

## LOOKING FOR THE LIGHT RESEARCHING STAGE LIGHTING IN RENAISSANCE AND BAROQUE ERAS

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### **ABSTRACT**

The author believes that research on the history of stage lighting is not conceivable or interesting only from the age of electric lighting in theatres, and aims to illustrate how, even for the early modern theatre it is not only possible but desirable to define a larger research field, which is still virtually unexplored. For this task adequate methodological tools are needed, starting with the identification of the many types of sources that are useful for reconstructing this side of the history of the performing arts, such as iconography, visual arts, chronicles, documentation on court festivals, or archives of historical theatres and academies; but also the history of lighting techniques and devices; and the history of light also on the social and cultural side in the broadest sense.

Far from pretending to be exhaustive in describing such a vast and diversified domain, a few exemplary sources will be quoted or noted in passing that are useful in reconstructing this branch of theatre history, in order to highlight problems and develop methodologies of research and study. Given the scarcity of sources available, the recurrence of similar information in different sources is essential to establish widespread practices and concepts.

### **KEYWORDS**

stage lighting; fireworks; stage technique; performing arts studies

## THE PREMISE

La teorica non è difficile ma è più facile la pratica.<sup>1</sup>

Nicola Sabbatini

This is what Nicola Sabbatini wrote in 1637 in his famous treatise on stage technique, *Della Pratica di fabricar scene, e machine ne' teatri*, after enumerating a considerable number of technical “prodigies.” Sabbatini’s treatise is not one of the great theoretical works that propose innovations; it is more akin to a handbook, a text that lists and codifies practices; the machines he describes were realised in the Teatro del Sole in Pesaro.

Dating back to the same age as Ladislav IV’s theatre, the aforementioned quotation removes any doubt as to the verifiable existence of the described “mirabilia.” Although the present study will not investigate the question of stage lighting in the specific context of the Warsaw court, it is worth remembering that Ladislav participated in the vast process of promoting the visual and theatrical culture of the Italian courts in Europe. In 1625 he visited Mantua, and he saw the Teatro Olimpico in Vicenza and the Teatro Farnese in Parma. We also know that he brought back from his journey a copy of Sirigatti’s treatise on perspective;<sup>2</sup> in 1628 he also had *La Galatea* (a reworking of the Mantua 1614 version) performed in his theatre. The context is therefore that of the policy of encomiastic performances and of the expansion in Europe of the Italian melodrama, together with the art of scenography and stage design, including lighting devices.

The quotation from Sabbatini’s treatise immediately raises the problem of the complex relationship between theory and practice and between the visible and invisible element of theatre. It reminds us of the relationship between the art of theatre we can imagine and the one we know to have really existed, although only by fragments of what it was. These questions concern any historical investigation in the field of the performing arts. Nevertheless, it is worth keeping them in mind, particularly when approaching one of the least studied areas of theatre design, that is stage lighting. Some scholars erroneously think that before the introduction of electrical systems into theatres this field does not offer many research possibilities. We will try here to give just a glimpse of how rich this field is—one that cannot be separated from the study of other elements of the theatrical performance. We will refer mainly to the Italian context, given the centrality of Italy in the elaboration of the model that would later be generally adopted by many European courts.<sup>3</sup>

A question arises: What are the peculiarities of an investigation into stage lighting in early modern European theatre? The history of stage lighting can be studied with reference to

<sup>1</sup> “The theory is not difficult, but the practice is even easier.” Nicola Sabbatini, *Pratica di fabricar scene, e machine ne' teatri* (Ravenna: Pietro de’ Paoli, 1638), 165.

<sup>2</sup> Not having access to Polish literature, I refer to Wiarosław Sandelewski, review of *Teatr dworski Władysława IV*, by Karolina Targosz-Kretowa, *Rivista italiana di Musicologia* 4 (1969): 151–56.

<sup>3</sup> For a more detailed, albeit synthetic, description of the events considered here, see Cristina Grazioli, *Luce e ombra. Storia, teorie e pratiche dell’illuminazione teatrale* (Bari: Laterza, 2008), particularly 3–45.

performances both within the (first) theatre buildings and outdoors. This clarification brings out the elements of continuity and those of discontinuity with the spectacles of previous ages; it also reminds us that the light of the performance is not only artificial but also natural light. The relationship between artificial and natural light may be interesting in the context of theatre conceived as a festive and celebratory event, and as such involving the urban space. Besides, it is useful to remember that the motif of light is fundamental in the dynamics of the encomiastic and celebratory strategies, with very frequent recourse to images of the stars and other naturally bright elements: the blazing light as an emblem of power, or fire rising up to the sky as an image of an exceptional destiny.<sup>4</sup>

In order to search for light, one must first understand where to look for it. What can one study? Obviously the theatre sponsored by the court: both because it allows for a luxury such as lighting and because it is supposed to be documented, as a reflection of court power. The difficulty of reconstructing what took place during the spectacles with attention to lighting must also be highlighted. What does a description commissioned by patrons actually say about lighting? Sometimes an official chronicle does not fully correspond to other accounts of the same event. This does not mean that the latter are less important documents. Spectacle and spectators are both part of an allegorical and celebratory dramaturgical concept.

## A FEW REFERENCES

There is sufficient documentation to provide an overview of the use of light on stage, particularly from the fifteenth century onwards; but it should be remembered that where there is vision, there is light, and that the way in which light is handled is always a sign of the artistic, political, or religious conception of the world. Accordingly, in the Middle Ages, the symbolic function of light embodies the coincidence between religious message and visual splendour. In the celebration of liturgical plays, candles or oil lamps were part of the ritual service, together with costumes and ornaments. Medieval drama mediates between material and spiritual vision:<sup>5</sup> light, perceivable to the senses, has primarily a symbolic dimension. The allusive value of light is revealed, for example, when the flame of the candle evokes a star. Singing angels hold resplendent flames in their hands;<sup>6</sup> the separation of night from day after the Creation is expressed by showing a cloth of two colours: the symbolic code identifies darkness with the black part and light with the white part.<sup>7</sup> In the thirteenth and fourteenth centuries, when liturgical plays use natural light, the symbolic conception of space in the liturgical service corresponds to a precise dramaturgical structure. The perception of light must follow the direction delineated by

<sup>4</sup> Isabella Andreini chose as an academic emblem an upward rocket (an elevating light), thus ennobling the art of acting. Cf. Ferdinando Taviani, "Bella d'Asia. Torquato Tasso, gli attori e l'immortalità," in Ferdinando Taviani, *Il rossore dell'attrice. Scritti sulla Commedia dell'Arte e non solo*, ed. Mirella Schino (Rome: Bulzoni, 2021), 135.

<sup>5</sup> Cf. Anne Surgers, *Scénographies du théâtre occidental* (Paris: Colin 2007), 54.

<sup>6</sup> Elena Povoledo, "Illuminotecnica," in *Enciclopedia dello Spettacolo* (Rome: Sansoni-Le Maschere, 1954–1962), 6:493–508.

<sup>7</sup> *Le Mystère du Vieil Testament* (Paris: Baron de Rotshchild, 1878), 1:23, quoted in Gösta M. Bergman, *Lighting in the Theatre* (Stockholm: Almqvist & Wiksell, 1977), 394n6.

the church's orientation, from west to east, with a clear contrast between sunset and sunrise, or death and resurrection.<sup>8</sup>

The most fully documented examples in the fifteenth century are the devices set up by Filippo Brunelleschi in some of Florence's churches for the staging of the Annunciation; his use of light sources foretells the stagecraft inventions of the following two centuries. A description by Abraham Bishop of Suzdal, who attended two such stagings in 1439, as well as a later description by Vasari (1568) constitute two chronologically distant testimonies, which suggest the possibility of an existing tradition.

The complex subject of perspective cannot be ignored: the new vision of space with a central focus becomes the vehicle "of a political discourse, which takes over the elements developed by medieval culture."<sup>9</sup> Treatises on perspective often also offer information on lighting systems. The visual concept of perspective constitutively implies the phenomenon of light. Let us dwell for a moment on Brunelleschi's Florentine inventions. In the event performed in 1439 in the Church of San Marco,<sup>10</sup> "Paradise," above the entrance door, was dotted with hundreds of lights set on circles representing the heavens; the circles contained small oil or wax lights, which rotated at different speeds,<sup>11</sup> ascending and descending,<sup>12</sup> operated by winches handled by hidden machinists. The effect was similar to the sky as a disc divided into concentric circles that was frequently represented in paintings and miniatures in the thirteenth through the fifteenth centuries.<sup>13</sup> In the final manoeuvre of the *ingegno* a firework descended along cables suspended above the spectators and crossed the opposite trajectory of the angel ascending to the Empyrean. The rocket hovered in the nave, secured to guides; it burned, lighting up the lights. The descent of the fire alluded to the epiphany of the Holy Spirit, the essence of truth and light.

A sophisticated device consisting of metal lanterns illuminated the *mandorla* (an almond-shaped machine) containing the Nunctious Angel in the Church of San Felice in Piazza: an "avant-garde stage technique" intended to provoke a reaction of wonder,<sup>14</sup> thus foreshadowing the poetics of later epochs. Light served here the symbolic effect; whereas in the Middle Ages the symbolism of light was entirely left to the observer's perception, now the goal was achieved with the use of an extraordinarily complex technique. The sources leave some doubts as to the interpretation of Brunelleschi's *ingegni*, but in its essence the San Felice device served to create a unitary scenic setting, anticipating the stagecraft of later centuries, whose focus would

<sup>8</sup> Surgers, *Scénographies*, 54.

<sup>9</sup> Ludovico Zorzi, *Il teatro e la città. Saggio sulla scena italiana* (Turin: Einaudi, 1977), 64.

<sup>10</sup> Cf. Paola Ventrone, *Teatro civile e sacra rappresentazione a Firenze nel Rinascimento* (Florence: Le Lettere, 2016), 123–24ff. See also Alessandro D'Ancona, *Origini del teatro italiano* (Turin: Loescher, 1891), 1:246–50; and the recent edition of the eyewitness account of Abraham Bishop of Suzdal in Ventrone, *Teatro civile*, 377–87 (with the original Russian text).

<sup>11</sup> See D'Ancona, *Origini del teatro*, 1:246–50 and Ventrone, *Teatro civile*, 118ff.

<sup>12</sup> Cf. *ibid.* Vasari wrote about a similar device in the Church of Carmine. Giorgio Vasari, *Le vite de' più eccellenti scultori ed architettori scritte da Giorgio Vasari pittore aretino*, ed. Gaetano Milanesi (Florence: Sansoni, 1906), 3:198.

<sup>13</sup> Cf. Zorzi, *Il teatro*, 158n27.

<sup>14</sup> Cf. *ibid.*, 74–75.

be the invention of perspective. The verticality of the space was cadenced by three points: the almond, a group of angels, and a rotating hemisphere. The mansions were replaced by a device hinged on a single axis, which referred to the centrality of the humanistic stage.<sup>15</sup> The winch, a symbol of seventeenth-century theatrical machinery, has been interpreted as an emblem of Brunelleschi's anticipatory position.<sup>16</sup> Symbolic function and engineering expertise were thus perfectly combined.

The *ingegno* already incorporates most of the central motifs of the language of light in the following two centuries. The procedure remains essentially the same, but with a different purpose. The armoury of instruments of divine celebration is put at the service of the celebration of the power of the prince. What follows is a glimpse that allows us to exemplify the peculiarities in the conception of the luminous elements and outline the possibilities of studying them.

## SECULAR SPLENDOUR

At the end of the fifteenth century, a shift in the significance of light took place that would mark two centuries of flourishing stagecraft: light was no longer a symbol of the divine dimension, but a reflection of profane splendour, a vital element in the celebration of power. From the beginning of the sixteenth century, triumphs, fireworks, *intermedi*, and aquatic displays amplified the luminous effect, celebrating "the triumph of life over death and darkness":<sup>17</sup> the life of the Prince and his family sparkled with the allegorical language of representational strategy.<sup>18</sup>

In the *Festa del Paradiso* staged in 1490 at the Castello Sforzesco in Milan, Leonardo da Vinci made use of the typology of Paradise.<sup>19</sup> The staging, in which the holy was mixed with the profane, represented the arrival and at the same time the overcoming of medieval and Brunelleschian stagecraft. The mechanisms devised for the *Sacre rappresentazioni* now served to construct "the profane paradises of courtly festivities"; the astonishment experienced by the faithful at the mystical flight of the Angel was replaced by "humanistic admiration for the devices invented by the human mind—and experience."<sup>20</sup> A flaming almond appeared in a festive event in 1496, where Danae was transformed into a star, with allusions to Apollo:<sup>21</sup> compared to Brunelleschi's inventions, some formal similarities can be noticed, but the ideological aim is different. Let us not forget that Leonardo is also the inventor of a prototypical lamp, a model for lighting devices in the future, serving to obtain coloured light on stage through the refraction of dyed water. Probably designed for performances in Milan, it is mentioned by the artist himself: a

<sup>15</sup> Ibid., 161n29.

<sup>16</sup> Ibid., 73–74.

<sup>17</sup> Bergman, *Lighting in the Theatre*, 44.

<sup>18</sup> See Elena Povoledo, "Origini e aspetti della scenografia in Italia. Dalla fine del Quattrocento agli intermezzi fiorentini del 1589," in *Li due Orfei. Da Poliziano a Monteverdi*, ed. Nino Pirrotta (Turin: Einaudi, 1975), 337–460.

<sup>19</sup> Ibid., 346, 354–55n19. See also Mariangela Mazzocchi Doglio, "Leonardo 'apparatore' di spettacoli a Milano per la corte degli Sforza," in *Leonardo e gli spettacoli del suo tempo*, ed. Mariangela Mazzocchi Doglio et al. (Milan: Electa, 1983), 41–76.

<sup>20</sup> Maurizio Fagiolo, *Scenografia. Dalle sacre rappresentazioni al Futurismo* (Florence: Sansoni, 1972), 44.

<sup>21</sup> Povoledo, "Origini e aspetti," 348–50.

lamp inside a glass vessel, and this inside a bowl filled with water; the device contains lights of various colours.<sup>22</sup> However, this evidence would not have the same documentary importance if there were not a large number of subsequent sources confirming the use of this device for coloured light; first and foremost, Sebastiano Serlio's treatise.

In general, the space of indoor theatres addresses the problem of lighting in a more definite way. The need for a complex lighting structure emerged, which also led to a greater awareness of the potential of light: the appropriate placement of light sources, their maintenance, and the lighting enhancement of the prince's stage had to be guaranteed. The composition of the *lumiere* (chandeliers) was now part of the ornamental decoration of the hall, which was also lit during the performance. Teams of experts began to emerge. In addition to bright and expensive wax candles, the light sources included tallow candles, oil lamps, iron torches, and torches fuelled by vegetable resins.

At the beginning of the sixteenth century, lighting devices became part of perspective scenes, painted or in relief, concealed between the wings or inserted into ornamental decoration. Artificial light reinforced the illusionistic effect of perspective scenography. Vasari testifies that the lights between the wings were provided on their reverse side. Bastiano da Sangallo's scene for Antonio Landi's *Commodo* transformed the second courtyard of the Palazzo Medici in Florence (1539) into something like a theatrical hall. The *cortile*, covered by a *velarium*, was illuminated by a large number of candelabra in the form of cherubs with lights;<sup>23</sup> a glass sphere filled with water appeared on the stage, lit from behind by two torches; a luminous globe made a transverse arc over the perspective, marking the passing of the day. Vasari, who collaborated on the installation, compares it to the natural sun.<sup>24</sup> The luminous instrument visualized the dramaturgical unity of time in the performance; a similar device would also be used by Vasari in the *Talanta* (Venice, 1542), which included a large sphere made of Murano glass.<sup>25</sup> It is an example of how, despite the scarcity of sources, practices can be established with a certain degree of certainty, being documented by different evidence. Da Sangallo's experiments mark the transition between the fixed perspective scene and the changeable scene, a fundamental step in the passage from the symbolic scene representing the town to the allegorical scene of the *intermedio*.<sup>26</sup>

In the Renaissance light acquired its full aesthetic value. Light sources, multiplied to make visible and to decorate, were increasingly integrated into the scenic effect. The reports on the 1565 staging in the Palazzo Vecchio in Florence tell us that twelve *lumiere* in the form of crowns hung from the stage, with coloured glass elements which, thanks to the reflection of the water, had the effect of precious stones. On the walls, silvery female figures held crystal bowls

<sup>22</sup> Povoledo, "Illuminotecnica."

<sup>23</sup> Pier Francesco Giambullari, *Apparato et feste nelle nozze dello Illustrissimo Signor Duca di Firenze et della Duchessa sua Consorte* (Florence: Benedetto Giunta, 1539), in *Il teatro nella Firenze medicea*, ed. Sara Mamone (Milan: Mursia, 1981), 95.

<sup>24</sup> Vasari, *Le vite*, 6:442.

<sup>25</sup> *Ibid.*, 8:284 (letter by Vasari to Ottaviano de' Medici).

<sup>26</sup> Zorzi, *Il teatro*, 92.

filled with water of various colours, which gave off light that was of “grandissimo splendore;”<sup>27</sup> they impersonated the hours of the night and visualized the temporal progression of the play. To increase the illumination of the perspective, more torches were held by flying cupids. Light thus became part of the scenic and dramaturgical design.

At this moment in the development of the “theatrical place” in the Italian tradition (moving towards the *teatro all’italiana* model) there are numerous examples of semi-open performance spaces, in particular courtyards of princely palaces (as in the Palazzo Medici). One of the most brilliant festivals in this context was the *sbarra* (a tournament introduced by a procession) held in the courtyard of the Pitti Palace in 1579, for the marriage of Francesco de’ Medici and Bianca Cappello. Raffaello Gualterotti’s account describes a very refined design of the setting; the chromatic and light effects were impressive, thanks to the reflection of the lights on the knights’ and pages’ costumes (silver stockings and weapons, helmets with blindingly white feathers or with gold filigree, silver flowers, garnets, and emeralds). Gualterotti compares the amount of light to rays of sunlight in the twilight; in his view, the white feathers resembled burning flames and stars in the sky.<sup>28</sup>

Gualterotti minutely identifies the great variety of light sources amplifying the elements of the courtyard’s architecture and illuminating the beauty of the noblewomen, adorned with shining jewellery. For the tournament, some 1,800 lights were lit suddenly; another surprising effect was achieved when the bright light revealed the interior of a cave.<sup>29</sup> An illuminated chariot emerged, of which the rear wheels depicted the sun and the moon, the front wheels a starry sky, which seemed to be motionless, giving the scene a miraculous aspect, emblematic of the triumph of fame and eternal glory.<sup>30</sup>

When a flash of lightning set the mountain on fire, an enchantress came out of it, riding a monstrous animal: fire spewed from its mouth, two arms came out of its ears, and it held two extravagant lanterns in its hands. Then, Apollo’s chariot appeared, driving out of the mountain an animal with five flaming heads and throwing pale fireballs, a great serpent that looked like a burning mountain. The clash between the infernal monster and the god of the sun was made perceptible by the light elements. The design of the interludes aimed at a constant contrast between light and darkness. One similar example is the tournament staged in Prague at the court of Rudolph II in 1570, with the participation of Giuseppe Arcimboldo (as a chariot driver, as well as a performer). Recurring elements were the cave, the enchantress (Medea), and fantastic animals spitting fire;<sup>31</sup> in this case too the chronicle of an eyewitness, the ‘necromancer’ Zirfeo, provides valuable information on the luminous elements.

<sup>27</sup> Account by Domenico Mellini, *Descrizione dell’apparato della comedia et intermedii d’essa, recitata . . . nelle reali nozze dell’Illustriss. et Eccell. S. il S. Don Francesco Medici Principe di Fiorenza e di Siena e della Regina Giovanna d’Austria sua consorte* (Florence: Giunti, 1565), in Mamone, *Il teatro*, 97–102.

<sup>28</sup> Raffaello Gualterotti, *Feste nelle nozze del Serenissimo Don Francesco Medici Gran Duca di Toscana et della Serenissima sua consorte la Signora Bianca Cappello . . .* (Florence: Giunti, 1579), 15–16.

<sup>29</sup> *Ibid.*, 10–12.

<sup>30</sup> *Cf. ibid.*, 14.

<sup>31</sup> *Cf. Zirfeo, Ordenliche Beschreibung: Des gewaltigen treffenlichen und herrlichen Thurniers zu Roß und Fuß. So am Sontag Oculi Anno 1570 . . .* ([Prague], 1570); see the *Herla Archive*, S2, L114–L122; [http://www.capitalespettacolo.it/ita/doc\\_gen.asp?ID=1007026534&NU=1&TP=g](http://www.capitalespettacolo.it/ita/doc_gen.asp?ID=1007026534&NU=1&TP=g) (last accessed: 17 October 2021).

The perception of light in past centuries is absolutely unimaginable today. There were very few sources of light in daily life and darkness prevailed in public places. Therefore, the multiple references to light in reports and chronicles between the sixteenth and seventeenth centuries reflect the desire to celebrate, but also capture the effect of the amazement created by the contrast between life in semi-darkness and the splendour of the glittering festival.

From the second half of the sixteenth century, the proscenium arch clearly separated the hall from the stage and made it possible to conceal the operations of the stagehands in the backstage. The scene was visibly mutated and illuminated by *lumiere* and lamps placed in the sky behind the *celetti* or fixed to the frames of the wings and the armatures of the machines. The language of light takes on an extraordinary role in the work of Bernardo Buontalenti, or “delle Girandole,” a nickname that reveals his skill in creating rotating luminous devices.<sup>32</sup> His most famous settings are the six *intermedi* for Girolamo Bargagli's *La Pellegrina* (1589), for the wedding of Ferdinando I and Christine of Lorraine, in the Medici theatre of the Uffizi,<sup>33</sup> an event emblematic of the transition from the festival to the theatrical setting.<sup>34</sup>

According to Bastiano de' Rossi, the effect of depth of perspective of the city scene was obtained thanks to hidden lighting, fixed behind the scenery of the houses. The *apparatus* filled the clouds and the stage machinery with light; the effect was a light “così unita che pareva a mezzogiorno” (so unified that it seemed to be at noon).<sup>35</sup> The clouds narrowed and widened, changing from dark to bright.<sup>36</sup> Light was thus integrated into the stage setting, part of the invention, and at the service of the wonder that should arise from harmony, perceived by the senses and induced by allegorical interpretation. Buontalenti fulfilled the tasks of decorator, stage manager, and set and costume designer.<sup>37</sup> The light hit the precious fabrics of the colourful costumes. Bright materials such as silks or silver or gold spun fabrics absorb less light than velvets, wools, and cottons and are therefore a means of amplifying the light. The awareness in orchestrating materials and devices to amplify light is extraordinary in all these *apparatori*. The treatises discussed below are the most striking testimony to this.

The function of light, which emphasizes the illusionistic effects and allows a clear view of the refinements of the painted scene, cannot be separated from the problem of perspective, a new visual concept codified in the field of scenic practice by Sebastiano Serlio. A witness

<sup>32</sup> As a young man, he built a lantern out of paper covers, on which he cast the shadows of small cut-out figures. Cf. Zorzi, *Il teatro*, 122, 226n181.

<sup>33</sup> Cf. Sara Mamone, “Drammaturgia di macchine nel teatro granducale fiorentino. Il teatro degli Uffizi da Buontalenti ai Parigi,” *Drammaturgia* 12.2 (2015): 17–43; Anna Maria Testaverde, “L'avventura del teatro granducale degli Uffizi (1586–1637),” *Drammaturgia* 12.2 (2015): 45–69 (also for bibliographical references).

<sup>34</sup> Cf. Povoledo, *Origini e aspetti*, 401.

<sup>35</sup> Bastiano de' Rossi, *Descrizione dell'apparato e degli intermedi fatti per la commedia rappresentata in Firenze nelle nozze de' Serenissimi don Ferdinando Medici, e Madonna Cristina di Lorena, Gran duchi di Toscana* (Florence: Giorgio Marescotti, 1585), in Mamone, *Il teatro*, 115–20; cf. Pirrotta, *Li due Orfei*, 232–42.

<sup>36</sup> Cf. Povoledo, *Origini e aspetti*, 446.

<sup>37</sup> Cf. Aby Warburg, “I costumi teatrali per gli ‘Intermezzi’ del 1589,” in *La Rinascita del paganesimo antico e altri scritti (1889–1914)*, ed. Maurizio Ghelardi (Turin: Nino Aragno, 2004), 163–226. The memories of Girolamo Seriacopi (*Memoriale et ricordi 1588–1589*, Florence, Archivio di Stato di Firenze, Magistrato dei Nove, ms F.3679) are rich in details about lights. Cf. Zorzi, *Il teatro*, 121.



and protagonist of theatre productions, Serlio translated the experiences of the first decades of the sixteenth century into the form of a treatise. The *Trattato sopra le scene* describes a stage with lights in the foreground: the physical space is increased by the effect of perspective; the scenes are adorned with coloured lights similar to precious stones. Serlio specifies that the scenography is “materiale e di rilievo” (material and of relief), evoking an important function of light, which would have produced shadows and nuances.<sup>38</sup>

The chapter *De' lumi artificiali delle scene* is like a recipe book for obtaining transparent and multi-coloured lamps, thanks to the colouring of the water,<sup>39</sup> which, when light passes through it, produces the required chromatic effect: sky blue, sapphire, emerald, ruby, chrysoprase, topaz, and diamond; precious stones are the most effective term of comparison, recurring between the sixteenth and seventeenth centuries, to emphasize brilliance. These transparent devices, a derivation of Leonardo's lamp, were to be placed behind the painted scenery. It is worth noting that Serlio demonstrates his awareness of the use of screened, filtered, and reflected light. The scene can receive light from a large number of candlesticks with torches: a vase of water with a piece of camphor makes the flame beautiful and fragrant. Serlio also confirms contemporary accounts of the luminous spheres that represent the rotation of the heavenly bodies.<sup>40</sup>

The work of Angelo Ingegneri combines experience as an *apparatore* and theoretical knowledge; in 1585 he directed the exceptional staging of Sophocles's *Oedipus Tyrannus* at the opening of the Teatro Olimpico in Vicenza. In 1598, the description of the performance was included in his *Della poesia rappresentativa e del modo di rappresentare le favole sceniche*.<sup>41</sup> The author explicitly states that the light source must not be shown, in order to increase the effect of surprise. Furthermore, for the first time, it is required that the light should illuminate the faces of the actors.<sup>42</sup> A curtain hanging from above should divide the space of the stage from that of the theatre, its inside full of little lamps, with reflective ornaments arranged in such a way that they cast light on the actors.<sup>43</sup> The torches on the front stage should be shielded so as not to impede the spectators' view.

Vincenzo Scamozzi, who created theatre perspectives for *Oedipus Tyrannus*, made sure that the lights were not directed towards the spectator, but rather, towards the interior of the scene, and that the perspectives also appeared “alla luce del sole” (as in the light of the sun).<sup>44</sup> This relationship between perspectives and artificial lighting was also emphasized by Battista

<sup>38</sup> Sebastiano Serlio, *Tutte l'opere d'architettura et prospettiva. . . . Con un indice copiosissimo . . .* (Venice: Giacomo de' Franceschi, 1619; with additions by Scamozzi), 44r–48v.

<sup>39</sup> Cf. *ibid.*, 48v.

<sup>40</sup> *Ibid.*, 44v; for instance, *Calandria* in Urbino (1513). Cf. Franco Ruffini, *Commedia e festa nel Rinascimento. La 'Calandria' alla corte di Urbino* (Bologna: il Mulino, 1986).

<sup>41</sup> Angelo Ingegneri, *Della poesia rappresentativa e del modo di rappresentare le favole sceniche* (Ferrara, 1598), ed. Maria Luisa Doglio (Modena: Panini, 1989), 23–33. A team from Ferrara directed by Pasi da Carpi “il Montagna” was commissioned to install the lighting. Cf. Stefano Mazzoni, *L'Olimpico di Vicenza. Un teatro e la sua 'perpetua memoria'* (Florence: Le Lettere, 1998), 122–30.

<sup>42</sup> Ingegneri, *Della poesia rappresentativa*, 27.

<sup>43</sup> *Ibid.*

<sup>44</sup> *Ibid.*



1. Original light-device for the perspectives in the Teatro Olimpico, Vicenza 1585; entrance hall of the Teatro Olimpico. Repr. after: Stefano Mazzoni, *Atlante iconografico. Spazi e forme dello spettacolo in occidente dal mondo antico a Wagner* (Pisa: Titivillus, 2003).

Guarini in 1592.<sup>45</sup> At the opening of the Teatro Olimpico, as the curtain dropped, the light-filled *frons scena* was revealed in all its splendour, and the perspective of the city scene shone through. About 700 little glass oil lamps and 300 tin oil lamps were used; the supports and the lamps still exist today, conserved at the Olimpico (Fig. 1). Ingegneri recommended that all the light should be concentrated on the front of the stage, perspectives, and the proscenium: the darker the audience space, the brighter the scene would appear.<sup>46</sup>

Another crucial source is the *Dialoghi in materia di rappresentazioni sceniche* (ca. 1560) by Leone de' Sommi,<sup>47</sup> which anticipates a unitary conception of the art of staging, where the observations on lighting exemplify one of the first dramatic conceptions of light. As in the case of Ingegneri, the writer is the actual author of the stage productions, which is why both of their writings have an additional value.

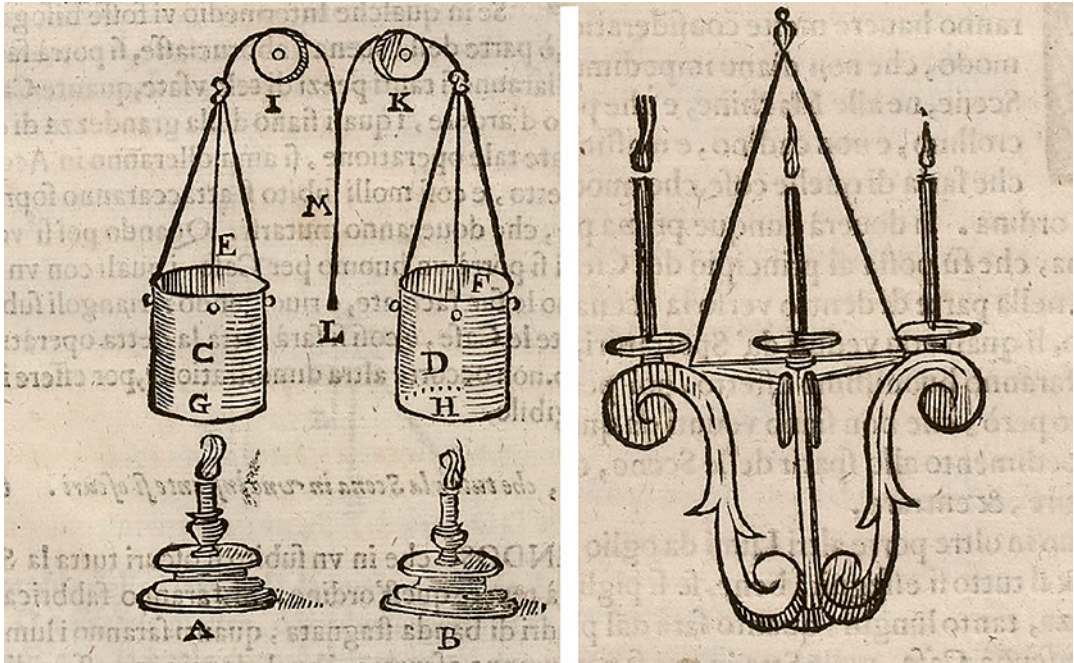
## LIGHT AND DARKNESS IN THE BAROQUE: A CELEBRATORY ALLEGORY

At the beginning of the seventeenth century, Italian stage practices were spreading to other European countries. Important treatises which codify these practices date from the first half of the century, in particular, the aforementioned work by Sabbatini, *Pratica di fabbricar scene e machine ne' teatri*, published in Pesaro in two volumes (1637 and 1638). Sabbatini draws on his experience as an engineer, architect, and *apparatore* in the service of the Duke della Rovere. The second part of the treatise (1638) concentrates on the construction and manoeuvring of machines, scenic tricks, and visible mutations, providing a veritable catalogue of the effects of Baroque stagecraft. Sabbatini's handbook constitutes an indispensable point of comparison for the information that can be deduced from other types of documents.

<sup>45</sup> "La scena non allumata è priva di ogni ornamento" and the *intermedi* "a lume di sole riescono insipidissimi." Battista Guarini to the Duke of Mantua, Mantua, 21 May 1592, Mantua, Archivio di Stato di Mantova, Archivio Gonzaga, b. 2656, fasc. I, fols. 10–11. Cf. Herla project, doc. C-1422, [http://www.capitalespettacolo.it/ita/doc\\_gen.asp?ID=1931058603&NU=2&TP=g](http://www.capitalespettacolo.it/ita/doc_gen.asp?ID=1931058603&NU=2&TP=g) (last accessed: 17 October 2021) and D'Ancona, *Origini del teatro*, 2:553–54.

<sup>46</sup> Ingegneri, *Della poesia rappresentativa*, 27.

<sup>47</sup> Leone de' Sommi, *Quattro dialoghi in materia di rappresentazioni sceniche*, ed. Ferruccio Marotti (Milan: Il Polifilo, 1968), xi–lxxiii.



2. "Two lights that you will have to obscure," and "How to gather the lamps with torches suitably," in *Pratica di fabricar scene e machine ne' teatri . . . di Nicola Sabbatini . . . ristampata di novo coll' aggiunta del secondo libro . . .* (Ravenna: P. de'Paoli e G.B. Giovannelli, 1638) 86, 63. Photo public domain.

With regard to the lighting of the hall,<sup>48</sup> the author lists the various types of lamps, placed in different locations. Sabbatini shows us that an art of manufacture, use, and maintenance of lamps was developed; he gives precise instructions on how to produce candles and torches. Very few lights should be placed in the auditorium, while many are necessary for the perspectives of the scene, where they must not obstruct the changes of sets, the movements of the machines, or the entrances and exits of the actors. He advises against the use of footlights, which were employed in private rooms and frequently on the stages of the *comici dell'arte*. He mentions "frugnoli da oglio" (oil lamps, possibly with reflecting screens), which were usually placed inside the festoon crowning the stage, so as to illuminate the sky, without being seen by the spectators. Sabbatini also mentions the lighting system of the clouds and skies that open up in "Paradise."<sup>49</sup> He deals with the question of luminosity within the painting and the relationship between chiaroscuro and architecture.<sup>50</sup>

In his treatise Sabbatini also describes several lighting devices.<sup>51</sup> For instance, the darkening of the scene could be achieved by means of bottomless tin cylinders to be placed on the lights to be darkened, covered in their entirety except for a crack for the smoke. The cylinders would

<sup>48</sup> Nicola Sabbatini, *Pratica di fabricar scene, e machine ne' teatri*, ed. Elena Povoledo (Rome: Bestetti, 1955), 2:38.

<sup>49</sup> Probably lights were put at different depths, so as to light the clouds nearby. Cf *ibid.*, 2:54.

<sup>50</sup> *Ibid.*, 2:16.

<sup>51</sup> *Ibid.*, 2:41.

be raised and lowered according to the need for darkness or light, by means of wires running on pulleys, to the side of the scene (Fig. 2). As many wires as possible would be connected to the same mechanism, so with a single operation it would be possible to have a considerable change in lighting.<sup>52</sup> This device would remain in use for centuries, developing refinements and innovations.

A less famous document, but more daring from a theoretical point of view, is the anonymous treatise *Il Corago*<sup>53</sup> (The Director; the date is probably close to the *Pratica*<sup>54</sup>). It constitutes a connection between sixteenth-century treatises and Sabbatini's handbook: although a practical treatise, it is not without indications regarding a scenic conception. The *corago* has to be conversant with perspective and stage practice, and the entire treatise is distinguished by its strong focus on the composition of the whole performance, which must take into account the position of the spectator, the performers, and the risk of disproportion between them and the set. A whole chapter is dedicated to lighting:<sup>55</sup> the system of using water spheres described by Serlio is here rejected, as they are not effective from the point of view of intensity and they concentrate the reflection, dazzling the actors. For open-air venues, *lumi* are to be composed of camphor, saltpetre, and similar substances.

Baroque scenography<sup>56</sup> entrusted much of its wonder to the lighting effects integrated with the movements of the stage machinery and to the contrast of light and darkness, aiming at the illusionistic effect. The mobility of the wings and of all the machinery, with flights, diagonal movements, and visible changing sets, created pictures in constant metamorphosis, and light played a central role in this dynamism. The light sources did not vary significantly from those of the previous century, except for the quantity, but they were now used—and documented—in a more precise way. Torches made of tallow or white wax and oil lamps (to which perfumed aromas were added) predominated. These were contained in small metal oil lamps with drip pans, in tin pots (*frugnoli*), in earthenware pans (*cocciòli*), in glass bowls (*ciocche*), Bohemian crystals or blown Murano glass, as well as *torcère* lamps fuelled by vegetable resins or pitch. Candles, lamps, and torches were supported, according to the possibilities of the theatres, either by simple tin structures or by rich chandeliers with fancy shapes (lilies, eagles, animals, cupids). The refractive material placed around the light was enriched to an incredible extent, which added to the splendour of the ornamental motifs of the stage and costumes: mirrors, shards of crystal, reliefs, and metal ornaments (made of bronze or vulgar silver and gold alloys), as well as phosphorescent powders (the so-called talc).

The complexity and pomposity of the performances, including the lighting systems, was directly proportional to the grandeur of the encomiastic intentions. The skill of the inventors of

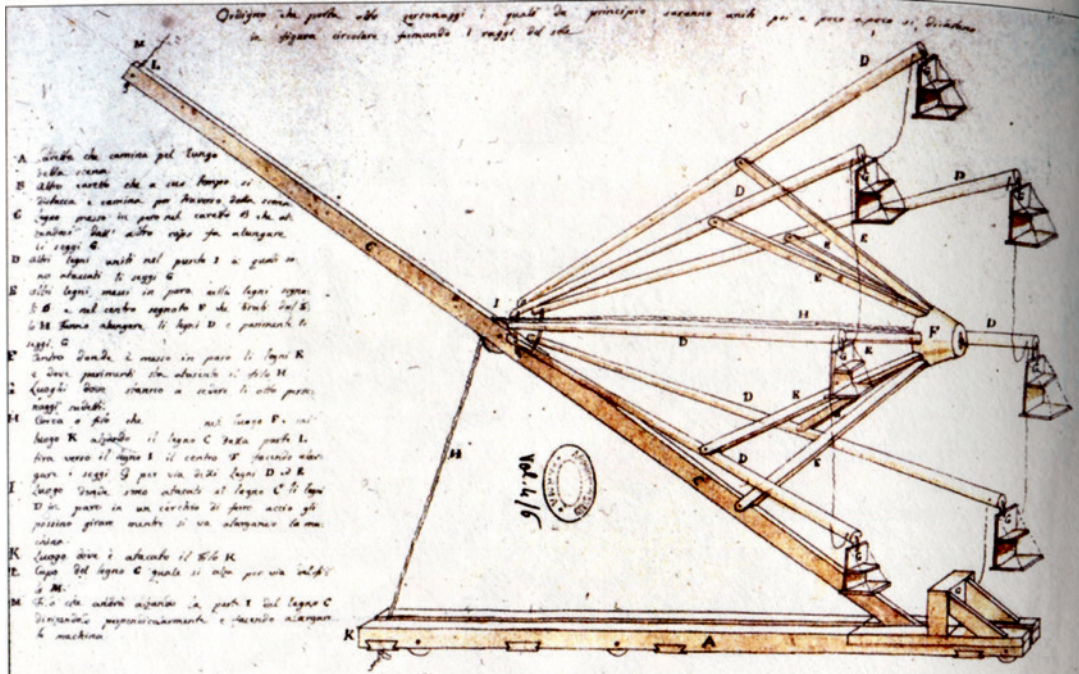
<sup>52</sup> Ibid., 2:12.

<sup>53</sup> *Il Corago o vero alcune osservazioni per metter bene in scena le composizioni drammatiche*, ed. Paolo Fabbri and Angelo Pompilio (Florence: Olschki, 1983).

<sup>54</sup> After 1628. Cf. Introduction to *ibid.*, 9–10.

<sup>55</sup> Ibid., xxii, 123–24.

<sup>56</sup> Cf. Giuseppe Adami, *Scenografia e scenotecnica barocca tra Ferrara e Parma (1625–1631)* (Rome: L'Erma di Bretschneider, 2003).



3. "Umbrella" device for lit clouds by Francesco Guitti, 1628; Parma, Archivio di Stato, Mappe e disegni, vol. 4/6. Repr. after: Stefano Mazzoni, *Atlante iconografico. Spazi e forme dello spettacolo in occidente dal mondo antico a Wagner* (Pisa: Titivillus, 2003).

sets, lighting, and costumes was at the service of the allegorical and celebratory programme. The machine called "Glory" or "Apotheosis" set the clouds in motion, creating triumphal floats with allegorical figures or entire palaces glittering with brilliant materials, coloured crystals, and gilding; the movement of the clouds opened up Paradise. It was a veritable celestial machine, probably illuminated by lights fixed on structures, which remained invisible to the spectators. The "Glory" machine was used in the magnificent opera-tournament opening the Teatro Farnese in Parma in 1628: clouds and sunrays provided to the dynamic effect, as evidenced by Francesco Guitti's machine drawings (cf. Fig. 3).<sup>57</sup> The all-sky scene in the finale of *Nozze degli Dei* (1637), where the architecture of the Pitti Palace courtyard was transfigured into a celestial vision, can also be mentioned, as well as the *Rapimento di Cefalo*, at the beginning of the century, where the opening scene showed dawn light that changed into the intense light of day.<sup>58</sup>

<sup>57</sup> For the machines employed at the Farnese Theatre, see Stefano Mazzoni, *Atlante iconografico. Spazi e forme dello spettacolo in occidente dal mondo antico a Wagner* (Pisa: Titivillus, 2003), 240–42 (and bibliography). In Parma a team from Ferrara was also active.

<sup>58</sup> Cf. Sara Mamone, *Firenze e Parigi due capitali dello spettacolo per una regina Maria de' Medici* (Cinisello Balsamo: Silvana, 1988), 81–105 (*Il rapimento di Cefalo*); Cesare Molinari, *Le nozze degli Dei. Un saggio sul grande spettacolo italiano nel Seicento* (Rome: Bulzoni, 1968), 45–49, 176–78 and figs. 62–68; Stefano Mazzoni, "L'Italia nell'Europa delle corti. Note sullo spettacolo barocco," in *Arte Barocco y vida cotidiana en el mundo hispánico. El gran teatro del mundo*, ed. Paula Revenga Dominguez (Cordova: UCOPress, 2020), 249–51 (with bibliography).

The dazzling light, serving to glorify the sovereign, reflected his or her virtues and power. This coincidence is echoed in the dedications of the printed editions, such as Carini Motta's dedication to Archduchess Isabella Clara,<sup>59</sup> which employs the metaphors of shadow and light, blindness and sight.<sup>60</sup> The metaphor found its literal transposition in the performance: descriptions of theatrical productions and ceremonial *apparatus* overflow with examples. Among the most fully documented are the Florentine *intermedi* of 1608, with Giulio Parigi's central perspective and the temple of Fame, all made of mirrors;<sup>61</sup> each *intermedio* was closed by an image blazing with light.<sup>62</sup>

At the beginning of the following century, Luigi Riccoboni reports a globe sparkling with colours reflected by precious stones, hanging in the air, and containing musicians, seen in *Catone Uticense* (San Giovanni Grisostomo Theatre, 1701), of such splendour as to dazzle the spectators.<sup>63</sup> It was not a matter of reflected light, but of light filtered through crystal glass, a technique that Serlio had already codified but now extended to the whole scene, also called "transparent" and increasingly used during the sixteenth and seventeenth centuries, which made it possible to nuance the light. The sumptuous lighting in the auditorium aimed to allow the best visibility for performances that might occupy part of the hall, such as tournaments or ballets, but also to ensure that the light made the aristocratic audience an integral part of the performance.

In tracing a line of continuity between fifteenth-century *ingegni* and Baroque machinery, Ludovico Zorzi identifies a mechanism emblematic of Italian stagecraft expertise. This is the winch, described in fifteenth-century documents and exalted in Pio Enea degli Obizzi's *Ermiona* (Padua, 1636),<sup>64</sup> a prologue to a tournament in Prato della Valle, in a temporary theatre building called Stallone. The lighting struck the chronicler so strongly that he noted that the days were confused with the nights. Obizzi, a man of arms, a perfect organizer of the performance, and an *apparatore*, commissioned Alfonso Rivarola from Ferrara, known as Chenda, a painter, architect, and "meccanico di rara teorica ed esperienza" (mechanic of rare theory and experience), to design the sets and machinery.<sup>65</sup> In the introduction to the show, eighty Paduan ladies appeared seated on mobile steps; the spectators (in the illuminated loggias) were enraptured by the

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On the wedding of Marie de' Medici and Henry IV, see also Molinari, *Le nozze*, 45–49.

<sup>59</sup> Fabrizio Carini Motta, *Trattato sopra la struttura de theatri e scene che à nostri giorni si costumano, e delle regole per far quelli con proporzione secondo l'insegnamento della pratica Maestra commune* (Guastalla: Alessandro Giavazzi, 1676); mod. ed. Edward A. Craig (Milan: Il Polifilo, 1972).

<sup>60</sup> Ibid. Concerning the likeness to stars, cf. Sara Mamone, *Dèi, semidei, uomini. Lo spettacolo a Firenze tra neoplatonismo e realtà borghese (XV–XVII secolo)* (Rome: Bulzoni, 2003), 22.

<sup>61</sup> Cf. *ibid.*, 129; Sara Mamone, "Torino Mantova Firenze 1608: le nozze rivali," *Quaderni di Palazzo Te* 6 (1999): 42–59.

<sup>62</sup> Molinari, *Le nozze*, 59.

<sup>63</sup> Luigi Riccoboni, *Réflexions historiques et critiques sur les differens théâtres de l'Europe* (Amsterdam: Aux Depens de la compagnie, 1735), 36.

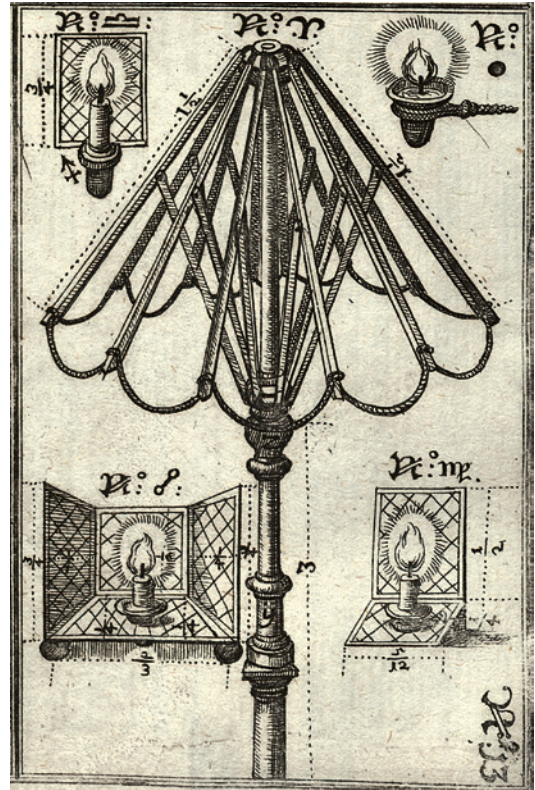
<sup>64</sup> Cf. Zorzi, *Il teatro*, 166–67n35; the winch appears in the emblem of the knights participating in the tournament. Cf. Nicolò Enea Bartolini, *L'Ermiona del Sig. Marchese Pio Enea degli Obizzi . . .* (Padua: Frambotto, 1638).

<sup>65</sup> Ibid.

splendour they emanated.<sup>66</sup> Luminous clouds of “riflessi trasparenti” (transparent reflections),<sup>67</sup> are also described, suggesting the technique of filtered light.

For the staging of *Amor pudico* (1643),<sup>68</sup> the Piazza dei Signori in Padua was transformed into a large theatre. The splendour of the lamps lined up along the boxes was enhanced by variously coloured glass spheres and vases supported by stucco cornucopias containing lights and fragrant essences. At the centre of the stage, eight large chandeliers, shaped like stars, dropped down from above, each of which had twelve rays filling the golden skies, “prodigiosamente” (prodigiously) increasing the light of “quel giorno artificioso” (that artificial day). A list of expenses survives that allows us to evaluate how large a sum was expended on lighting (two thirds); the items include wood and nails for the *lumiere*, the remuneration for those who painted them, the costs of manufacturing and installing the *torcere*, the wax candles ordered in Venice, and the lighting for the stairs.<sup>69</sup>

Baroque theatre has induced historians to speak of the “dramaturgy of light.”<sup>70</sup> Although the expression may seem excessive from a contemporary perspective, there is no doubt that, compared to previous centuries, in the seventeenth century light and its potential was more consciously included in the overall design of the play. The contrast between light and darkness, already exploited before, corresponds perfectly to one of the fundamental features of Baroque poetics. It takes on an absolutely unique importance in the context of ceremonial devices, serving, for example, to amplify the contrast between life and death (e.g., the *castrum doloris*).



4. “Umbrella” device in Joseph Furtenbach, *Mannhaffter Kunstspegel . . .* (Augsburg, 1663), PAN Biblioteka Kórnicka, sign. 310035, a detail of plate 13 after page 125. Photo PAN Biblioteka Kórnicka.

<sup>66</sup> Ibid., vii.

<sup>67</sup> Ibid., xii.

<sup>68</sup> Luigi Manzini, *L'Amor pudico, invenzione del Sig. Marchese Enea degli Obizzi per un torneo a cavallo fatto la notte de' 15 giugno 1643. In Padoa, per le nozze degli Illustrissimi sig. Bartolomeo Zeno e Lisabetta Landi Nob. Veneziani, descritto dal sig. Luigi Manzini* (Padua, [1643]).

<sup>69</sup> *Lista di spese per l'Amor Pudico*, Padua, Museo Civico, Archivio Obizzi, 30 April 1639, n81.

<sup>70</sup> Bergman, *Lighting in the Theatre*, 99.

It is worth mentioning another valuable witness, as an example of the diffusion of Italian practices and concepts in other European countries. This is the architect and traveller Joseph Furttentbach,<sup>71</sup> whose case is relevant because it combines eyewitness testimony, the export of models and their variants, and the design of innovative systems. The experience of his travels in Italy<sup>72</sup> was reflected in his works published between 1627 and 1663. In the *Mannhaffter Kunstspiegel* (1663, Fig. 4) he describes the theatre he built in Ulm between 1640 and 1641. As in the Italian examples, the lamps were equipped with reflective material, screens, and glass bowls with coloured water. The *Newes Itinerarium Italiae* (1627) testifies to the vision, in Florence and Genoa, of the *theatra sacra*: architectural structures for holy performances erected inside churches, illuminated by a light hidden from the view of the spectators, who remain in the dark; light is thus an integral part of the dramatic concept. The representation of Christ's tomb in churches became increasingly spectacular over the centuries: a scene in perspective with wings and arches (without actors), which could be combined with oratorios. Furttentbach describes as "Prospectiva oder Castrum doloris" a staging of the Holy Sepulchre by Giulio Parigi that he saw in Florence.<sup>73</sup> Hans Tintelnot likens these experiences to the *Oratori del Sepolcro* that Burnacini set up in Vienna in the 1690s,<sup>74</sup> dazzling with glories and perhaps endowed with transparencies, the pictorial effect being attributable to the "virtuoso treatment of light."<sup>75</sup>

## THE "INVENTION" OF PYROTECHNICS

We cannot overlook a spectacular form that has existed since the Middle Ages and has endured to the present day, but which takes on a specific importance in the centuries we are dealing with here. Fireworks, probably invented in China, have existed since the invention of gunpowder.<sup>76</sup> From the sixteenth century onwards, they became a spectacular performative genre, conceived in complex designs, both in concept and technical procedure.<sup>77</sup> As part of the allegorical discourse, they accompanied the entrance of guests, military parades, coronations, vassalages, and canonizations; fireworks underlined the highlights of the *naumachia* and emphasized the end of tournaments and *armeggerie*.

<sup>71</sup> Cf. Jan Lazardzig and Hole Rößler, eds., *Technologies of Theatre. Joseph Furttentbach and the Transfer of Mechanical Knowledge in Early Modern Theatre Cultures* (Frankfurt: Vittorio Klostermann, 2016).

<sup>72</sup> The Italian journeys (1610–1620) are described in *Newes Itinerarium Italiae* (1627). *Architectura Civilis* (1628), *Architectura recreationis* (1640), and *Mannhaffter Kunstspiegel* (1663) contain information about theatre. Figures in *Mannhaffter Kunstspiegel* show clouds and chariots floating in the light. Cf. Bergman, *Lighting in the Theatre*, 81–88; Carl Friedrich Baumann, *Licht im Theater. Von der Argand-Lampe bis zum Glühlampen-Scheinwerfer* (Stuttgart: Steiner, 1988), 21.

<sup>73</sup> Cf. Hans Tintelnot, *Barocktheater und barocke Kunst. Die Entwicklungsgeschichte der Fest- und Theaterdekoration in ihrem Verhältnis zur barocken Kunst* (Berlin: Verlag Gebr. Mann, 1939), 271–72, 328n346.

<sup>74</sup> *Ibid.*, 274; see also Flora Biach-Schiffmann, *Giovanni und Ludovico Burnacini. Theater und Feste am Wiener Hofe* (Vienna: Krystall Verlag, 1931), 49, 54–55.

<sup>75</sup> Burnacini's *apparati* are known for their light effects. Cf. *ibid.*, 67–71.

<sup>76</sup> Cf. Günther Schöne, "Barockes Feuerwerkstheater," *Maske und Kothurn* 4 (1960): 351–62.

<sup>77</sup> See Vannoccio Biringuccio's treatise, *Pirotechnia del S. Vannuccio Biringuccio senese . . .* (Venice: Gironimo Giglio, 1559).



In the *Isola Beata* (Ferrara, 1569), Marco Antonio Pasi da Carpi and Pirro Ligorio used fireworks for the purpose of visible set changes: around the castle, vessels spit out pinwheels and firecrackers; the *apparatus* burnt and mutated twice, then disappeared. In Düsseldorf in 1585, for the *Jülische Hochzeit*, a castle floated on the Rhine, defended by the Hydra, Cerberus, and devils against Hercules's attacks, a subject taken from Seneca's *Hercules furens*. Hercules fighting with flaming weapons against fire-breathing monsters would be a recurring motif throughout the following century, an example of the integration of fire instruments into dramatic action. The author of a very detailed illustrated report is probably the same person who conceived the overall design: Theodor Gramineus, who himself provides an explanation of the allegories.<sup>78</sup> The element of water would soon become an essential component of the firework display, a reflective surface that amplified its effect (the Tiber for Castel Sant'Angelo in Rome, the Rhine in Düsseldorf, the Arno in Florence, just to mention a few cases).

From the beginning of the seventeenth century, a German school of pyrotechnics emerged, especially in Nuremberg.<sup>79</sup> We have seen how the inventions of the *intermedi* included ingenious elements, for example fire emitted from the nostrils of various monsters. Furttenbach provides an iconographic description of the fire dragon, a recurring element in many productions of the time.<sup>80</sup> The abundant iconography of firework displays shows how widespread the genre was throughout Europe, combining pyrotechnics, military art, and scenic expertise, creating a celestial setting that amplifies the marvellous scenic solutions of the Baroque. The struggle between polarities that pervades the performance and festival culture of the period (light and darkness, fire and gloom, life and death, as we have seen in other theatrical genres) also substantiates the dramatic relationship between the opposite elements of fire and water.

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<sup>78</sup> Theodor Gramineus, *Beschreibung der Fürstlicher Gülligscher Hochzeit* . . . (Cologne: Diederich Graminaeus, 1587); cf. Cristina Grazioli, "Allegorie d'acqua e di luce. Uno spettacolo pirotecnico sul Reno a Düsseldorf (1585)," in *La civiltà delle acque tra Medioevo e Rinascimento*, ed. Arturo Calzona and Daniela Lamberini (Florence: Olschki, 2010), 603–21.

<sup>79</sup> Johannes Furttenbach, *Halinitro-Pyrobolia. Beschreibung einer neuen Büchsenmeisterey . . . das Feuerwerck zur Kutrtzweil und Ernst zu laborieren* (Ulm: Saur, 1627), 13.

<sup>80</sup> A body, moving on rails, formed of circles, covered with oiled coloured paper, inside oil lamps or rockets; in the jaws a fireball, throwing smoke and fire, rockets in the eyes, ears, and wings.

## REFERENCES

## MANUSCRIPTS

Florence, Archivio di Stato di Firenze, Magistrato dei Nove, ms F.3679

Padua, Museo Civico, Archivio Obizzi, *Lista di spese per l'Amor Pudico*, April 30, 1639

## PRINTED WORKS

Adami, Giuseppe. *Scenografia e scenotecnica barocca tra Ferrara e Parma (1625–1631)*. Rome: L'Erma di Bretschneider, 2003.

Bartolini, Nicolò Enea. *L'Ermiona del Sig. Marchese Pio Enea degli Obizzi*. . . . Padua: Frambotto, 1638.

Baumann, Carl Friedrich. *Licht im Theater. Von der Argand-Lampe bis zum Glühlampen-Scheinwerfer*. Stuttgart: Steiner, 1988.

Bergman, Gösta M. *Lighting in the Theatre*. Stockholm: Almqvist & Wiksell, 1977.

Biach-Schiffmann, Flora. *Giovanni und Ludovico Burnacini. Theater und Feste am Wiener Hofe*. Vienna: Krystall Verlag, 1931.

Biringuccio, Vannoccio. *Pirotechnia del S. Vannuccio Biringuccio senese*. . . . Venice: Gironimo Giglio, 1559.

Carini Motta, Fabrizio. *Trattato sopra la struttura de theatri e scene che à nostri giorni si costumano, e delle regole per far quelli con proporzione secondo l'insegnamento della pratica Maestra commune*. Guastalla: Alessandro Giavazzi Stampatori Ducale, 1676.

*Il Corago o vero alcune osservazioni per metter bene in scena le composizioni drammatiche*. Edited by Paolo Fabbri and A. Pompilio. Florence: Olschki, 1983.

D'Ancona, Alessandro. *Origini del teatro italiano*. 2 vols. Turin: Loescher, 1891.

De' Rossi, Bastiano. *Descrizione dell'apparato e degli intermedi fatti per la commedia rappresentata in Firenze nelle nozze de' Serenissimi don Ferdinando Medici, e Madonna Cristina di Lorena, Gran duchi di Toscana*. Florence: Giorgio Marescotti, 1589.

De' Sommi, Leone. *Quattro dialoghi in materia di rappresentazioni sceniche*. Edited by Ferruccio Marotti. Milan: Il Polifilo, 1968.

Fagiolo, Maurizio. *Scenografia. Dalle sacre rappresentazioni al Futurismo*. Florence: Sansoni, 1972.

Giambullari, Pier Francesco. *Apparato et feste nelle nozze dello Illustrissimo Signor Duca di Firenze et della Duchessa sua Consorte*. Florence: Benedetto Giunta, 1539.

Gramineus, Theodor. *Beschreibung der Fürstlicher Gülügscher Hochzeit*. . . . Cologne: Diederich Graminaeus, 1587.

Grazioli, Cristina. *Luce e ombra. Teoria e storia dell'illuminazione teatrale*. Bari: Laterza, 2008.

\_\_\_\_\_. "Allegorie d'acqua e di luce. Uno spettacolo pirotecnico sul Reno a Düsseldorf (1585)." In *La civiltà delle acque tra Medioevo e Rinascimento*, edited by Arturo Calzona and Daniela Lamberini, 603–21. Florence: Olschki, 2010.

Gualterotti, Raffaello. *Feste nelle nozze del Serenissimo Don Francesco Medici Gran Duca di Toscana et della Serenissima sua consorte la Signora Bianca Cappello. Composte da M. Raffaello Gualterotti*. . . . Florence: Giunti, 1579.

Ingegneri, Angelo. *Della poesia rappresentativa e del modo di rappresentare le favole sceniche* (Ferrara 1598). Edited by Maria Luisa Doglio. Modena: Panini, 1989.

Lazardzig, Jan, and Hole Rößler, eds. *Technologies of Theatre: Joseph Furtenbach and the Transfer of Mechanical Knowledge in Early Modern Theatre Cultures*. Frankfurt: Vittorio Klostermann, 2016.

Mamone, Sara. *Firenze e Parigi due capitali dello spettacolo per una regina Maria de' Medici*. Cinisello Balsamo: Silvana, 1988.

\_\_\_\_\_. "Torino Mantova Firenze 1608: le nozze rivali." *Quaderni di Palazzo Te* 6 (1999): 42–59.

- \_\_\_\_\_. *Dèi, semidei, uomini. Lo spettacolo a Firenze tra neoplatonismo e realtà borghese (XV–XVII secolo)*. Rome: Bulzoni, 2003.
- \_\_\_\_\_. "Drammaturgia di macchine nel teatro granducale fiorentino. Il teatro degli Uffizi da Buontalenti ai Parigi." *Drammaturgia* 12.2 (2015): 17–43.
- Manzini, Luigi. *L'Amor pudico, invenzione del Sig. Marchese Enea degli Obizzi per un torneo a cavallo fatto la notte de' 15 giugno 1643. In Padoa, per le nozze degli Illustrissimi sig. Bartolomeo Zeno e Lisabetta Landi Nob. Veneziani, descritto dal sig. Luigi Manzini*. Padua: Giulio Crivellari, [1643].
- Mazzoni, Stefano. *L'Olimpico di Vicenza. Un teatro e la sua 'perpetua memoria'*. Florence: Le Lettere, 1998.
- \_\_\_\_\_. *Atlante iconografico. Spazi e forme dello spettacolo in occidente dal mondo antico a Wagner*. Pisa: Titivillus, 2003.
- \_\_\_\_\_. "L'Italia nell'Europa delle corti. Note sullo spettacolo barocco." In *Arte Barroca y vida cotidiana en el mundo hispánico. El gran teatro del mundo*, edited by Paula Revenga Dominguez, 229–69. Cordova: UCOPress, 2020.
- Mellini, Domenico. *Descrizione dell'apparato della comedia et intermedii d'essa, recitata in Firenze . . . nelle reali nozze dell'Ilustriss. et Eccell. S. il S. Don Francesco Medici Principe di Fiorenza e di Siena e della Regina Giovanna d'Austria sua consorte*. Florence: Giunti, 1565.
- Molinari, Cesare. *Le nozze degli Dèi. Un saggio sul grande spettacolo italiano nel Seicento*. Rome: Bulzoni, 1968.
- Povoledo, Elena. "Illuminotecnica" (1960). In *Enciclopedia dello Spettacolo*. 12 vols. Rome: Sansoni-Le Maschere, 1954–62, 6:493–508.
- \_\_\_\_\_. "Origini e aspetti della scenografia in Italia. Dalla fine del Quattrocento agli intermezzi fiorentini del 1589." In Nino Pirrotta, *Li due Orfei. Da Poliziano a Monteverdi*, 337–460. Turin: Einaudi, 1975.
- Riccoboni, Luigi. *Réflexions historiques et critiques sur les differents théâtres de l'Europe*. Amsterdam: Aux Depens de la compagnie, 1735.
- Ruffini, Franco. *Commedia e festa nel Rinascimento. La 'Calandria' alla corte di Urbino*. Bologna: il Mulino, 1986.
- Sabbatini, Nicolò. *Pratica di fabricar scene, e machine ne' teatri*. Ravenna: Pietro de' Paoli, 1638. Edited by Elena Povoledo. Rome: Bestetti, 1955.
- Sandelewski, Wiaroslaw. Review of *Teatr dworski Władysława IV*, by Karolina Targosz-Kretowa. *Rivista italiana di Musicologia* 4 (1969): 151–56.
- Schöne, Günther. "Barockes Feuerwerkstheater." *Maske und Kothurn* 4 (1960): 351–62.
- Serlio, Sebastiano. *Tutte l'opere d'architettura et prospetiva. . . . Con un indice copiosissimo. . . .* Venice: Giacomo de' Franceschi, 1619.
- Surgers, Anne. *Scénographies du théâtre occidental*. Paris: Colin, 2007.
- Taviani, Ferdinando. "Bella d'Asia. Torquato Tasso, gli attori e l'immortalità" (1984). In Ferdinando Taviani, *Il rossore dell'attrice. Scritti sulla Commedia dell'Arte e non solo*, edited by Mirella Schino, 133–92. Rome: Bulzoni, 2021.
- Testaverde, Anna Maria. "L'officina delle nuvole. Il teatro Mediceo nel 1589 e gli 'Intermedi' del Buontalenti nel 'Memoriale' di Girolamo Seriacopi." *Musica e teatro. Quaderni degli amici della Scala* 7.11–12 (1991): 174–249.
- \_\_\_\_\_. "L'avventura del teatro granducale degli Uffizi (1586–1637)." *Drammaturgia* 12.2 (2015): 45–69.
- Tintelnot, Hans. *Barocktheater und barocke Kunst. Die Entwicklungsgeschichte der Fest- und Theater-Dekoration in ihrem Verhältnis zur barocken Kunst*. Berlin: Verlag Gebr. Mann, 1939.
- Vasari, Giorgio. *Le vite de' più eccellenti scultori ed architettori scritte da Giorgio Vasari pittore aretino*. Edited by Giorgio Milanesi. 8 vols. Florence: Sansoni, 1906.
- Ventrone, Paola. *Teatro civile e sacra rappresentazione a Firenze nel Rinascimento*. Florence: Le Lettere, 2016.

Warburg, Aby. "I costumi teatrali per gli 'Intermezzi' del 1589." In Aby Warburg, *La Rinascita del paganesimo antico e altri scritti (1889–1914)*, edited by Maurizio Ghelardi, 163–226. Turin: Nino Aragno, 2004.

Zirfeo. *Ordenliche Beschreibung: Des gewaltigen trefflichen und herrlichen Thurniers zu Roß und Fuß. So am Sontag Oculi Anno 1570 und dieselb nachgehende Wochen zu Prag in der alten Stadt den der Enden anweswnden Chur und Fürsten zu Ehren gehalten worden ist.* [Prague], 1570.

Zorzi, Ludovico. *Il teatro e la città. Saggio sulla scena italiana.* Turin: Einaudi, 1977.

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