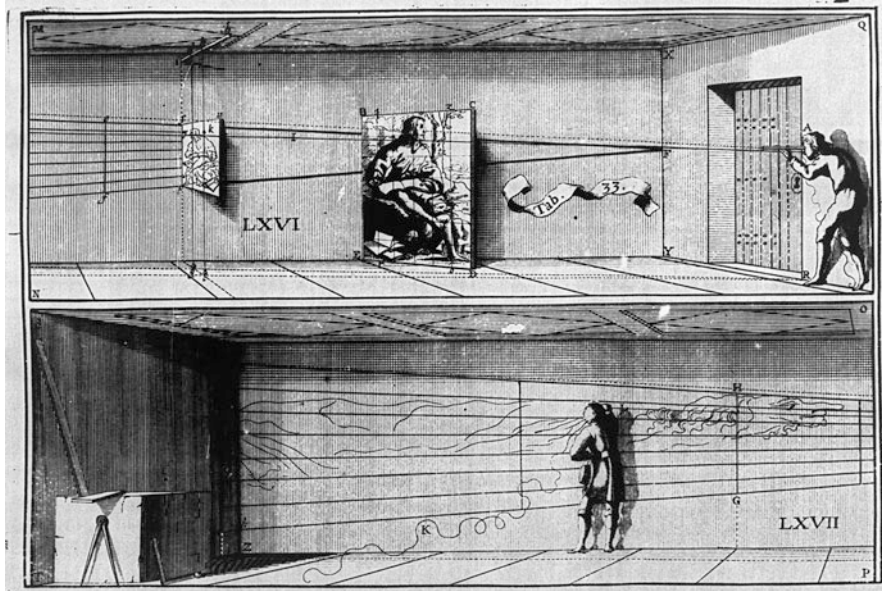
It might be this cultural environment that influenced the Latin inscription “CITRA DOLUM FALLIMUR” (“we are deceived without malice”) (Fig. 8) that adorns the pendant cartouche from one of the branches placed over St. John’s back. Fratini and Moriconi suggest (Fratini, Moriconi 2010) it is a quote from the *motto* that accompanied the title of the famous *Perspectivae Libri Sex* (Del Monte 1600) by Guidobaldo del Monte (1545–1607). Nicéron often refers to this author in his two treatises, underlining its rigorous mathematical and proto-projective approach to perspective – sometimes excessively abstract and complex. The tribute is to one of the most authoritative sources of science that the author most profitably cultivated. The depicted quotation, given its inclusion in a mural anamorphosis, is a critical reflection on the exercise of doubt. The presence of this and other pictorial and decorative works adorning both Roman and Parisian Minim monasteries on one hand constituted a breeding ground in which to test experiments in optical and figurative painting theoretically elaborated and therefore performed *in vitro* in treaties and studies; on the other hand these were the subject of a powerful reflection



**Fig. 8** J.F. Nicéron, *St. John the Evangelist writing his Gospel in the island of Patmos*, 1639–1640. Colored mural painting. Convent of Trinità dei Monti, Rome. Detail. (Photo by the Author)

on the Cartesian labyrinth, on what is visible and on the *falsa credita* which derived from it. On plate 33 of the *Thaumaturgus opticus* (1646) (Fig. 9), Nicéron provides a graphical summary of the projective method probably employed in order to achieve the anamorphic work in the Roman monastery.

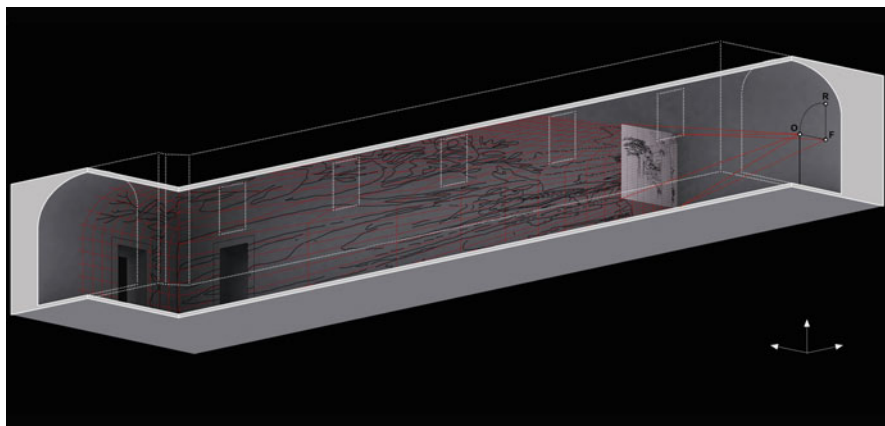
Surely he also used this method for the twin anamorphoses carried out in Paris. The *image* can be easily recognized: it is drawn in black-and-white and placed obliquely in respect to the wall surface in St. John’s recomposed portrait inserted within a network of orthogonal lines. In the text (Book II, XI proposition, III corollary) Nicéron clarifies the nature of the portrait’s subject and the color chosen for the dress – green – and for the Holy cloak – purple – but does not point to any source of inspiration: “Among the painters, it is accepted for common use and as usual the fact that, when they foreshadow the image of St. John the Evangelist, they represent the robe with the green and the cloak with purple” (Nicéron 1646). It is a reconstruction from memory – and obviously for didactic purposes – of the *sinopia* on which Nicéron’s Parisian anamorphosis was based circa 1645 (galleries of Place Royale’s Convent) and in accordance to a precise decorative program, was executed shortly before his death. Nicéron describes his work in Paris with these words: “. . . Instead, by that one drawn here in Paris we show directly in BCDE the prototype from which, by means of the exposed method, the projection was obliquely transposed on the wall. As we have already said, this is not to be seen as a naked projection with oblique rays, but in it are offered to a direct view many other objects not disagreeable or ugly: here, we have them listed and provided as an example, especially because, at a given circumstance, a similar reproduction might be attempted, and even obtaining one more beautiful and elegant” (Nicéron



**Fig. 9** J.F. Nicéron, *Thaumaturgus opticus*, Paris 1646. *Liber secundus, Propositio Undecima, Plate 33*

1646). The size of the anamorphic painting had to be remarkable, as it was placed in an aisle: “. . . twenty-four feet long (33,78 m), where the aforementioned image projection covers fifty-four feet in length (17.54 m) on a wall of at least eight feet in height (2.60 m), and the ocular point which is perpendicularly at five feet (1.62 m) from the wall or delineation surface, it rises above the floor only four and a half feet (1.46 m). We could not delineate with these proportions the given figure, because of the restricted size of the panel where we located it” (Niceron 1646).

Niceron’s pictorial invention had to overcome all of those previously carried out, for the choice of a religious theme so relevant for Christianity (the revelation of the end of Times, the beginning of the New Kingdom to the Saint), but also because the landscape hidden in the anamorphic portrait had to show a second and more dramatic exegetical level than was already seen in his Roman *St. John* and in *St. Francis of Paola* by E. Maignan. The picture is shadowed with soft colors and flimsy appearances, so that “. . . we are no longer looked at from a far and oblique point of view (Niceron 1646). Walking along the portico, one could describe it in this way: “. . . in the dark and shadowy folds of green tunic, [. . .] intricate forests and dense woods of impenetrable trees. In tunic’s more enlightened parts or in foreground, [. . .] instead blondes ears and already ripe harvest. In his Candid belt, flowing water from rivers and spring; in white sheets of the open book, a large lake, and in it a harbor, beaches, ships, fishing etc. In the head, caves, caverns, steep cliffs, rocks, buildings: rather, the ruins of the whole city of Babylon, next to which we place even of angels playing the trumpet” (Niceron 1646).



**Fig. 10** Axonometrical view of the eastern corridor in Trinità dei Monti, Rome. Digital reconstruction of the projective process generating anamorphosis. Digital elaboration by Cosimo Monteleone/Imago rerum/luav

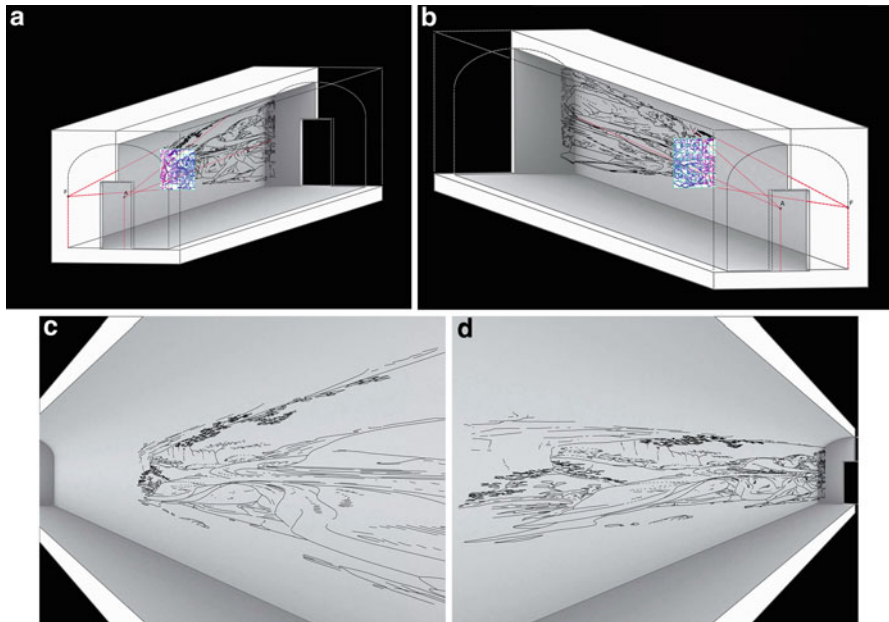
Only by moving away from what Nicéron defined as an ocular point (perhaps placed in the corridor's threshold that allows access to the library of the Convent in Paris), visions and mysteries appeared narrated in the Apocalypse's various chapters that are reproduced figuratively in a growing vertigo of sight so compelling that the author himself was disinclined to self-celebration. If not for purely rhetorical purposes, the author had to admit that all of this had been reported by the Greek words painted on the Evangelist's book. "The Apocalypse of Optics, the Eyewitness of Apocalypse [...] Thus, in the pages of the open book, between the lines of written text or between the verses we represented land furrows, and in them that grazed flocks and shepherds that guarded them; so, in the purple cloak of our Evangelist I represented the harvest which, in the fourteenth chapter of the Apocalypse, is said to be whipped up horse bridles and to be flowed to one thousand six hundred stadia; in addition, we represented in heaven, sitting on a cloud, the one who sank the sickle into the earth and sent the angels to harvest the grapes of the vineyard. Rather, even from the face's features, by applying suitable colors, we painted with care a barrel or a cask from which, crushed grapes, flowed the harvest" (Nicéron 1646). From the comparison between Nicéron's Roman painting (finally visible today), and Nicéron's drawing according to the Parisian anamorphosis (now disappeared) – we can clearly see that the postures assumed by the Saint in the two images were totally different. Nicéron's drawing is the only evidence of the original anamorphosis. In the Roman image, St. John is bent forward towards the page where he is writing the Apocalypse. His gaze is focused on the draft of the prophecy which is reified in the biblical episodes anamorphically hidden in the surrounding landscape where his body is created. Above all the eagle is a decisive element as his theriomorphic attribute appears



**Fig. 11** Orthophoto of the wall surface of the western gallery on the first floor of the Convent of Trinità dei Monti. Digital elaboration of the point cloud showing the reflectance value in grayscale. Rendering by Cristian Boscaro/Imago rerum/Iuav

in front of his body. In Paris, instead, the Saint is portrayed in a proxemically open posture, not leaning on the tome, his legs are tightly wrapped around the eagle's neck. In Nicéron's drawing the gaze of the subject is precisely directed on the library of the Convent in Paris. The landscape is barely traced – (composed by a tree where ivy wraps around a branch and rocks are placed in the background) and appears suggesting its 'narrative' development in the anamorphical transformation. Therefore a logical correspondence between the figurative structure of the image and the biblical episodes – which should have been concealed in it – is not possible, although it had already been described in the treatise by the author.

In this work Nicéron theorized how anamorphosis could be applied to extensive wall surfaces, allowing the creation of proper mural paintings like those he had already carried out in Rome and Paris (Figs. 10 and 11). In addition to the anamorphic representations, depicting *St. John the Evangelist* in the two famous Minim Convents, the author painted another accelerated perspective (probably accomplished in the fresco-secco technique) in the Paris Cenoby – 'en perspective' according to the Convent's annals – which had as its subject *The Magdalene contemplating in the Sainte-Baume cave* (1645) (Fig. 12a–c), which was finished after Nicéron's sudden death by Father Maignan during his visit to Place Royale in 1662. We know that Nicéron adopted a similar approach to Maignan's while creating the extensive Parisian paintings. This was directly taken from Dürer's 'sportello,' which the author further discusses in the previously mentioned plate in his *Thaumaturgus opticus*. Nicéron also uses 'gallows' connected to a shifting plumb wire that identifies a point in the rectified portrait allowing it to be projected anamorphically on the wall of the mural. This work established that Alberti's and Dürer's perspective had been overcome just as Maignan's which at present is still visible. The work was imagined as an open window, a reality offered to the painter's eyes where the anamorphic frame is already fitted with a perspective image drawn in true shape inside a square network projected on the wall surface. Therefore it no longer exists "... the intersection of the visual pyramid that separates the subject from the object, or the simple projection of the object on the plane of intersection. Now, on the plane there are depicted images projected by the mind" (Ciucci 1982).



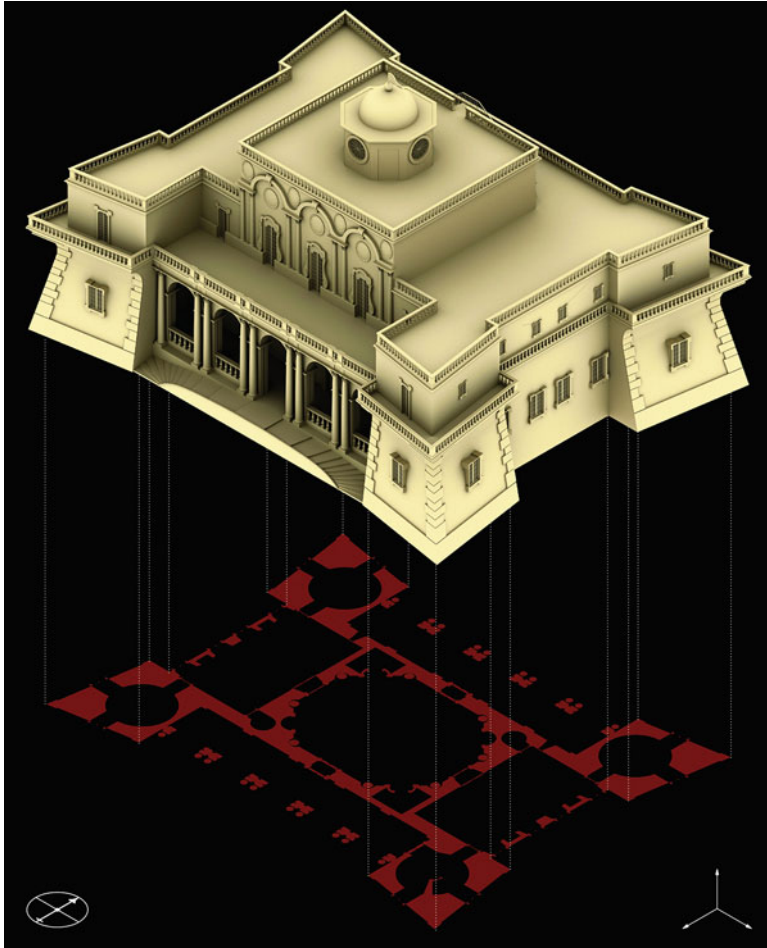
**Fig. 12** (a–d) J.F. Nicéron, *The Magdalene contemplating in the Sainte-Baume cave*, Paris 1645. (a–b) Digital model of the northern gallery of the Place Royale Minims Convent, Paris. Axonometric reconstruction of the relationship between oblique projection, image and right point of observation. Digital elaboration by E. Trevisan/Imago Rerum. (c–d) Digital model of the corridors of the Minims Convent in Place Royale, Paris. The progressive Christological intensification of the frescos itinerary ranging from the Aubervilliers corridor to St. John’s. Digital elaboration by E. Trevisan/Imago Rerum

## The Project for a Scientific Villa in Baroque Rome as a Mirror of Time

Within the Roman context of the seventeenth century, scientific research is well summed-up by an unbuilt project that emerged from the collaboration between an architect and a religious man: Francesco Borromini (1599–1667) and the Minim Friar Emmanuel Maignan (1601–1676), (Figs. 13 and 14). The fortified villa, belonging to Virgilio Spada (the secret almoner and superintendent of the papal properties), was built by Borromini outside the Gate of St. Pancrazio in Rome as a residence for Cardinal Camillo Pamphilj.

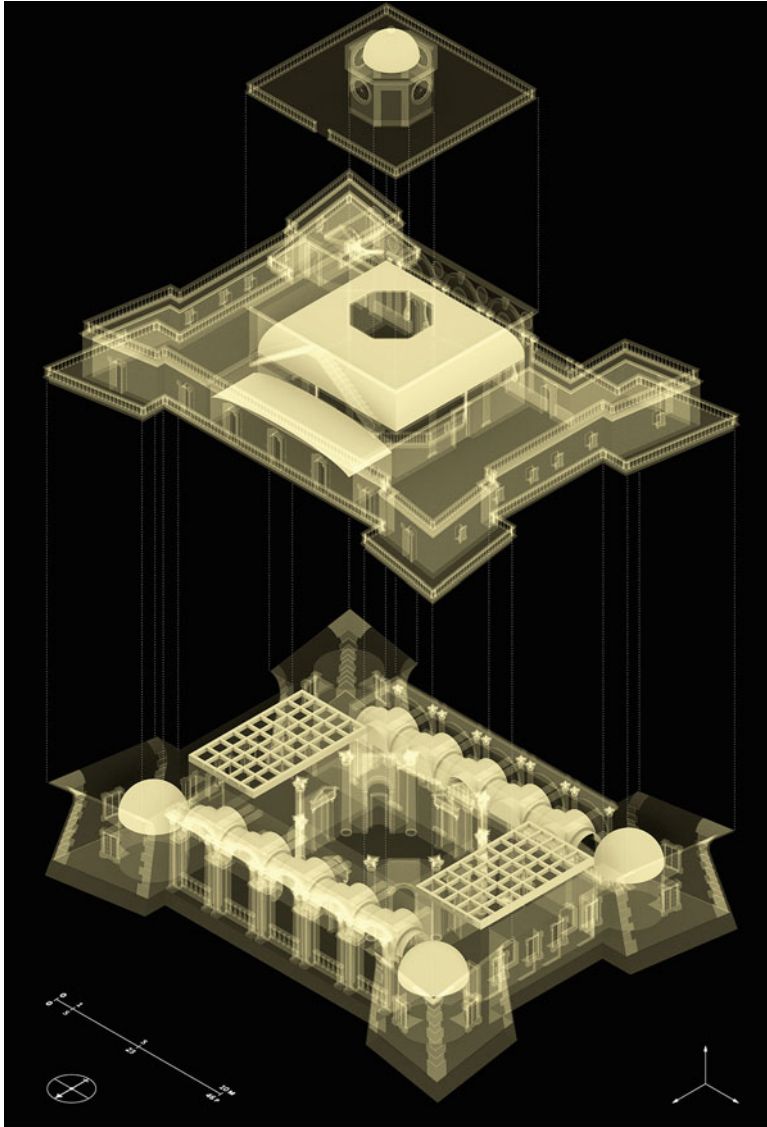
The material related to this project, accredited by Paolo Portoghesi to Borromini (Portoghesi 1964), is composed by two technical drawings, a plan proposing a façade in two different styles and a sketch plan, with some alterations compared to Borromini’s plan, made by Virgilio Spada. Among Spada’s papers there is a letter addressed to Camillo Pamphilj written by Borromini and also a manuscript including some pages entitled *Mathematics to Adorn the Garden of His Eminence Mr. Cardinal Panfilio*. The translation into vernacular language of a document





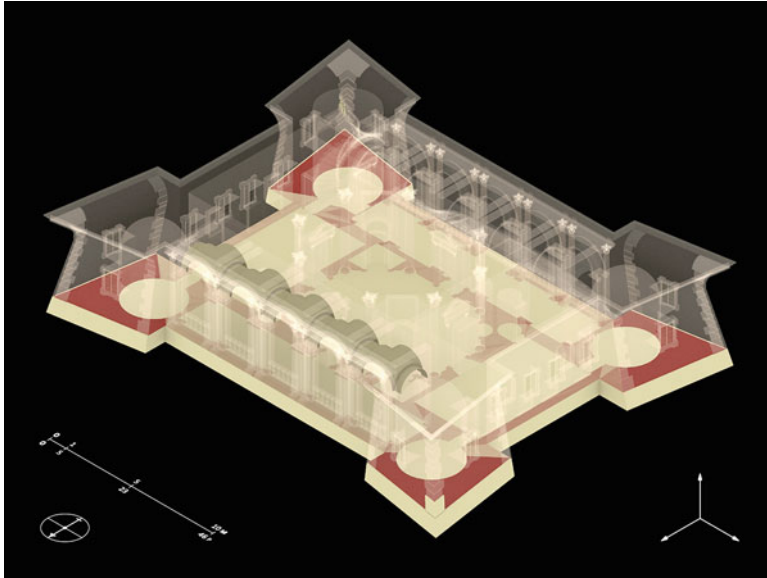
**Fig. 13** Digital reconstruction of the project for Villa Pamphilj: isometric-axonometric projection from South-East

entitled *Mathematica Pamphilianos hortos exornans* has recently been found. The text is in Latin and uses a more accurate lexis than the quoted version in vernacular. It shows a detailed and a very accurate list of scientific games that would have been installed in the villa. The above-mentioned ‘games’ (*mirabilia*) represent the main fields of research carried out by some eclectic Baroque personalities. These characters often belonged to religious orders and used scientific, theological and philosophical speculations in their works. The authorship of the work was accredited to Emmanuel Maignan (1601–1676) by Paolo Portoghesi and Filippo Camerota (Camerota 2000), a Friar from the Order of Minims who lived and taught in Rome at the Cloister of Trinità dei Monti for some years.



**Fig. 14** Digital reconstruction of the project for Villa Pamphilj: axonometric exploded view from North-West. In evidence the different coverage systems of the interiors

The manuscript *Mathematica Pamphilianos hortos exornans* written by Emmanuel Maignan is composed of four pages where, as stated above, some ‘mathematic’ Wonders are described and designed to adorn the villa. These Wonders are divided into a list of 21 numbered points that seem to represent the whole of ‘scientific-experimental’ knowledge of the time on optics, gnomonics, existence



**Fig. 15** The cross vaults of northern loggia on which anamorphic catoptric images have been drawn

of void, acoustics, magnetism, and so on. At this point we would like to describe, through digital reconstructions, some ‘games’ using mirrors or lenses generally employing rule of reflection and refraction.

Point number 5 of the manuscript speaks about the north side loggia on the north side where one could find some Wonders linked to catoptric science (Fig. 15). In particular, sketched distorted figures will be in the cross vaults. These images would appear distorted if facing them directly, but would become recognizable if observed through their reflection on mirrors of extraordinary size. The mirrors would be conically shaped, and one would have to align the mirror relative to the axis of the cone itself (Fig. 16). A reference can be found in the work of Jean François Nicéron *La Perspective Curieuse*, whose third book is explicitly dedicated to the “aspect of flat mirrors, cylindrical and conical; and the way of building figures, carrying and representing for reflection something entirely different than what appears to be directly seen” (Niceron 1638). The content suggested in this part of the treatise would not have been sufficient for the installation described by Maignan. In fact, there is an element introduced in the *Mathematica Pamphilianos hortos exornans* that complicates the execution – making it even more complex. The surface on which the distorted drawing is placed is not planar, but will be composed by portions of the cylinder (orthogonal to each other), forming the rib vaults of each span. The original figure will not only be deformed when properly observing it as a reflected image, but will also be distorted in its projection on the ribs of the vault (Fig. 17).



**Fig. 16** Perspective view of Christ distorted image from the correct point view which is recognizable as a reflection on the conical mirror positioned on cross vault

Within the digital environment the problem was overcome by the use of a function that can ‘bounce’ the generatrix of the visual cone, passing through each point of the figure to be deformed on the mirrored surface. According to the rule of reflection, the angle formed between the incident ray and the normal in that point on the surface must be equal to the one formed between the normal and the reflected ray (Fig. 18). In order to obtain the anamorphic image on the rib vault, it was sufficient to extend the vectors up to the four ribs. The subjects chosen for this ‘game’ were the portraits of four Popes used for a dioptric ‘game’ that will be exposed to the next, plus Christ who occupies a central position on the plate 25r of *La Perspective Curieuse* by Nicéron (Fig. 19).

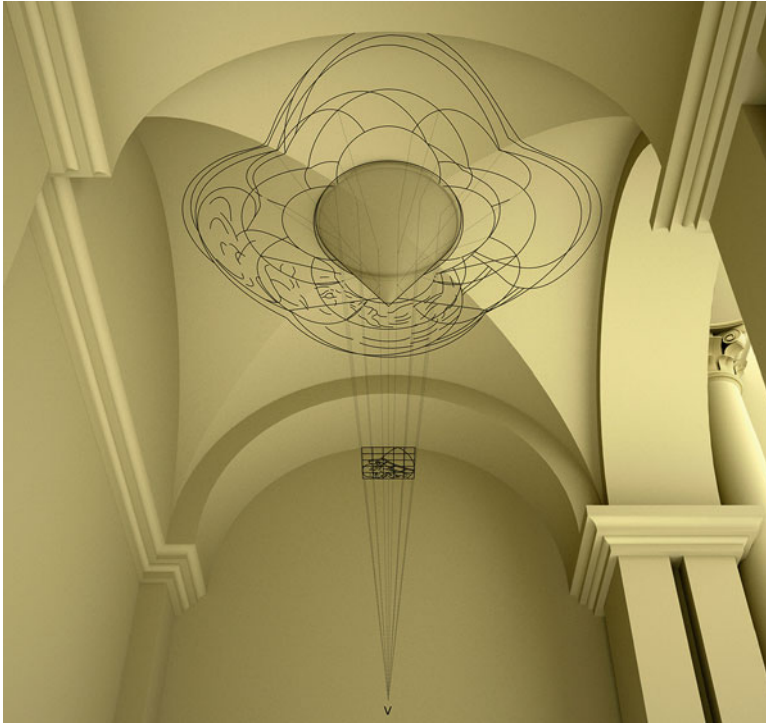
Another optical ‘game’ is described in the fourth point of Maignan’s manuscript. It is exactly the one proposed by Jean François Nicéron in Book IV of *La Perspective Curieuse*. On another occasion we have examined the apparatus described in this section of the treatise which requires the use of prismatic lenses (*polioptrum*) examining it from a historical, scientific and geometric point of view (Bortot 2013). The device had to be placed in the southern loggia and was composed by a painting that shows some portraits of important people. One man only can be seen if observed

**Fig. 17** Perspective view of three conical mirrors on cross vaults



through a tube provided with a polyhedric lens positioned at a precise point in front of the drawing that is supported by a statue.

This lens is accurately described by the Minim Friar (Fig. 20) in Plate 23 of his work. Instead, Plate 24 shows an example of sketched painting: some portraits of Ottoman sultans among which Amurates IV stands out in a central position. A top view of the lens appears at the bottom left, whose parallel frontal projection was supplied in the upper register of Plate 23. At the bottom right corner, there is the depiction of one of the ‘champions of Christianity’ of the epoch, Louis XIII. It is actually the portrait of the French King that would have been seen when observing the Plate with the effigies of the Turks through the monocle provided with the glass lens. According to the interpretation given in the above essay the apparatus of Nicéron would have had deep political implications: the political and religious pressure exerted by the advancement of the Ottoman Empire on the ports of the European borders would have created a collective phobia related to a possible supremacy of the infidels over Christianity. According to some scholars (Siguret



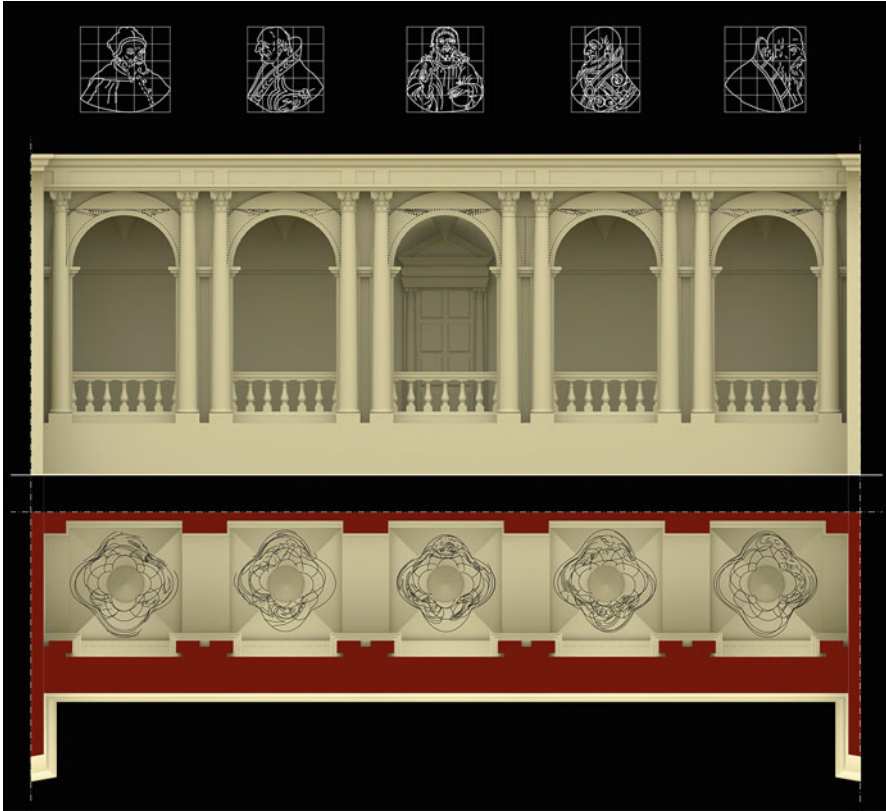
**Fig. 18** Reconstruction of *mirabilia* 5: the visual rays reflected by the mirroring cone are evident, (perspective view)

1993) the ‘game’ would hide a subtle irony: “12 heads of Turkish kings are worth the one of the King of France”.

A device, very similar to the one described, and attributed to Nicéron, is kept in the Museum Galileo in Florence (Fig. 21). The oil painting also shows some half-length portraits of Turks sovereigns and would have however shown the icon of the Grand Duke of Tuscany, Ferdinando II de’ Medici, thanks to the monocle. Another testimonial on the real creation of this ‘game’ is given by Thomas Hobbes in his work *De Homine* published in 1658. He probably saw it in the Minims’ cloister library in Paris during his forced exile due to his filo-monarchic ideas.

The optical ‘game’ efficiency is guaranteed by several factors: the position of the viewing point, the length of the monocle and its distance from the painting, the size of the painting and above all, a key factor: the inclination of both sides of the lens related to the refractive index of the material.

The results of the previous analysis using a digital three-dimensional recomposition of the lens had demonstrated that the Plate of the Ottomans, proposed by the Friar, was not just an abstract scheme, but could really be used to obtain the described effect with a certain compromise (Fig. 22). The complexity of this specific case derives from the precision of the calculation of the painting areas intended



**Fig. 19** Reconstruction of mirabilia 5: at the top one can see Popes images to be distorted through anamorphosis; in the middle and on the bottom orthogonal projections of the distorted subjects are shown

to ‘detach’ engravings or paintings from the surface, and then recomposing them digitally, thanks to the lens forming a completely different and coherent image (Fig. 23).

The rule of refraction was known in the seventeenth century, thanks to research carried out by René Descartes and Willebrord Snel van Royen (1580–1626); nowadays known as the Snell-Descartes law. In the last chapter of the *Dioptric*, Descartes describes a practical method to calculate the measure of a refracted angle by an apparatus provided with a prism cut into the shape of a wedge (Descartes 1637). The interesting thing about these measurements is in the topic of anaclastics, used in the production of lenses for scientific instruments (telescopes and microscopes). Descartes was fascinated by these prisms, able to create the so-called “science of miracles”, and also to use them to create ‘games’ that surprised the observer, but not only. We know that Isaac Beeckman (1588–1637) mentioned a hypothesis formulated by Cornelius Agrippa to Descartes, according to whom it

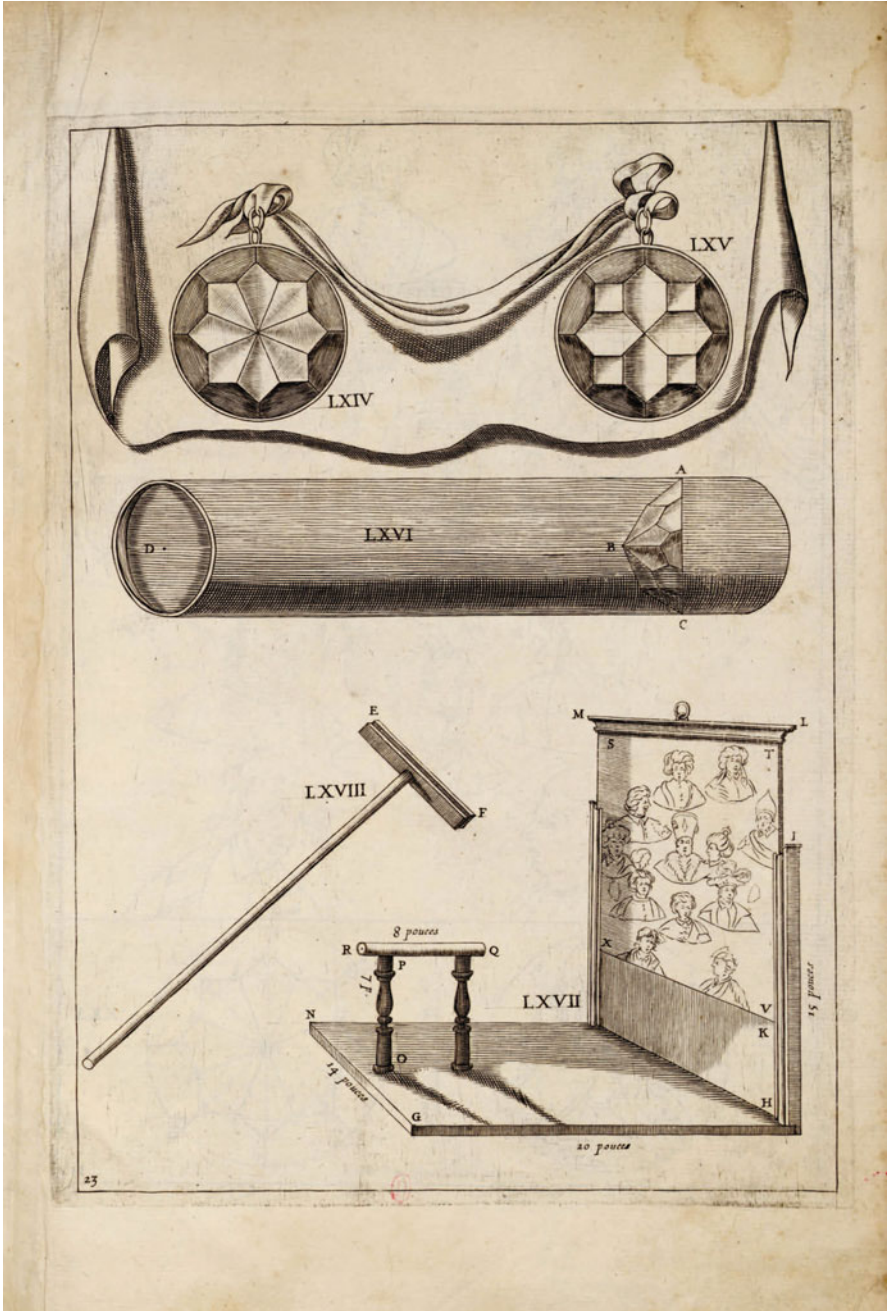
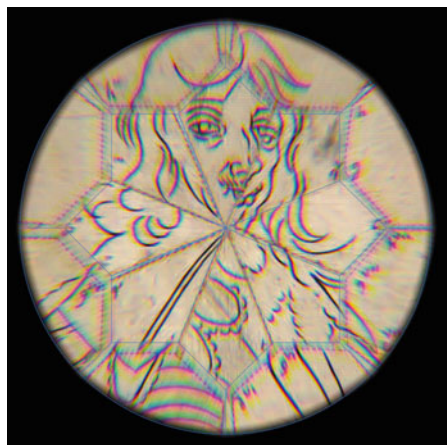


Fig. 20 J. F. Nicéron, *La Perspective curieuse* (1638), Plate 23r



**Fig. 21** J. F. Nicéron,  
*Optical game*, 1642. Museo  
Galileo, Florence, Room I,  
inv. 3196



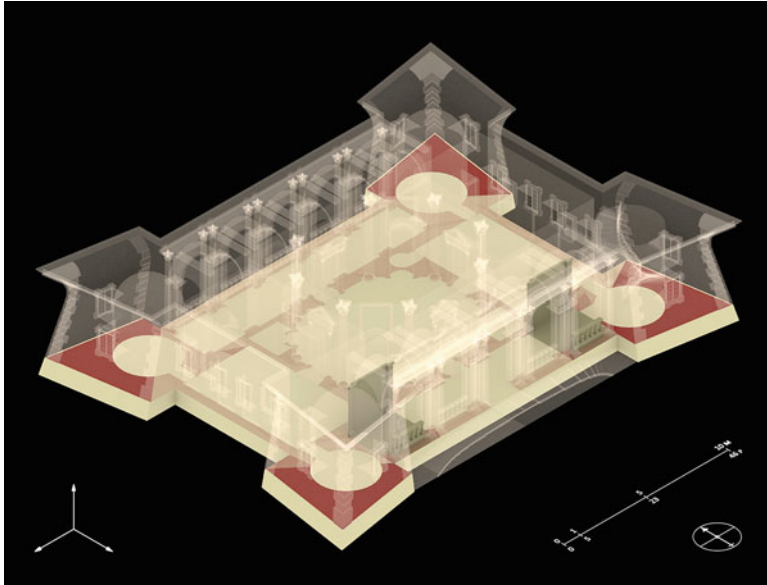
**Fig. 22** On the left one can find the rendering while looking inside the monocle; on the right the portrait of Louis XIII which is shown by Nicéron in his treatise



**Fig. 23** The functioning scheme of Nicéron's game. The refracted portion of painting appears to be detached from the canvas surface (axonometric view)

would have been possible to 'write letters on the moon' and then send messages to its hypothetical inhabitants. The philosopher replied that according to Giovanni Battista Della Porta (1535–1615) the experiment would have been achieved through the use of lenses. The certainty was so strong that in a letter written to Jean Ferrier, a lenses turner, dated back to the 13th of November 1629, he stated: "I dare hope that with your help we will be able to ascertain the existence of living beings on the Moon" (Shea 2014).

Going back to the adaptation of the 'game' to the 'mathematics for Villa Pamphilj', we should notice that in this case nothing has prevented us from installing the 'game' in the area suggested by the manuscript (Fig. 24) and putting the two statues provided with lens on the left and right side of the southern loggia (Fig. 25).



**Fig. 24** The areas of the villa in southern loggia where mirabilia 4 has been positioned, (axonometric view)

For simplicity, Plates 24 and 25 of *La Perspective Curieuse* have been chosen to show the images framed by the tube provided with prismatic lens (Fig. 26).

In the manuscript concerning Villa Pamphilj by Maignan, there is a description of a sundial which does not employ the traditional shadow projected by a gnomon, but a small mirror positioned on a window sill enabling it to reflect the sunbeams on the hemispherical ceilings which only cover the towers situated in the corner.

The direct reference to this *mirabilia* is represented by the sundials made by Emanuel Maignan in Rome (Fig. 27). One is placed in the cloister of Trinità dei Monti and the other in Palazzo Spada, not neglecting the ones that the Minim built before his stay in Rome, in Aubeterre (Dordogne), Toulouse and Bordeaux (not visible nowadays). According to Gianni Ferrari the most ancient catoptric clock, now only partially visible, would have been created by Nicolaus Copernicus in one of the towers in the Castle of Olsztyn in Poland approximately in 1520 (Ferrari 2005). Maignan is also the author of a book on solar clocks entitled *Perspectiva Horaria* (Maignan 1648). From the treaties' point of view instead, the oldest one dealing with this subject, although not as detailed as the Minim Father's one, is the one by the Jewish Raffaele Mirami, written in vernacular and entitled *Compendiosa introduzione alla prima parte della specularia*, published in Ferrara in 1582. There is also another, preceding the one by Kircher (1635), published by the German Jesuit Georg Shonberger (1622). It is important to confirm that Mirami's summary work was dedicated to the catoptrics in general, explaining the physical-geometrical principles, the applications to the perspective views in addition to gnomonics. In

**Fig. 25** Perspective view of mirabilia 4 from the garden facing the villa

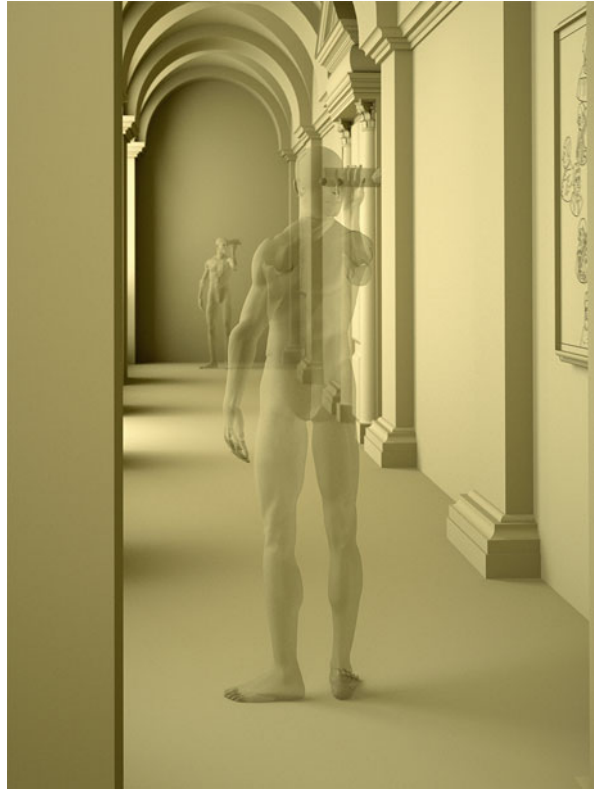


the first pages the author claims to have been inspired by Euclid: “ad Euclide, à Vitellone ad Alhazeno, et altri, che dottamente ne scrissero,” while and when he had to explain the practical ramifications of such matter, he refers to the use of “tali principi per illuminar luoghi oscuri, per voltare alcune sorti d’ombre [. . . ] per fare Horaloggi e per trasportarli da un sito all’altro” by introducing the ‘specularia’ (Mirami 1582).

This digital model has been built and inspired by the catoptric clock on the first floor of Trinità dei Monti Cloister. There are four time systems used for this device: the system of ‘hours temporarie’, ‘Italic hours’, the ‘babilonian’ and finally the one of ‘astronomical hours’. In the sumptuous astrolabe in Palazzo Spada (1644) created thanks to Maignan’s experience acquired at the Trinità dei Monti, the clock can also be read at night through a the projection moonlight. This device employs a circular wheel conceived for both daytime and nighttime reading.

Faithful to Maignan’s assumption “any sundial is a certain projection of a sphere and its circle toward some flat surface or any other kind of it” (Maignan 1648), we have reconstructed a ideal celestial sphere related to the latitude of Rome ( $41.9^\circ$ ), identifying the various hour lines and references that stay on its surface thanks to the intersection with some fundamental geometric entities such as cones of light,

**Fig. 26** Perspective view of mirabilia 4 from southern loggia



beams of light and plans of light (Fig. 28). The center of the sphere with its relevant fundamental entities was then positioned in correspondence with the center of the mirror located on the window-sill (Figs. 29, 30, 31, and 32). At this point the geometric light entities have been intersected one by one with the spherical vault which covers the circular environment and also intersected with parts of the walls above the ideal plane on which the mirror is located, generating a dense network of curves visible from the outside and inside of the room (Figs. 33 and 34).

Maignan suggests aligning the geographic locations in the world along the projection on the spherical vault of a perpetual rainbow obtained through a tool, *Iride Horariae Diopttricae*, demonstrated in Book III of his treatise *Perspectiva Horaria* making it possible to identify when midday occurs in the world (Fig. 35). In other words, the position of the arc will indicate the parallel where the sun is located. This varies during the course of the year, indicating the places every day in which the star is at its zenith. Maignan in his *Perspectiva Horaria* explains how to make a rainbow using a cylinder of glass passed through by a sunbeam reflected on the gnomonic mirror (Fig. 36). In order to obtain the desired effect it is not sufficient for the outer surface of the crystal cylinder to be smoothed. The surface needs to be sliced by making many grooves in order to amplify the refractive phenomenon.

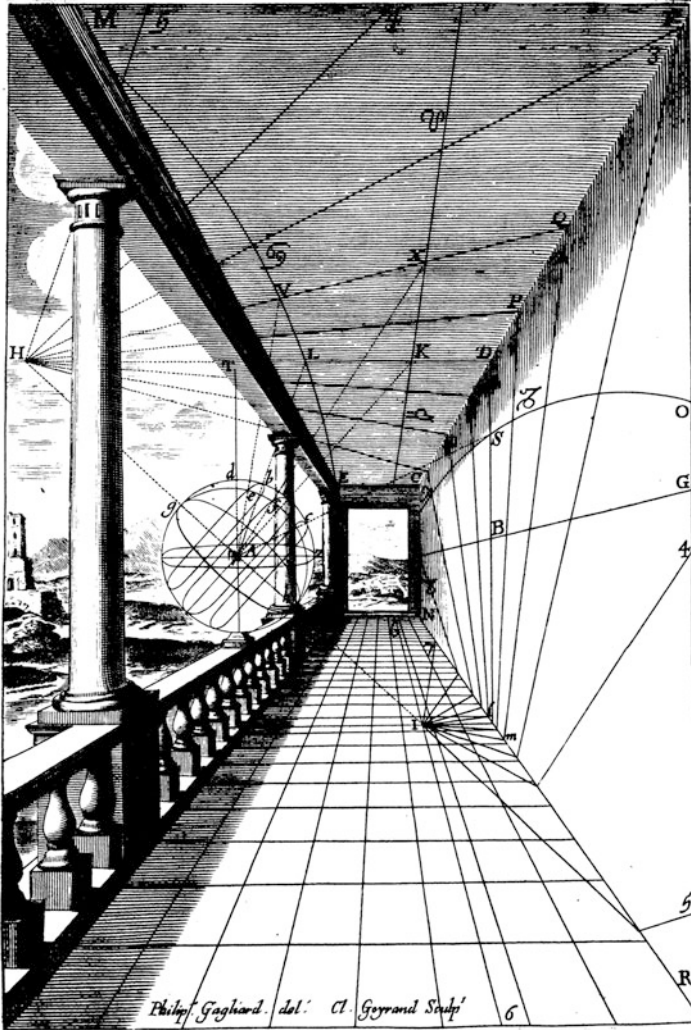


**Fig. 27** E. Maignan, catoptric quadrant on main floor of the Convent of Trinità dei Monti, Rome

A variation consists in the use of a cylindrical mirror (Fig. 37) which is useful to project an arch of light on the vault in this case (Fig. 38). This device is called *Iride Horariae Catoprticae*.

In point number 10 and 15 in Maignan's manuscript we can read: “[10] *In one or the other of the two parts, or in both, or in any other room through the art of dioptric itinerant images, lying or erected, can be made according to the art catoptric.* [15] *Outlining these various living rooms ad hoc you can build other marvelous works in addition to those already mentioned under n. 4, 5 and 6 with many kinds of mirrors arranged variously*”.

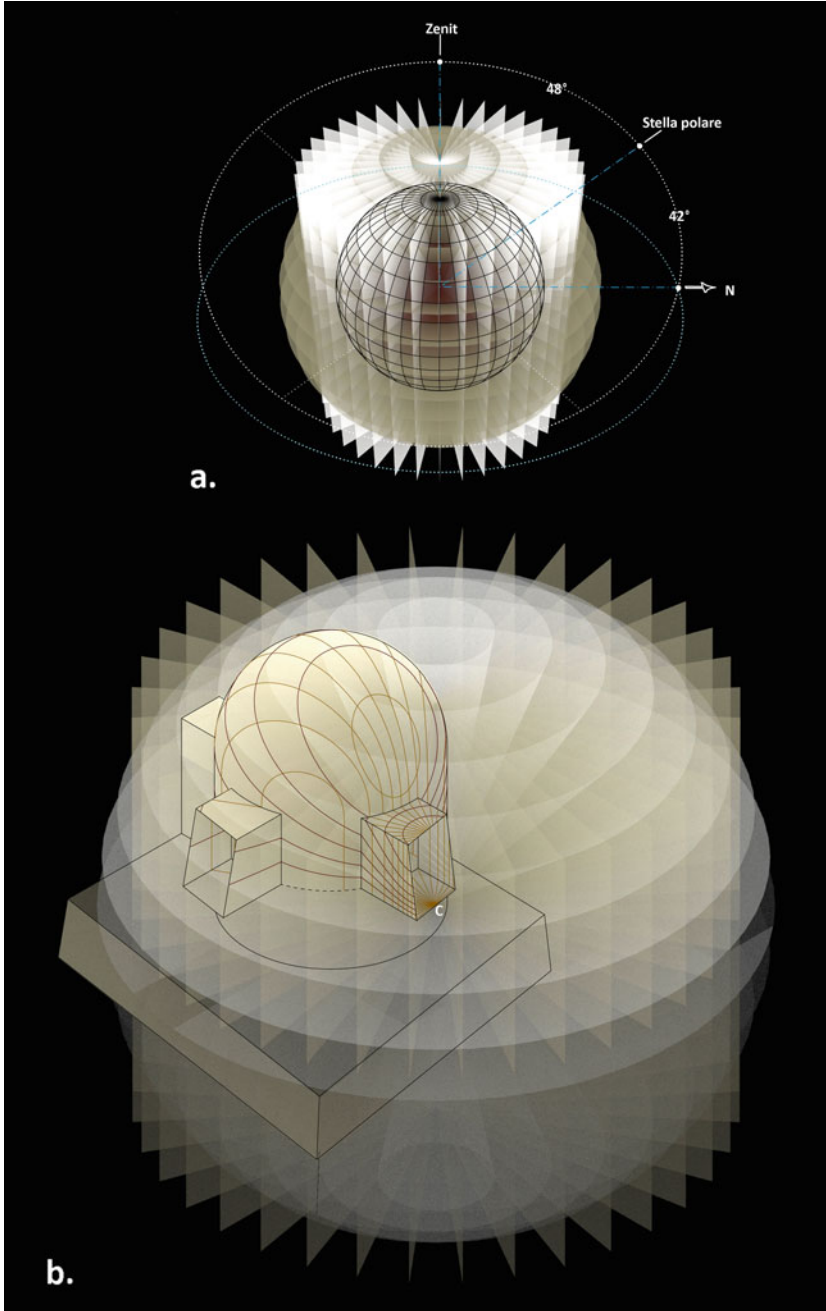
The two steps of these reminders are analyzed together because of their similar concept and the vagueness concerning their location inside the villa. The scientific apparatuses described are again intended to exploit the rules of catoptric and dioptric and can be placed in any room, as we can read in the manuscript. Since the previous games occupied the entire ground floor, we thought that they could be located on the first floor in the room towards west (Fig. 39). These Wonders have not been reconstructed digitally since their realization would have been quite arbitrary due to the vast repertoire of the time. We can recall some possible references that were perhaps in Maignan's mind. Upon reflection, the tradition of studies and experiments finds its roots in classical tradition. Euclid (367–283 b.C.) is the author of the first treatise we know about on optics, where he exposes his assumptions in two fragments: *Optic* and *Catoptric*. *Catoptric*, in particular, is divided into seven postulates born from the union between experimental observations and subjective



**Fig. 28** E. Maignan, *Perspectiva horaria* (1648), p. 334

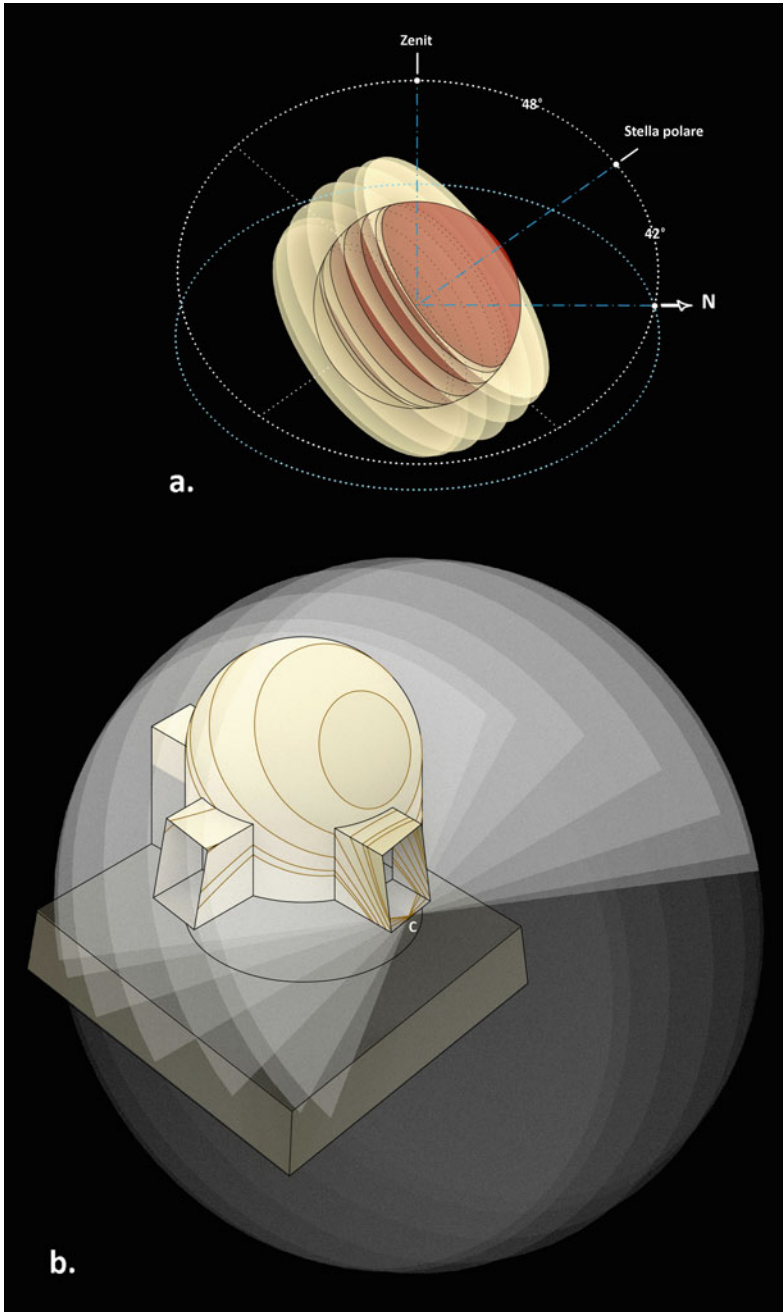
experiences observed by Cristina Candito (Candito 2010). However, the astonishing aspects of these tools come from Hero of Alexandria (II century b.C.) and constitute a direct connection with what is described in point 10 of the manuscript.

According to the studies by Nix and Schmidt (Nix, Schmidt 1900) a viewer would have believed in seeing a flying person thanks to the double reflection obtained through flat mirrors positioned at an angle (Fig. 40). The same effect will be resumed and described by Vitellione, whose *Perspectiva Libri X* appears in the frontispiece of the *Perspectiva horaria* by Maignan. The treatise by Vitellione remained a reference throughout the centuries and testifies to the descriptions of

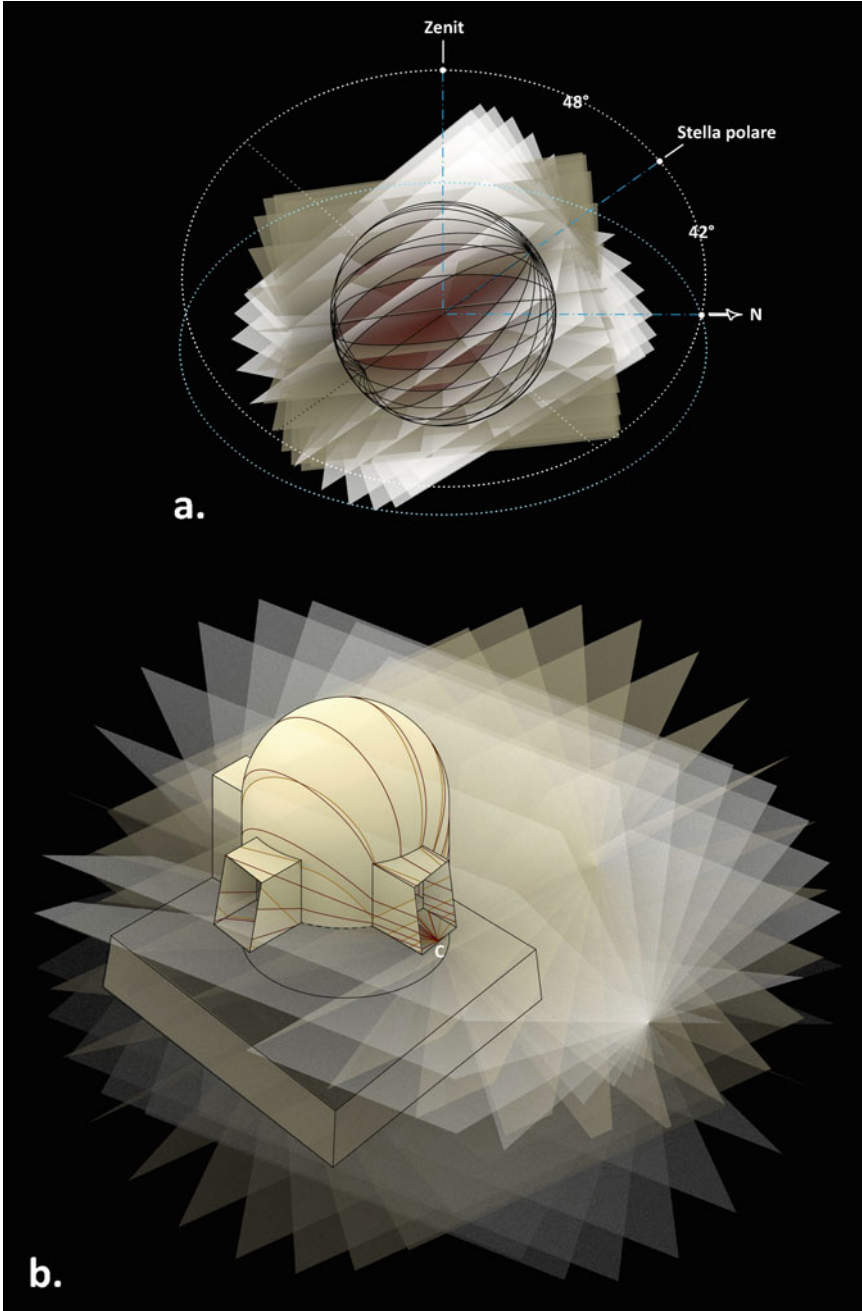


**Fig. 29** Celestial meridians and parallels which are obtained from the intersection of the room surfaces with geometrical elements in order to contain the catoptric clock

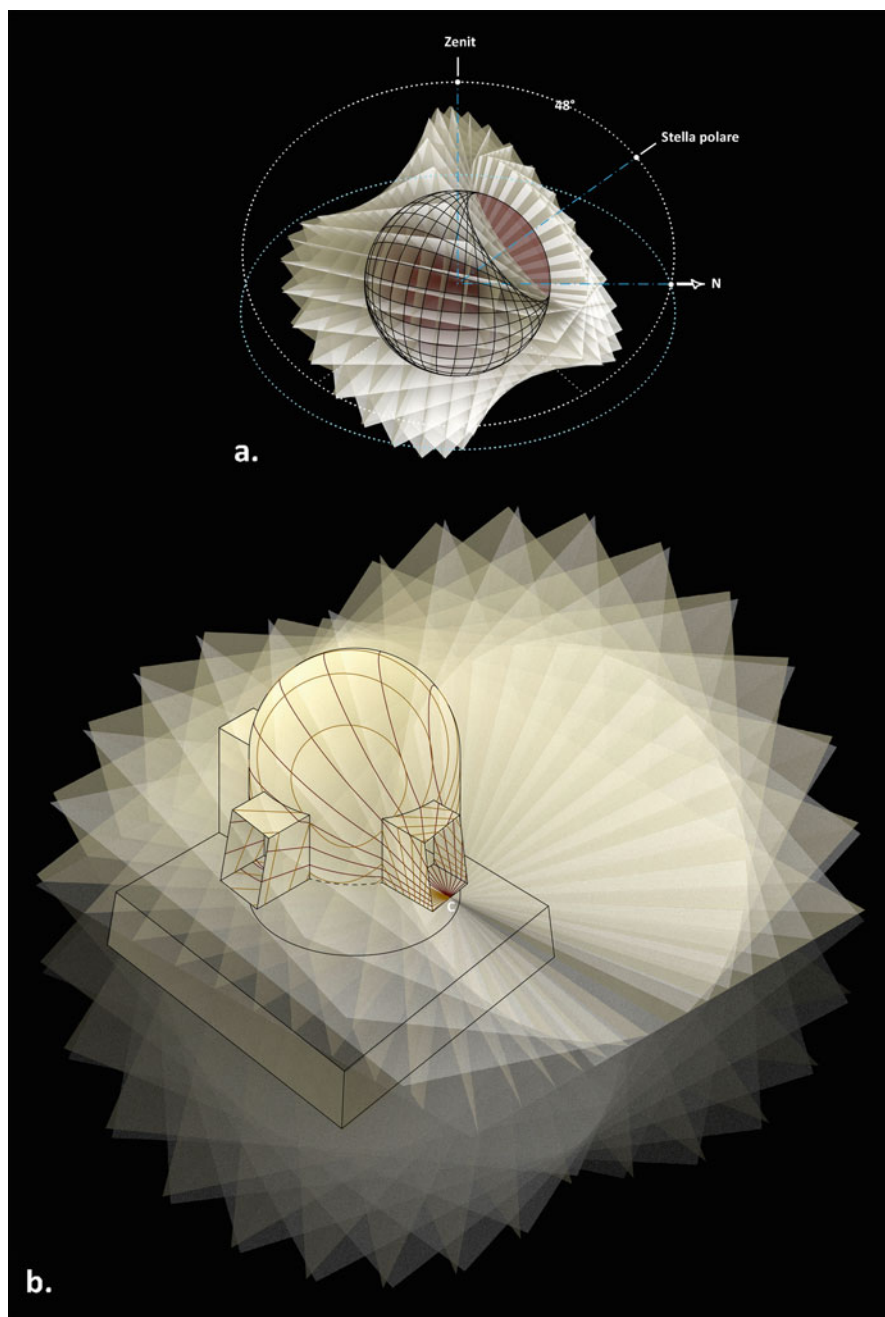




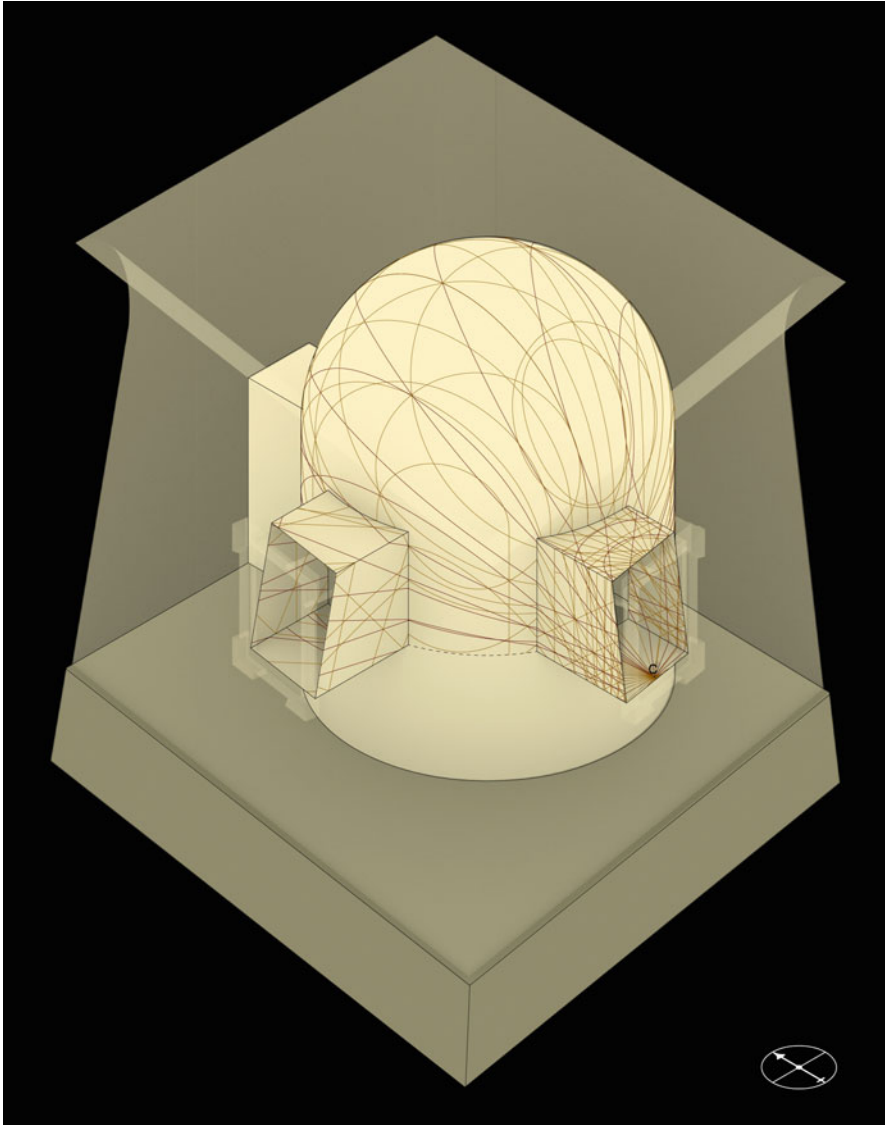
**Fig. 30** The Sun's declinations which are obtained from the intersection of the room surfaces with geometrical elements in order to contain the catoptric clock



**Fig. 31** Astronomic and unequal hour lines which are obtained from the intersection of the room surfaces with geometrical elements in order to contain the catoptric clock

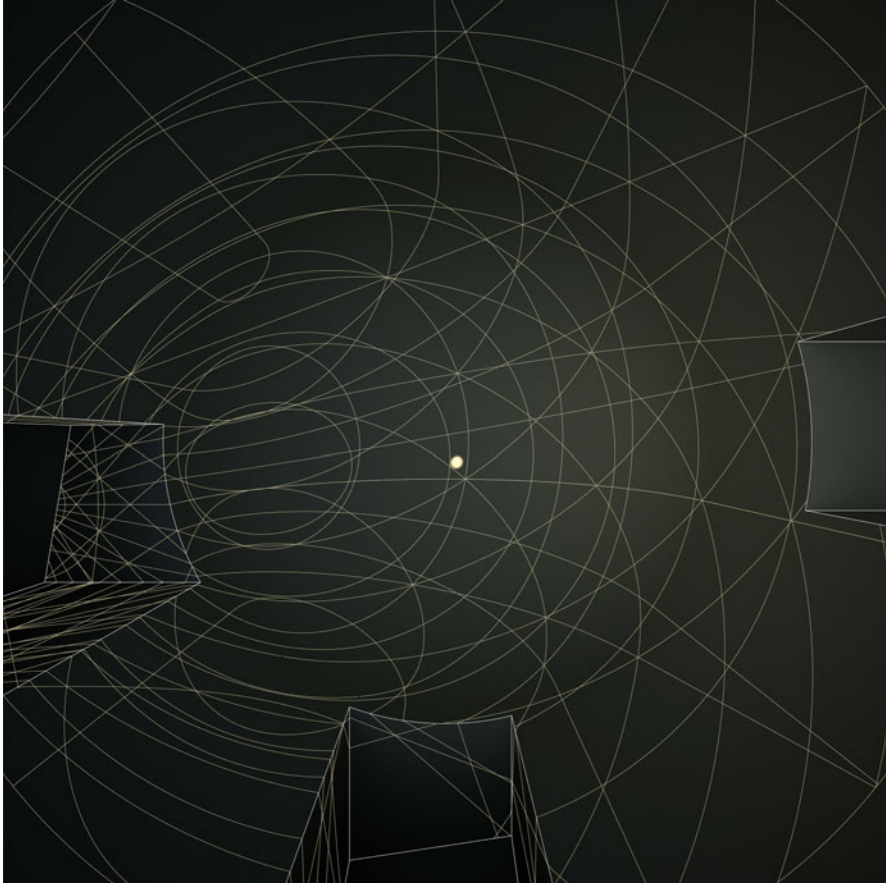


**Fig. 32** Italian and Babylonian hour lines which are obtained from the intersection of the room surfaces with geometrical elements in order to contain the catoptric clock



**Fig. 33** The net of the hour lines on the solar catoptric clock positioned in the south-western room, (axonometric external view)

a similar apparatuses in the works of Agrippa and Della Porta (Baltrušaitis 1981). Their books talk about flat mirrors capable of showing standing up figures or figures that fly caused by reflection which are instead lying supine. Using concave mirrors, it is even possible to create furthermore mysterious illusions: the mirrored image seems to be detached from the surface, according to rules explained by Euclid

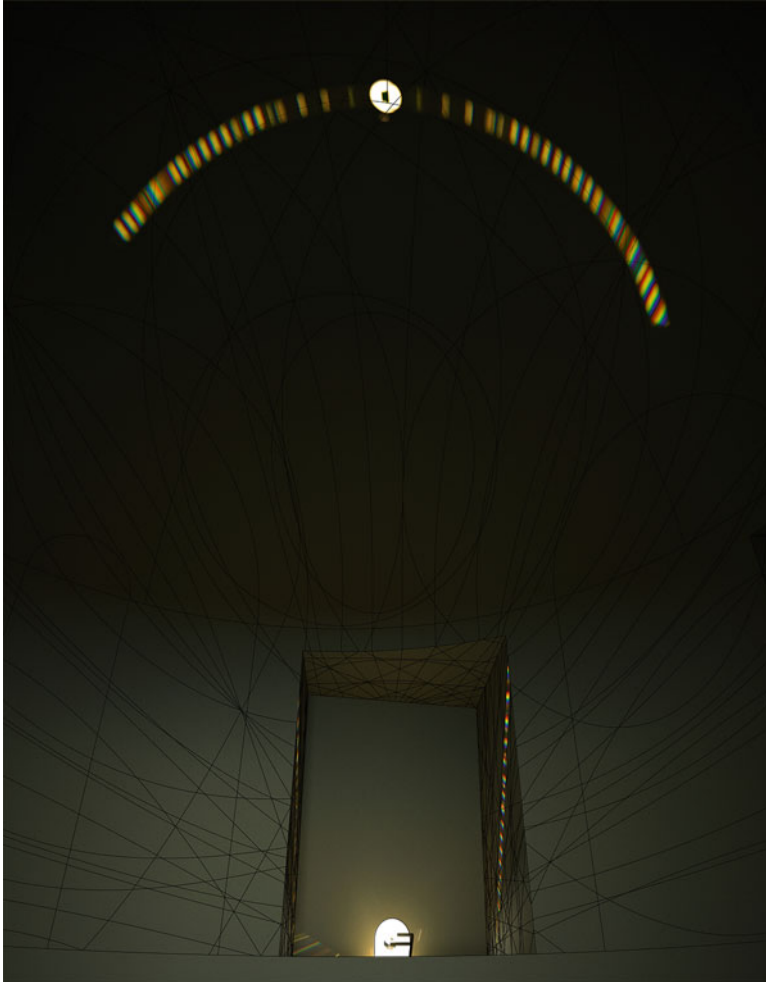


**Fig. 34** Inner perspective view of the south-western room from below; in evidence the projection of sunbeam

in *Propositio XVIII*, where the position of the observer and the mirror itself are geometrically defined.

The combination of catoptric and dioptric rule arouses some observations apart from the phantasmagorical effects which are produced. These rules were a support for the construction of instruments to enhance the vision (telescopes, microscopes), for reproducing images (magic lanterns) and for the science of perspective representation.

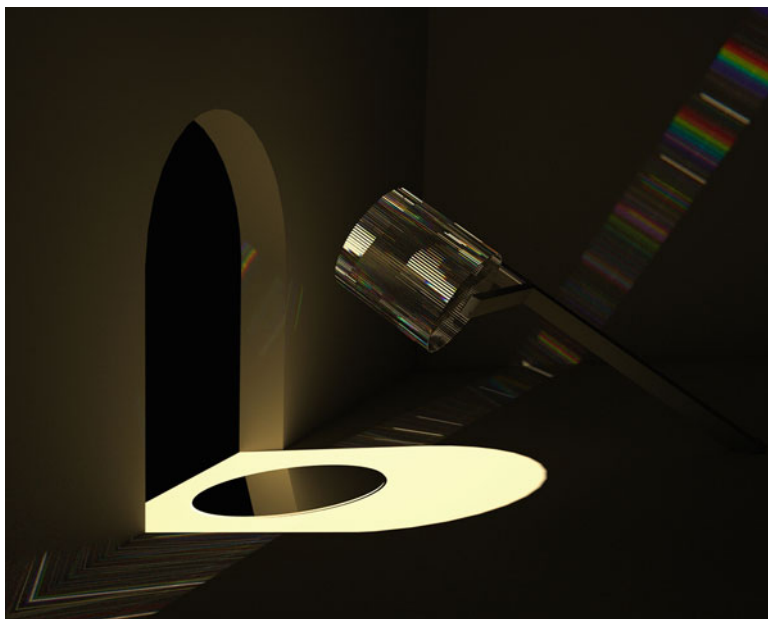
As it is renowned based on most accredited theories, Filippo Brunelleschi (1377–1446) himself used a mirroring surface for the realization of one of the two famous wooden boards in linear perspective, in particular the one depicting the Florentine Baptistery (about 1413–1425). In the following centuries, mirrors and lenses assembled in a single instrument became capable of reproducing the *imago rerum* as perceived by our sight. The sixteenth century represents a crucial point in



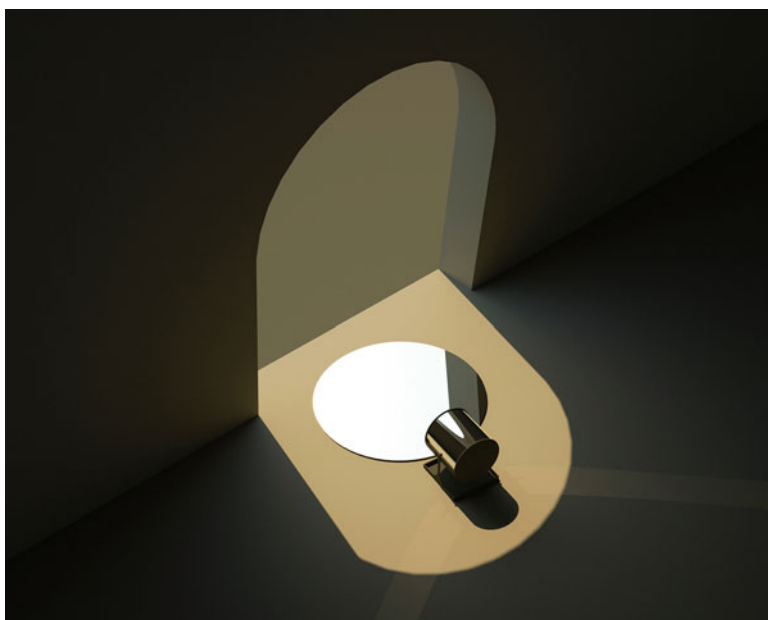
**Fig. 35** Inner perspective view of the catoptric solar clock and projection on the vault of the rainbow which is defined as a *Iridi Horariae Dioptricae*

the historical evolution of this device, thanks to the introduction of a lens in a hole made in the wall in order to improve the sharpness of the image projected from the inside of a room. Medieval authors such as Alhazen instead, was one of the main proponents; he regarded the dark room as a metaphor of our sight mechanism.

According to Martin Kemp (2005) the first reference to this innovation dates back to the *De Subtilitate* (1550) by Girolamo Cardano (1501–1576); although its full description can be found in the *Pratica della prospettiva* (1569) by Daniele Barbaro (1514–1570).



**Fig. 36** Cylindrical lens (with external grooves) which is able to break up sunbeams into their apparent spectrum



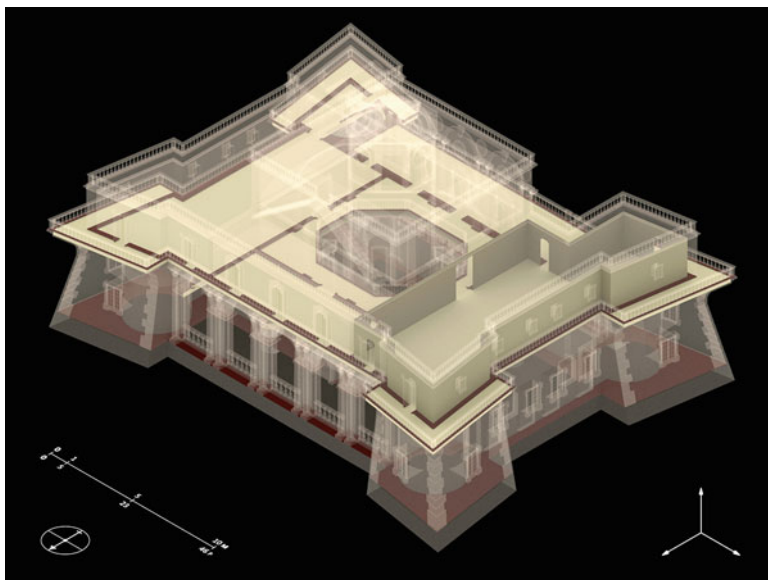
**Fig. 37** Cylindrical mirror to project a light arc



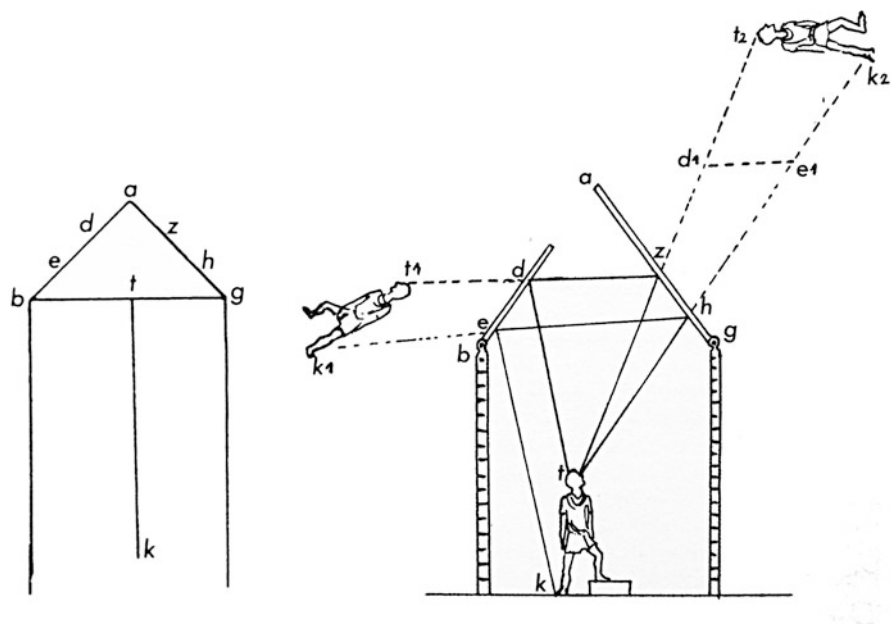
**Fig. 38** Inner perspective view of the catoptric solar clock and projection on the vault of the light arc described in E. Maignan’s scientific reminder (point 6)

The patriarch of Aquileia suggests applying an opaque filter to the convex lens allowing the light to pass through its central part only. The marginal aberrations of the projection due to the curvature of the crystal would be reduced doing so. Further innovations will arrive later caused by the need of flipping the image upside down. Therefore a mirror was introduced diagonally which reflected the rays after passing through the lens. The same problem was solved with the introduction of an additional lens. These dark rooms became portable boxes as shown by Johannes Zahn in his treatise, *Oculus artificialis Teledioptricus: sive Telescopium*, published in 1685 (Fig. 41).





**Fig. 39** The Villa's room on first floor where mirabilia 10 and 15 have been located



**Fig. 40** L. Nix, W. Schmidt, reconstruction of a catoptric effect as it is described by Hero of Alexandria

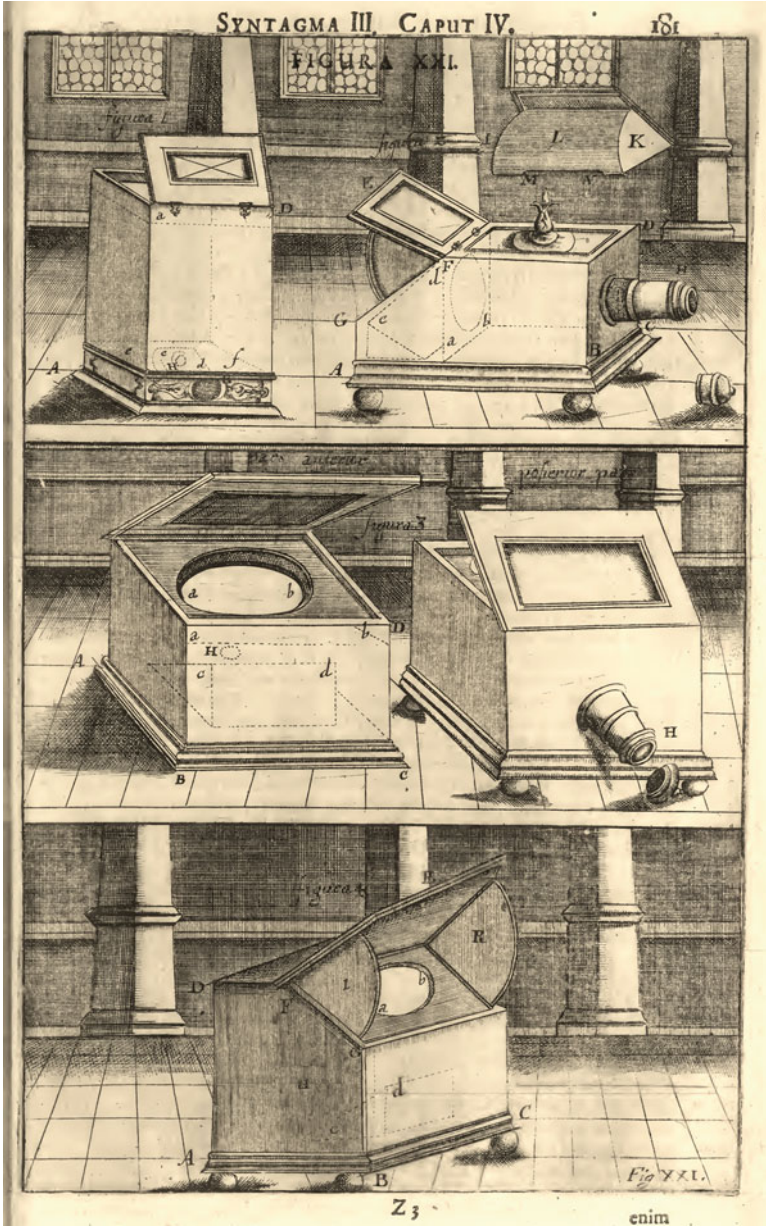
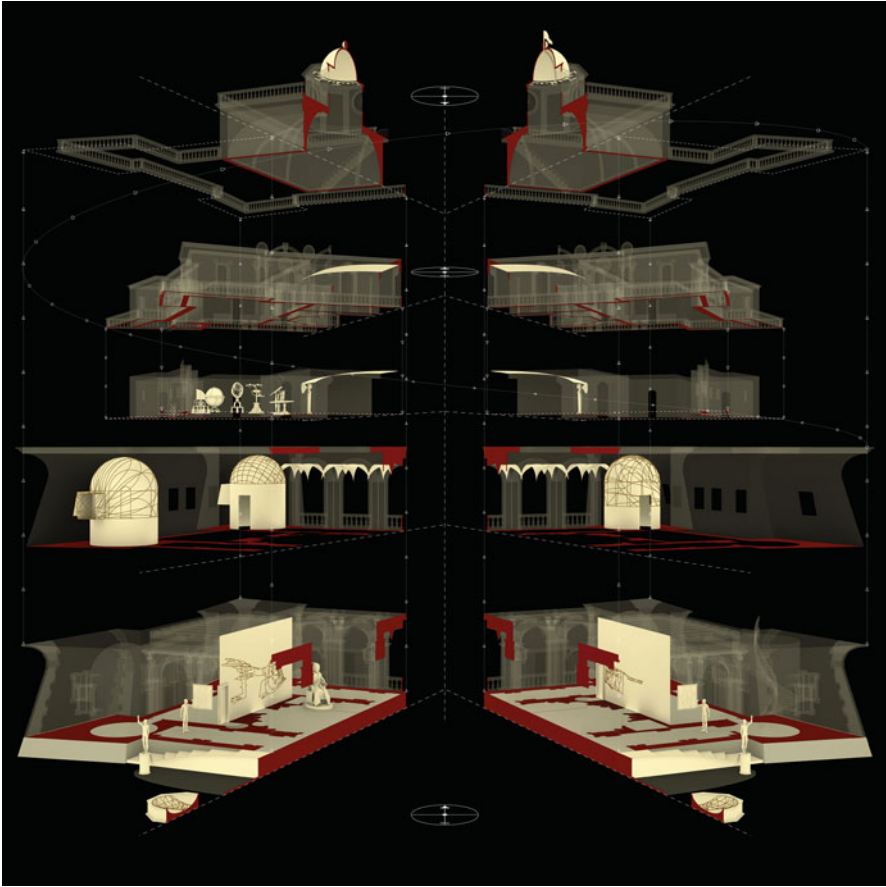


Fig. 41 Johannes Zahn, *Oculus artificialis* ... (1685), p. 181



**Fig. 42** Perspective exploded cross section of the digital reconstruction for Villa Pamphilj by Francesco Borromini; in evidence the scientific games conceived by Emmanuel Maignan

In the games described, mirror and lenses are employed in optics for anamorphic devices and in gnomonics in order to measure the passing of time. From this point of view we can affirm that the project for Villa Pamphilj conceived by the architect Francesco Borromini and the monk Emmanuel Maignan, and influenced by Jean François Nicéron, represents a wunderkammer of scientific devices (Fig. 42). The project also witnessed a new research method able to explain natural laws in the seventeenth century and at the same time created a sense of wonder in the visitors.

**Fig. 43** E. Maignan, *Perspectiva horaria, sive de orographia gnomonica tum theorethica tum pratica libri quattuor*, Rome 1648. *Liber Tertius. Catoptrice horaria sive horographiae gnomonicae. Propositio XXXVI. Linea Meridianam, in superficie horologii Catoptrico-Gnomonici plana...*



## Conclusion

The relationship between the two Minim Brothers beginning a few centuries ago only lasted 33 years and is now about to end. It is significant to supply the reader with a final image after having had to handle figures, patterns, distortions, anamorphoses and reflections that dominated this essay. Gagnaire gave some suggestions in an article (Gagnaire 2003) which we would like to share with you to observe the plate that accompanies the *Propositio LVI* (56) (Fig. 43) in the *Perspectiva horaria* by Emanuel Maignan in 1648. We can find a perspective of the other famous catoptric sundial carried out by the Minim Friar from Toulouse in Rome (Palazzo Spada), today headquarters of the State Council in Italy. As it is known, the work was conducted in 1644 on behalf of Cardinal Bernardino Spada, protector of the Order of Minims. In the image he accompanies three other visitors. He is the character on the far right, wrapped in a cape, with a hat in his hand and with the unmistakable goatee immortalized by Guido Reni in a famous portrait (1631). The work is now kept in Galleria Borghese, Rome. The identification of the other three defendants is more

complex. The Cardinal is turning his gaze to an area of the frescoed vault towards where the index of the main character is pointing. A nobleman wearing a cloak is turning around, perhaps interested in intensifying the gnomonic themes developed in the astrolabe. A rose in the fabric attached to a flap on his breeches is a distinctive sign tracing its identity: a heraldic symbol of the Orsini family. Next to the Cardinal, on his left, there are two friars facing each other. They are wearing a rope which represents the patience of the Minim Order. We suspect that one of the two is the inventor of the sundial or rather Father Maignan. The other man in the distance is directly looking upwards showing attraction to the gnomonic problem brought up by the unknown gentleman. His uneven features, spirited look and shaved hair make us think he could be Jean-François Nicéron. While the friar who is turning his back appears to be sturdy and bald, suitable to his rank of a priest, making us think he could be Father Maignan. A non-hagiographic bust was made by Marc Arcis (1655–1739) and kept in the *Illustres célèbrant les Grands de l'histoire de Toulouse* gallery in order to identify Maignan in the painting. He has “. . . a broad and powerful face, strong features, sharp eyes, which incline slightly to the side, as if to observe, reflect. The tight lips, finely drawn, slightly ajar, suggest questions already posed by the luminous eyes, scrutinizing. This careful look is discreetly emphasized by thin folds of leather and this contained tension leaves a vein slightly protruding on the temples. On the broad front, some wrinkles are formed, while on the upper part and on the sides of the skull, the rebellious strands, hot carved, soften and enliven this watchful look. From the robust aspect of an overweight man, a formidable intellect emerges.” (Julien 2005). In this image, just as in the portrait by Lasne, with which we have introduced in our essay, we find a space-time paradox insinuating: this must be Nicéron’s ghost, as he had died in 1646, 2 years before the work was painted. Nicéron had never been to this gallery, not even before that fateful date, since the parable of his brief last stay in Rome ended in October 1642. This painting was carried out after Nicéron’s death, enhancing the relationship based on discipleship and shared between the two Minims with a deeply human meaning. Maignan would have probably wanted his friar friend beside him once again, maybe only in a painting, the friend with whom he had shared academic and theological reflections, decorative projects, and wonderful visions gathered in the Wonders of artificial magic.

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