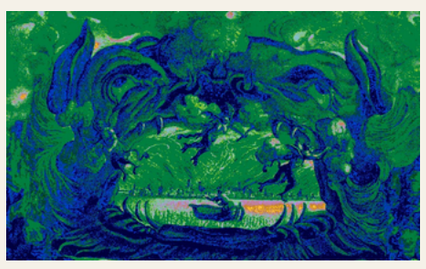
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Armed in Letters, Lettered in Arms: Ancient Technology, Military Science, and the Origins of Baroque Spectacle in Europe (1550–1650)

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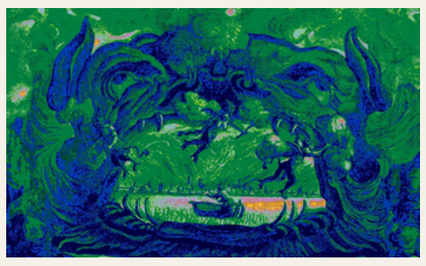
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Armed in Letters, Lettered in Arms: Ancient Technology, Military Science, and the Origins of Baroque Spectacle in Europe (1550–1650)

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RESUMEN

Esta investigación busca dilucidar la contribución fundamental del arte militar medieval a la evolución de las fiestas cortesanas y el teatro premoderno. Examina una serie de perfiles biográficos de figuras que, entre finales del siglo XV y el siglo XVII, se desenvolvieron en la intersección de la ingeniería militar y la producción teatral. A partir de esta evidencia historiográfica, el estudio analiza los marcos teóricos y prácticos que facilitaron la convergencia de estos ámbitos aparentemente dispares. Esta influencia interdisciplinaria finalmente declinó en el siglo XVIII, a medida que el rol del técnico teatral se asimilaba a las estructuras emergentes del teatro empresarial, catalizadas por las reformas teatrales contemporáneas.

PALABRAS CLAVE

Ingeniería militar de la época moderna. Prácticas escénicas del Renacimiento. Autómata en la escena del Renacimiento. Arte Militar de la temprana edad moderna. Trazas a la italiana y enclaves de la construcción teatral de la temprana época moderna.

ABSTRACT

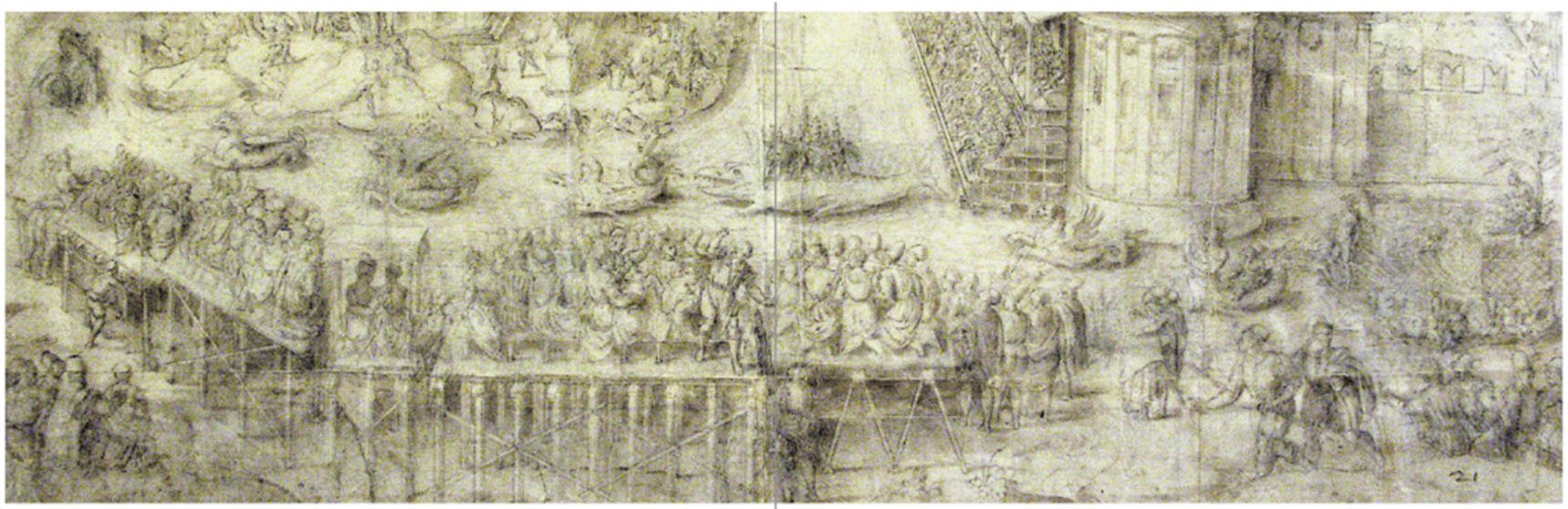
This research seeks to elucidate the foundational contribution of medieval military art to the evolution of courtly festivals and pre-modern theater. It examines a series of biographical profiles of figures who, between the late fifteenth and seventeenth centuries, operated at the intersection of military engineering and theatrical production. Based on this historiographical evidence, the study analyzes the theoretical and practical frameworks that facilitated the convergence of these ostensibly disparate domains. This cross-disciplinary influence eventually declined in the eighteenth century, as the role of the theatrical technician was assimilated into the emerging structures of entrepreneurial theater, catalyzed by contemporary theatrical reforms

KEYWORDS

Early Modern Military Engineers; Renaissance Staging Practices; Automata in the Renaissance stages; Early Modern Warfare; Tracé à l'italienne and Pre-Modern Theatrical Construction Sites

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ARMED IN LETTERS, LETTERED IN ARMS



Armed in Letters, Lettered in Arms:

Ancient Technology, Military Science,

and the Origins of Baroque Spectacle in Europe (1550–1650)*

The constant presence of the demon of war in the history of Western spectacle, reiterated in the Chorus of Shakespeare's *Henry V* has attracted the attention of many modern and contemporary scholars. Yet far less attention has been paid to the contribution of the military art of the Renaissance to the techniques of coeval theatrical staging. The evocative setting of the incipit of Shakespeare's play directed by Kenneth Branagh and played by Sir Derek Jacobi, situated at the back of a stage, inspires us to ponder the reasons for this contribution. Upon closer examination, it may be a key element to understanding the scope and specificity of much of the lost epic of pre-modern theatre, destined to die out when the metiers of spectacle became professionalized in the eighteenth century.[1]

Studies devoted to ephemera and theatrical staging in Europe during the courtly era developed following the Second World War and in recent decades they have generated numerous contributions, many of which collective and some of which boasting lavish documentary annexes. The international scientific community has long embraced the original intuitions of Burckhardt and Warburg, who gleaned an enormously fertile borderland in such events, in which the rediscovery of antiquity, syncretistically readapted to the courtly traditions of Northern Europe, generated representative models marked by great originality and variety [Fig. 1].

* I would like to express my sincere gratitude to Professor Esther Merino Peral for her kind permission to publish in this journal. Her scholarly work and our productive discussions on these matters have served as a significant impetus for my ongoing research and academic interests.

[1] This contribution is taken from an article of mine that originally appeared in *Biblioteca teatrale* in 2011; cf. Giuseppe Adami, "Tra guerra e teatro : scienza e tecnologia militare al servizio dello spettacolo nell'Europa di Antico Regime", *Biblioteca teatrale*, 1/2 2009: (2011), 13–45. The text translated into English has been integrated in some places with some bibliographical updates. The expression *Armed in Letters, Lettered in Arms* found in the title corresponds to the second humanistic motto (*Litteris armata, et armis erudita*) of one of the most famous Italian chivalric academies: the Ferrara-based Accademia degli Intrepidi, founded in 1600 by Francesco Saracini.

Fig. 1 Naumachia staged for the tournament titled *L'isola beata*, held in Ferrara on May 25, 1569, at the behest of Duke Alfonso II d'Este to commemorate the arrival of Archduke Charles II of Austria (drawing, © Ferrara, Biblioteca Comunale Ariostea, Classe I, 814)

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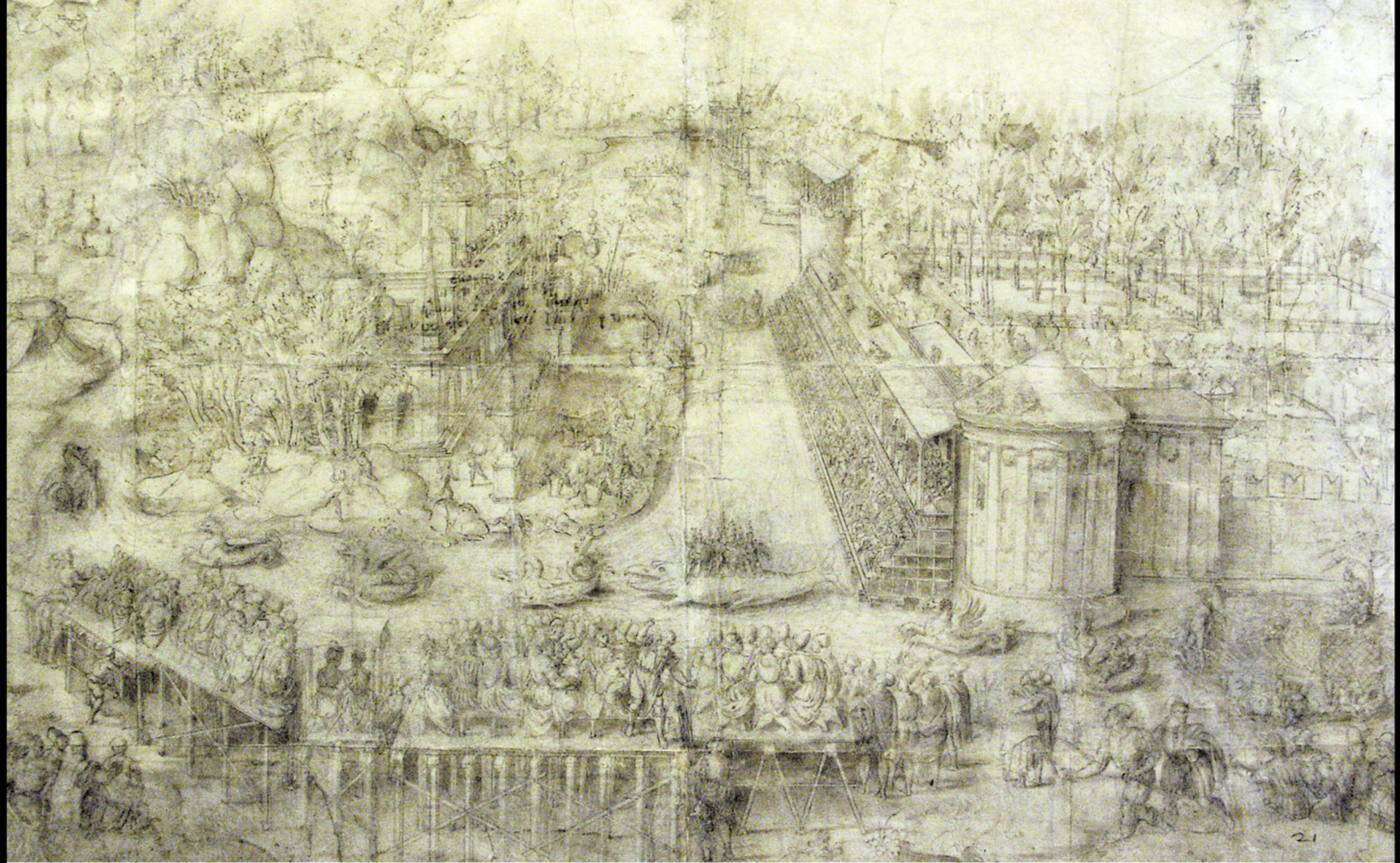


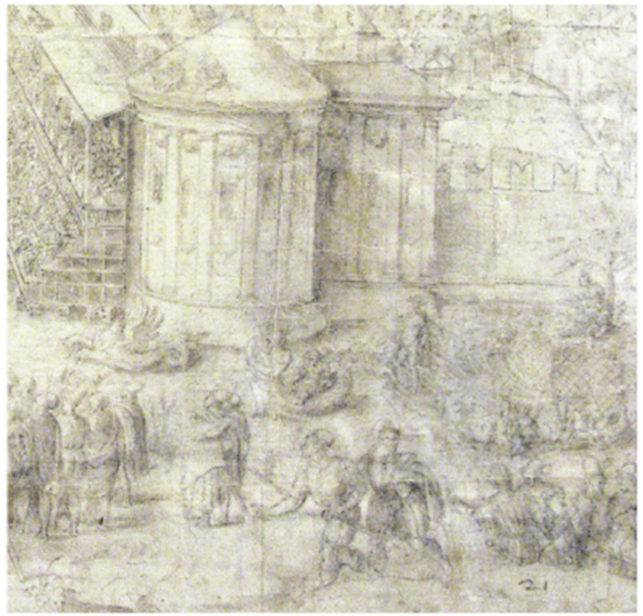
Fig. 1

According to social and political historians, it is possible that they can give us a faithful image of the cultural models that generated them, which served the purpose of affirming and consolidating the absolutist power of princes and organizing courts.

The spectacle of Europe's aristocratic Old Order has been studied by a broad array of different disciplines. Therefore, this area of research has contributed not only to the history of literature, music and dance, but also to fields such as the history of gardens, that of artificial grottoes and the study of certain religious orders such as the Jesuits. All of this could have helped attenuate – if not eliminate – the hurdle of the overly rigid separation of disciplines that tends to be applied to such types of research. Nevertheless, the declarations of intent of scholars who strived to overcome these limitations were not always paralleled by adequate communication among the various fields of knowledge involved in these studies. A truly interdisciplinary approach would naturally have been eminently desirable, given the intense transformation process of coeval dramaturgic and musical theory, as was the case with the theoretical principles, operating criteria and standards of those involved in building the places of spectacle and creating the scenery that animated them. The ensuing complexity and the enormous gap separating these spectacular events from those of the centuries that followed should have inspired scholars to collaborate more closely and eschew narrow paths of research, which are also subject to the risk – noted by Jacquot in his own era – of developing reassuring *portraits–robots* "which offer models such as Elizabethan theatre or the Spanish theatre of the corrales (or the *teatro all'italiana*) because, so composed, these images tend to establish themselves as reality even when they are presented as working hypotheses". [2] This was a historiographic custom and, objectively speaking, to some extent it normalized the broad range of solutions typical of the early phase of *teatro all'italiana*. The latter was understood as a stratified organism, the outcome of various models of the form of the hall, perspective scenery and stage machinery conceived in the late fifteenth and early sixteenth century by humanist artists with Roman and Florentine backgrounds (Bramante, Gerolamo Genga, Baldassarre Peruzzi, the Sangallo family and Raphael) and by the technicians of the Padan courts, evolving just over a century later into a consolidated constructional paradigm that was the outcome of an enormously successful cultural project, directly and indirectly influencing the concept of theatres in Europe and the New World.

[2] Fabrizio Cruciani, *Lo spazio del teatro*, 2nd ed. (Roma-Bari: Laterza, 1993), 11.

In the results that scholars attained with respect to their intentions, due consideration was not always given to the vital dialectic that took place in the world of courts and academies, and that often led to progressive adjustments, manifest or veiled compromises, several failures but also daring interpretations of antiquity, particularly through the exegesis of Vitruvius and the survey of monuments, combined with great experimentation.



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From a historiographic standpoint, it must again be emphasized that pre-modern studies in the history of art, architecture, science and technology often ignored the stimuli offered by musicologists and theatre historians who, thanks also to the study of theatre iconography, helped promote research establishing a dialogue between the evolution of theatre and that of its sister arts. As to art history, apart from commendable but virtually isolated exceptions, the favourable moment in which this subject – which had become in vogue – had rightfully entered the realm of academic debate came to an end. Consequently, in recent years there have been few compelling and systematic analyses of the relationship between iconographic subjects and the stages for which they were conceived. With the exception of contributions on *trompe l'oeil*, Bibiena's angled perspective and, in general, studies devoted to perspective, investigations aimed at clarifying the relationship between stagecraft per se and official art are equally rare. We should add the fact that iconographic sources were often considered mere "illustrations" rather than primary documents of these representations. Rarely has anyone attentively investigated their provenance, the techniques used to make them, or the relationships among the engravers of the iconography of theatrical texts, the workers involved in spectacles and their patrons. There has also been little recent input by architectural historians on the construction of theatres and, above all, the construction of theatrical scenery, stable or temporary, and attempts at the graphic restoration of such equipment are even rarer.

Similar considerations can be made regarding the history of technology. Even outside this critical context, Renaissance and Baroque theatrical scenery does not seem to have received systematic in-depth attention in monographic studies or collective publications, although in recent years there has been greater sensitivity towards the relationship of science, technology and theatre, perhaps as a result of the groundbreaking approach of Frances Yates' exemplary essay and of studies on the theatrical interests of philosophers and scientists such as Giovanni Battista Della Porta, Giordano Bruno, Galileo, Tommaso Campanella and Descartes. These works have circulated widely thanks also to publishing initiatives such as the *Theatrum Scientiarum* series promoted by the Frei Universität of Berlin, which developed the concept of "Performativity of Knowledge/Kulturen des Performativen", a productive effort full of interesting research perspectives in what is necessarily a multidisciplinary field.[3]



[3] See Frances A. Yates, *Theatre of the World*, (London: Routledge & Kegan Paul, 1969). Consult, inter alia, the twenty-seventh volume of the periodical *Interdisciplinary Science Reviews* (2002), fully dedicated to the examination of these research topics; see also Andrea Bisicchia, *Teatro e scienza: da Eschilo a Brecht e Barrow*, (Torino: Utet, 2006). The approach proposed in the collective volume edited by Helmar Schramm, Ludger Schwarte and Jan Lazardzig,*Collection, laboratory, theater: scenes of knowledge in the 17th century*, Theatrum Scientiarum: English Edition 1 (Berlin-New York: De Gruyter 2005), is suggestive. The foundational premise of this publication centers on the concept of the "Performativity of Knowledge," or "Kulturen des Performativen": "The project is based on the assumption that in the course of the reconstitution of science in the Seventeenth century practices of presentation, observation, and medial competence emerge, whose productive force can only be adequately described from an interdisciplinary perspective. These practices are in no way confined to the processes of the legitimization and implementation of knowledge; rather, through the experimental methods used for modelling and handling the world, a dynamic structure of creative approaches to observation and presentation is developed", *Collection, Editors' Preface.*

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Fig. 2. Ferdinando Tacca. Teatro della Pergola. *Hipermestra*, Florence 1652.
BH UCM

Apart from these exceptions, the dearth of studies is also tied to the paucity of documents available to scholars, due to the secrecy that inevitably surrounded the creation and production of this type of theatrical equipment. It must thus be observed that, despite the deluge of publications on the subject of late-sixteenth-century and Baroque theatricality and the sometimes-nonchalant use of the adjective *teatrale* and the terms *meraviglia* and *festa* as generic historiographic categories to interpret aspects of court culture, including those entirely unrelated to the spectacle itself, shadows nevertheless remain.

The reasons that have briefly been mentioned here, the mutual prejudices of the disciplines involved, and the significant difficulties encountered in procuring ancient and modern bibliographic sources on milieus that, now quite diverse, were once more closely related inevitably makes the task of those studying the material circumstances and the technological horizon in which those magnificent scenes developed and became established, difficult and incomplete. In other words, we know far too little about the identity of the leading figures who were part of the fortunate season of scenography and stagecraft that allowed Italian artists to prevail in European theatres, as evidenced by the work at Spain's royal venues by Cosimo Lotti and Baccio del Bianco and on Parisian stages by Torelli and the Vigarani family, and the experience matured at German and Austrian courts by the families of other famous stage designers and engineers such as Burnacini, Santurini and Mauro families.

Based on these fundamental premises, what first emerges is that until at least the second half of the seventeenth century, the professional identity of these masters was partially recognized. On the other hand, the role of the scenographer began to expand its sphere of influence as early as the mid-sixteenth century—one need only think of a multifaceted artistic personality like Vasari. Over time, this professional figure was entrusted with increasingly significant responsibilities. The set designer, therefore, was not limited to being a mere executor of machines and scenic apparatuses but intervened in various capacities in their conception, assuming a decisive role in the propaganda policy of pre-modern states, as illustrated by the example of Bernardo Buontalenti and Giulio Parigi's role in Medici Florence. This process was consolidated between the seventeenth and eighteenth centuries, when their intervention was able to effectively coordinate one or more scenic painters and, particularly in the largest theatrical productions, a multitude of different artisans, drawn chiefly from the enormous repository of skills and know-how offered by the medieval tradition of workshops and city guilds: masons, sculptors, carpenters, woodworkers, glass makers, blacksmiths, ropemakers, and so on.[4]

[4]The architectural development of the Florentine theatre within the Uffizi complex provides a remarkable case study in this regard; see Anna Maria Testaverde Matteini, "L'officina delle nuvole. Il Teatro Mediceo nel 1589 e gli Intermedi del Buontalenti nel Memoriale di Girolamo Seriacopi", in *Quaderni degli Amici della Scala*, (1991): 11-12.

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There is also no question that in the second half of the sixteenth century Italian theatres underwent an advanced process in the mechanization of scenery, responding to the changing sensitivity and taste of patrons and audiences alike. This process *coincided* with the achievement of one of the most exceptional processes of the Renaissance humanist theatre: the creation of urban perspective scenery. With this innovation, tied to the erudite project – by no means isolated [5] developed by a select courtly milieu and inspired by antiquity (though not organically derived from it), the paratactic arrangement of medieval simultaneous scenery was replaced by a form of unifying perspective illusionism unrelated to the world of classical representation.[6] It thus arrived at defining the model of an "orderly" city, an ideal organism that had nevertheless managed to maintain its own identity until then. As we know, this process, which commenced in the first decade of the sixteenth century, was completed within just a few lustres. It had been preceded by intense theoretical reflection on Vitruvius' treatise and Roman ruins, conducted starting in the mid-fifteenth century by an illustrious array of figures: not only erudite philologists, antiquarians and architects, but also artists who had trained at urban workshops. We can cite the scenery created by Pellegrino da Udine for Ariosto's *La Cassaria*, staged in Ferrara (1508), and the sets made for Bernardo Dovizi da Bibbiena's *La Calandria* at the court of Urbino by Gerolamo Genga and in Rome by Baldassarre Peruzzi, not to mention the experiences of Bastiano (Aristotile) da Sangallo, who was close to Bramante during his first period in the capital city, Raphael, Peruzzi, and the sets (along with the theatres in which they were used) designed by Sebastiano Serlio, a pupil and beloved friend of the Sienese architect, and by Giorgio Vasari, who in his youth had assisted Bastiano da Sangallo with the *mise-en-scène* of the *Aridosia* in 1536. The outcome was a transformation of the depth of the stage from the picture-framed perspective of the early years to Peruzzi's "piazza e via lunga [square and long street] – and Vasari's continuous scenery. As already mentioned, the changes made by the next generation of stage designers would lead to an overall redefinition of the more manifestly technological aspects of spectacle. The general impression is that once the period of urban perspective scenery, inspired by the classicistic speculation of Italian theorists and artists in the early sixteenth century, had fully matured, representations suddenly reverted to the festive dimension of the Middle Ages, which had never actually disappeared and, if anything, had proven capable of coexisting with the erudite humanist tradition, blurring its boundaries – influencing the outcomes of the *sui generis* reinterpretation of ancient theatre proposed by humanists – and, in some cases, fully cross-fertilizing with it. Like chivalrous festivals, the "apparent" intermezzi constituted an ideal vehicle to convey these aspirations within the framework of comedy and erudite or classical-style tragedy, as well as pastorals. The revived principles of the transmutation of matter pertaining to natural magic, combined with elements of Neoplatonic thought and the vitalistic currents that had profoundly permeated the restless cultural climate of the Late Renaissance, were thus able to manifest themselves. The static vision of urban scenery, suited to regular comedies and tragedies and regulated by Aristotelian unities, thus waned and the representation of a dynamic universe, interpreted in a magical-esoteric vein, emerged in its stead, in a theatre in which the motifs of ancient fables became inextricably entwined with those drawn from the rich epic-chivalrous repertory of the Middle Ages. The introduction of changeable scenery in intermezzi thus responded to the need for the plastic representation of such a vision, and its success was so rapid and so great that, according to Molinari, "the intermezzi *are* the spectacle [...] and this spectacle (in Florence) is a mechanical spectacle". [7]

[5] Paola Ventrone following Zorzi, also reminds us of contemporary theatrical customs alternative to the urban perspective scene (the experience of the Paduan *scenae frons* of the Loggia Cornaro, readapted with the use of the sentry boxes of the Romance theatrical practice in the performances of Ruzzante, the Ferrarese theatrical practices in the fifteenth century as can be deduced from the frescoes of Schifanoia, the evolution of the sacred spectacle etc.), see Paola Ventrone, "La scena prospettica rinascimentale: genesi e sviluppo", *Culture Teatrali*, fasc. 7/8 (2003-2002): 141–50.

[6] «[…] il ne faut pas oublier que le théâtre italien de la Renaissance ne trouve pas son origine dans le développement organique de formes ou d'institutions antérieures, mais qu'il s'agit d'une élaboration intellectuelle plutôt qu'artistique, réalisée par des savants, qui, comme il arrivait en ce temps-là, se proposaient de restaurer les formes et les images de l'antiquité classique», Cesare Molinari, "L'idée de théâtre dans la Renaissance italienne", *Revue internationale de philosophie* n° 252, fasc. 2 (2010): 242.

[7] Cesare Molinari, "La scena vuota", in *Teatro e spettacolo nella Firenze dei Medici. Modelli dei luoghi teatrali. Firenze Palazzo Medici Riccardi 1 aprile-9 settembre 2001*, E. Garbero Zorzi - M. Sperenzi, eds., (Firenze: Olschki, 2001) 56.

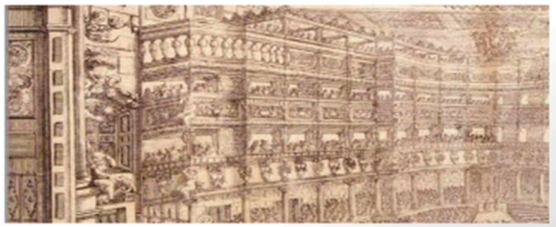


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On several occasions, in order to explain the multifaceted talent of these engineers of festivals and spectacles, theatre historiographers have cited their military experience, commonly associating them with the work they did in other potentially correlated technical areas, such as hydraulics and naval engineering. To account for the marvel aroused by their technical bravura, in some cases scholars have resorted to the cliché of "secrets" learned at the *botteghe* of artisans, while in others they have evoked the thaumaturgic talents of the universal artist, extending their importance to contexts far removed from those of the Early Renaissance. In yet other cases they have taken the esoteric and magical nature of Baroque scenic artifice for granted, echoing the wizardly epithets of *grand sorcier* and *el hechicero* that contemporaries used to refer respectively to Giacomo Torelli and Cosimo Lotti. As far as we know, no one went any further, save the usual exceptions. The considerations that follow instead attempt to identify – albeit summarily – some of the basic reasons behind the importance that the military technology of the era acquired in the material culture of theatre.

My research[8] was initially inspired by a simple observation: whereas all the leading players of the early and complex phase of humanist theatre – consecrated by Serlio's *Second Book of Architecture*, devoted to perspective (1545) – were painters and architects tied to early pictorial training, with the partial exception of Bastiano da Sangallo, the new generation of stage designers who went to work in the second half of the century came chiefly from the ranks of technical experts and engineers.

More specifically, most of the main theatrical scenery during this period was the work of artists who, on various levels, were equally involved in military commissions and experiences. Although this list could be far longer, I will simply cite some of the most renowned: Baldassarre Lanci,[9] Bernardo Buontalenti,[10] Giovan Battista Aleotti,[11] Giulio Parigi and his son Alfonso,[12] Gaspare Vigarani, [13] Joseph Furttenbach,[14] Baccio del Bianco,[15] Francesco Guitti[16] and Giacomo Torelli.[17]



.[8] See Giuseppe Adami, "L'ingegnere-scenografo e l'ingegnere-venturiero. Le macchine e le scene di Francesco Guitti ideate per il torneo de La Contesa: Ferrara 1631", in *Barocke Inzenierung: Akten des Internationalen Forschungzolloquiums an der Technischen Universität Berlin, 20-22. Juni 1996*, (Emsdetten/Zürich: Imorde, 1999, 158-189); — — —., *Scenografia e scenotecnica barocca tra Ferrara e Parma (1625-1631)*, (Roma: L'Erma di Bretschneider, 2003); see also — — —., *Pietro Paolo Floriani tra spalti e scene* (Macerata: Fondazione Cassa di risparmio della provincia di Macerata, 2006).

[9] He is responsible for the design of the Medici citadel of Siena (1561), of Terra del Sole (1564) and of the new walls of Grosseto (1565). As a set designer he worked in Florence setting up the floats for the celebrations in honour of the wedding of Prince Francesco (1566) and then the scenes of two comedies: *I Fabii* by Lotto del Mazza (1568), and *La sodosa* by Giovambattista Cini (1569).

[10] In 1565, commissioned by Vasari, Buontalenti was responsible for the stage decoration, attic apertures, and mechanical elevator systems for the production of Francesco d'Ambra's *La Cofanaria*. Subsequent to his completion of the Uffizi court theater, his scenographic contributions in 1586 and 1589 for the comedies *L'Amico fido* by Giovanni de' Bardi and *La Pellegrina* by Girolamo Bargagli, along with their respective *intermedi*, achieved pan-European renown. Furthermore, in his role as a military engineer, Buontalenti designed the citadel of Perpignan (1562) and directed the restoration of fortresses in Portoferraio on Elba (1570) and Pistoia (1571). In conjunction with Don Giovanni de' Medici, he also drafted the designs for the New Fortress of Livorno and the Forte del Belvedere in Florence (1590–1595).

[11]Aleotti completed, among other things, the papal fortress of Ferrara (1618) and also wrote two treatises on artillery and fortification; he also worked as a theater architect and set designer; his most famous creation was the Teatro Farnese in Parma (1618), which followed his design for the Sala degli Intrepidi of San Lorenzo in Ferrara (1605); Aleotti was also responsible for many theatrical sets for city festivals and tournaments, see *Giovan Battista Aleotti e l'architettura*, eds. C. Cavicchi et al. (Reggio Emilia: Diabasis, 2003) and Alessandra Frabetti, "Appunti per una storia del teatro all'italiana: la centralità di Giovan Battista Aleotti," *Culture teatrali* 15 (2006): 35–65.

[12] Beyond his established reputation as a scenographer, Alfonso—having received foundational training in his father's workshop in mechanical arts, military architecture, and engraving—served under Emperor Ferdinand II during the German Wars, participating in the opening phases of the Thirty Years' War: "for a large part of his thirty-year career at the Medici court, he served as a military engineer and architect", Arthur R. Blumenthal, *Giulio Parigi's stage designs: Florence and the Early Baroque Spectacle* (New York: Garland, 1986), 213.

[13] According to Lodovico Vedriani, the architect and scenographer from Reggio is credited with the design of the Fortress of Modena, initiated in 1636. Furthermore, Vigarani authored a treatise on military architecture titled *Regole sicure, e geometriche per fare le Fortezze* […], which is currently preserved in the Biblioteca Estense in Modena. See Bruno Adorni, "La chiesa come il teatro: due architetture di Gaspare Vigarani", in *Barocco romano e barocco italiano: il teatro, l'effimero, l'allegoria*, eds. M. Fagiolo and M. L. Madonna, (Roma: Gangemi, 1985), 237.

[14]His theoretical contributions to the fields of military and theatrical architecture, including stagecraft, are primarily documented in the treatises *Architectura Recreationis* (1640) and *Mannhafftor Kunst-Spiegel* (1663). Additionally, he is recognized for his practical achievements, which include several fortifications along the Rhine, a tower on the Danube, and various stage designs

[15] As a set designer, in addition to Florence, he worked in Spain in the service of Philip IV, staging various performances, including Calderón de la Barca's *Las Fortunas de Andromeda y Perseo* in 1653 at the Coliseo del Buen Retiro theater. In his capacity as a military engineer, he arrived in Prague in 1623 following Giovanni Pieroni and Pietro Paolo Floriani to build "defenses and […] half-moons, raise trenches, and close off passes to defend against Bethlen Gabor," as Filippo Baldinucci writes in *Notizie dei professori del disegno da Cimabue in qua* (1682), vol. V, (Firenze: V. Batelli e Compagni, 1847), 24

[16] Guitti finalized the preparations for the sumptuous spectacles staged in Parma in December 1628 for the nuptials of Duke Odoardo Farnese and Margherita de' Medici. Additionally, he organized a series of tournaments for the Ferrarese nobility and undertook the restoration of the Teatro degli Intrepidi di San Lorenzo in 1625. Beyond his theatrical contributions, Guitti was active as a military architect, collaborating with Pietro Paolo Floriani on the completion of several demilunes within the papal citadel of Ferrara, see Adami, *L'ingegnere*, 164

[17] It is widely acknowledged that Torelli—regarded as a preeminent seventeenth-century scenographer on the basis of his Parisian productions—initially arrived in Venice circa 1639 "per essercitare nell'Arsenale i suoi talenti dediti alla militia [to exercise his talent dedicated to military art]", Maiolino Bisaccioni, *Il Cannocchiale per la Finta Pazza*, (Venezia: G. B. Surian, 1641), 7

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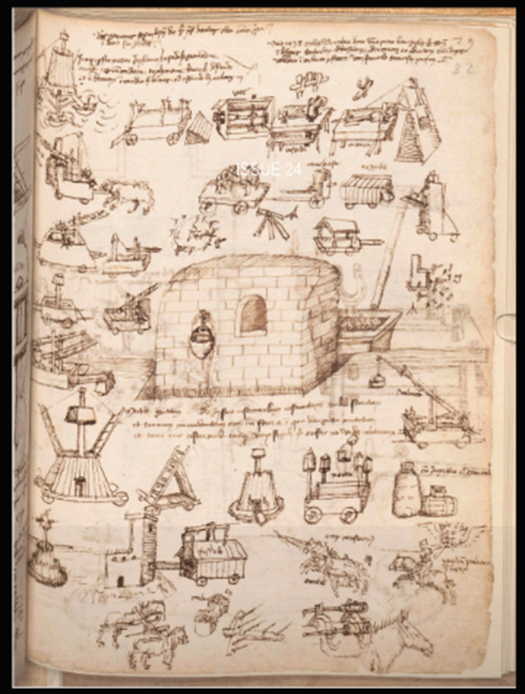
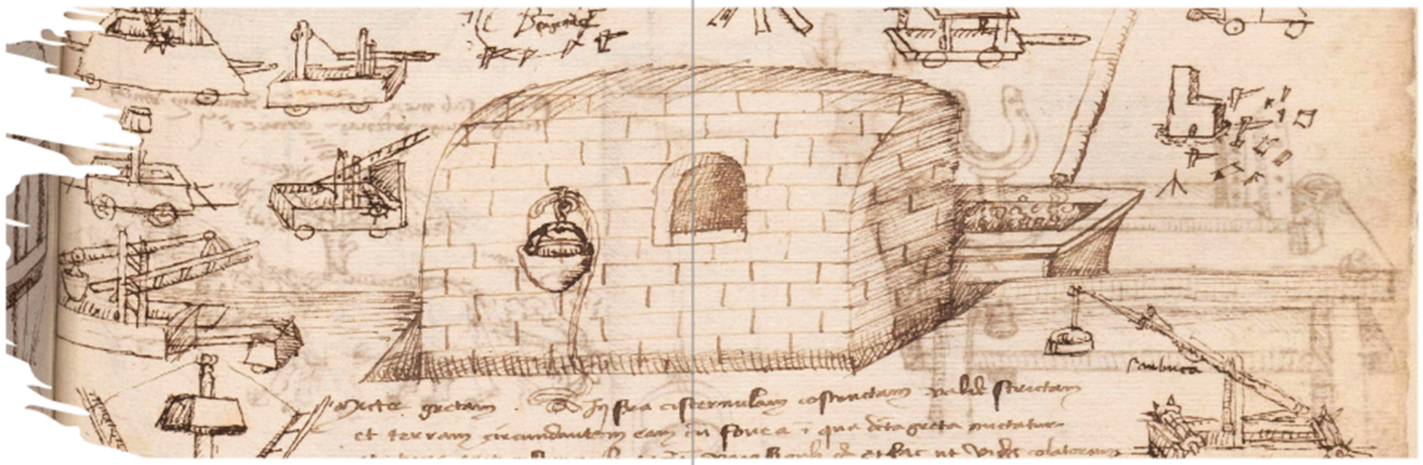


Fig. 3 Examples of siege trains, assault chariots and other military devices from Mariano Taccola, *De Ingeneis* (circa 1419- 1450), (drawing, München, Bayerische Staatsbibliothek, Cod. Lat. Monacensis 197 II, f. 82r. Marked with Public Domain Mark 1.0)



What were the real reasons for this phenomenon? How and on what level can we cite a *privileged bond*, obligatory to some extent, between the Renaissance art of war and coeval stagecraft? The answers to these questions are naturally complex and diverse, as they are linked not only with the strictly material realm of mechanical aspects but also the symbolic sphere, as is always the case when technology is involved.

The first and most evident relationship concerns the very statute of military engineers and the prestige these professionals enjoyed at court. The difficult process of interpreting the tenth book of Vitruvius' treatise constitutes a privileged vantage point for understanding the terms of this question. We know that in the early fifteenth century the rediscovery of ancient technological tradition arose from the iconographic legacy of the medieval mechanical corpus that, in most cases, had to do with the instruments and machinery of war. In this case, the Middle Ages adapted to the classical use. A common acceptation of the Greek *mńchanń*, going back at least as far as the fifth century BC, can also be found in Latin, where the *machina* first appeared:

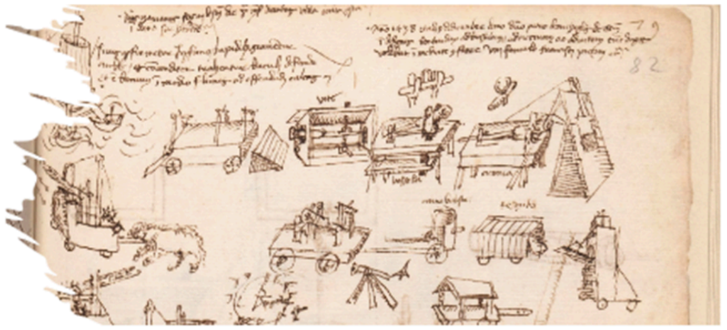
> around the second century BC as equipment *ad oppugnandum* – Ennius, *Ann.* 621: 'machina multa minax minatur maxima muris' – *tropice*, as equipment *ad impugnandum* and chiefly *ad decipiendum*: Plautus, *Bacch.* 232: 'aliquam machinabor machinam' . [18]

[18] Gabriele Baroncini, "Note sulla formazione del lessico della metafora 'machina mundi' ", «Nuncius, IV, n.º 2, (1989):12»;

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In the twelfth century the terms *ingeniator* and, in the following century, *ingeniarius* and *ingeniosus* were used to refer chiefly to craftsmen specializing in military machines, above all siege engines; [19] likewise, the Latin *ingenium* meant not only war machines but also the intellectual aptitude for invention. In other words, from its very origins the engineering trade was directly associated with the concept of an "ingenious invention" produced by its creator's *mètis*, aimed in most cases at devising and constructing military equipment. This process continued in the early modern age and, indeed, in the four books of *De ingeneis* and, above all, in *De machinis* by Mariano di Jacopo, called Taccola, the famous and widely imitated Sienese artist-engineer of the early fifteenth century, "the term *machina/macchina* and *machinatio* are almost always associated with descriptions of war machinery" [20]. **[Fig. 3]** The second half of the century saw a shift in this direction, not so much because of the growing knowledge that had been attained by humanist philology applied to classical *machinatio* but due instead to the intervention of a new host of Vitruvian interpreters, in this case constituted not only by illustrious masters such as Francesco di Giorgio, but also by the likes of Fra Giovanni Giocondo, who united refined scholarship with exceptional talent as a draughtsman and as a military and civil architect. These men offered the community of scholars and artists an extraordinary legacy of theoretical and practical knowledge that drew on tradition, adding new graphic techniques they had invented and, ultimately, fully understanding the devices described in the Roman architect's aniconic text. In addition to their desire to emulate antiquity, they were also clearly eager to promote themselves in order to become emancipated from the *empireia* of common craftsmen and the secondary role, with respect to the liberal arts, to which they had been relegated until then. The convergence of text and image, the adoption of projective geometry and perspective, and the use of box structures and transparency by Francesco di Giorgio and even Leonardo encouraged the creation of an autonomous design language that could vie with the arts and contemporary science on various levels.**[Fig. 4]** Rather than being reduced to a mere but noble antiquarian exercise as in the past, the filter of antiquity was instead used to promote a different epistemological approach to mechanical knowledge, one tied to the development of increasingly sophisticated techniques of representation that could dialogue on equal terms with tradition, thus becoming the forerunner of a different technological model based on the mastery of design with respect to the supremacy of words. studies of the past. Del Monte devoted his final books to scenic design, but he also studied dynamics, applying it to the motion of artillery projectiles in his manuscript entitled *Meditatiunculae de rebus mathematicis*. [21]



[19]See Helene Vérin, *La Gloire des Ingénieurs: L'intelligence technique du XVIe au XVIIIe siècle*, (Paris: Albin Michel 1993), 21.

[20]Paolo Galluzzi, "*Machinae pictae*: immagine e idea della macchina negli artisti ingegneri del Rinascimento", in *Lessico intellettuale europeo*, M. Veneziani ed., (Firenze: L. S. Olschki, 2005), 243. Baroncini observes how even in the fourth edition of the Crusca in 1729, the first meaning of "machine" is that of an "engine of war", Baroncini, *Note*, 6.

[21]For the decisive role of sixteenth-century *ars fortificatoria* in promoting the scientific revolution of the following century, see Matteo Valleriani, *Galileo Engineer*, (Dordrecht-London: Springer, 2010)

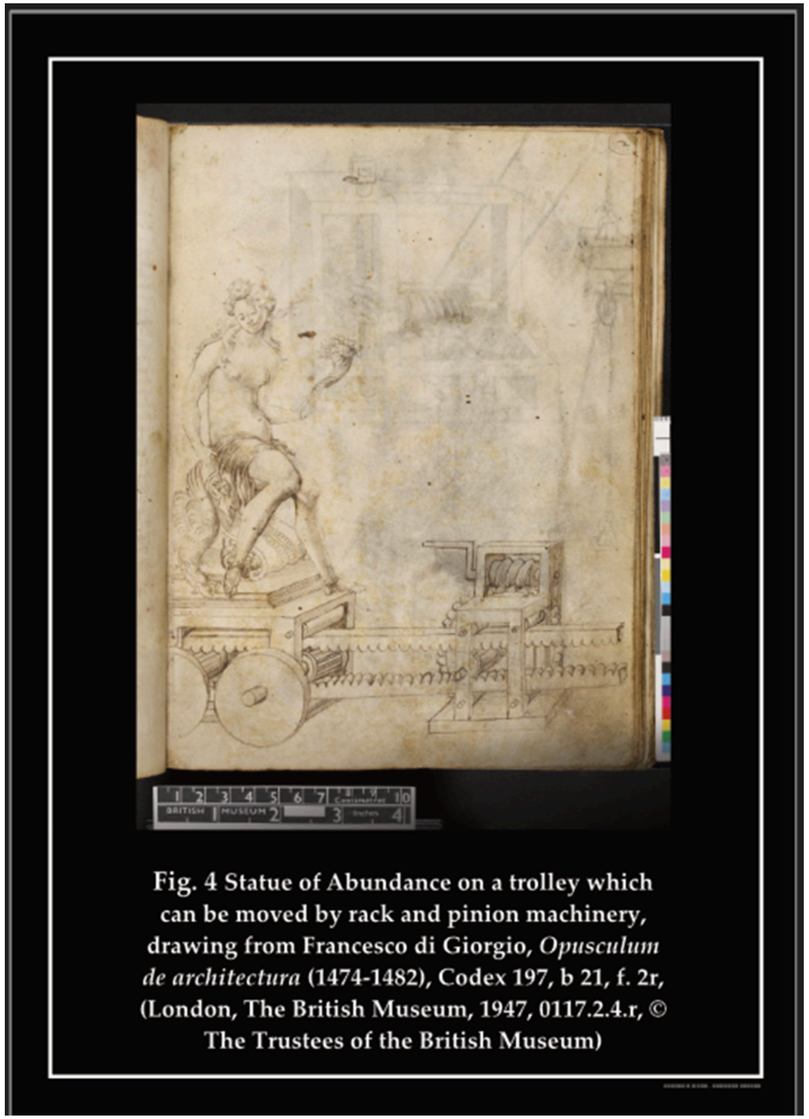


Fig. 4 Statue of Abundance on a trolley which can be moved by rack and pinion machinery, drawing from Francesco di Giorgio, *Opusculum de architectura* (1474-1482), Codex 197, b 21, f. 2r, (London, The British Museum, 1947, 0117.2.4.r, © The Trustees of the British Museum)

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Working on the glacis of fortresses, the leading players of sixteenth-century spectacle, empowered by their familiarity with this rich theoretical and experimental production, profited from the expertise that had been gained so arduously by the "heroic" generation before them, personally taking part in preparing the military campaigns of the princes who employed them. [Fig. 4] As the stage for the dramatic confrontation between the French and Spanish monarchies, the Italian peninsula had effectively become Europe's principal military training ground and its most advanced technological laboratory. The rise of firearms, which coincided with the *guerre horrende de Italia* sparked by the entry of Charles VIII in 1494, led to the invention and growing popularity of the polygonal bastion and its extension in fortified circuits, known as the bastioned front (the so-called *tracé à l'italienne*), which would radically alter the appearance of modern urban defences. In effect, the new *military* architecture, considered by scholarship as "one of the must public forms of architecture"[22] artillery and the construction of siege engines, gradually gave civil architecture a virtually unique heritage of theoretical knowledge along with design procedures and ways of organizing construction sites that no other coeval artistic or technological field could provide on the same level. As opposed to the tradition of the polymathic artists of the Early Renaissance, many of the military engineers-scenographers of the late sixteenth and seventeenth centuries represented the new technical experts of the state; in their own way, their provenance from the ranks of the military made them part of a broader process that Elias famously described as the "curialization of warriors". Loyal only to their lord and generally indifferent towards local concerns, they proudly demanded free rein in terms of both judgement and modus operandi, something quite exceptional for the era. They were driven by the awareness that they were the bearers of state-of-the-art theoretical and practical knowledge, defined by Cesariano as *machinatione adulterina* and sanctioned at this point by Vitruvius' treatise, Aristotelian mechanics and Archimedean science.

Though it is true that the most complex mechanisms generally had more leeway at military sites built during peacetime than at those erected in the emergency of a current conflict, and that often the refined regulations in certain treatises of military architecture were used in particular to impress the sovereigns and hierarchies for whom they were written, it is equally true that the construction sites of fortifications were rapidly transformed into a veritable factory or what we can more accurately define as the only proto-factory in the era of absolutism, until they were officially established in the Industrial Age. In my opinion, it is no accident that these kinds of technical experts were the ones who, on behalf of certain entrepreneurial noblemen, sparked the process – in turn, proto-capitalistic – of transforming court and academic theatres into the *teatro del soldo*, public theatres charging admission, which arose with the *opera mercenaria* (commercial opera) introduced in Venice in the 1630s. Moreover, we must not overlook the role of figures such as Don Giovanni de' Medici. In his day, he worked at a number of venues as a military engineer and *apparatore* of festivals (albeit rather unsuccessfully), going on to direct – with a martial air – the theatrical company of the Comici Confidenti, which began to make a name for itself in Venice in 1615. Giovanni de' Medici further testifies to the fact that the war market, which more than two centuries earlier had given rise to the *soldato* – soldier, a term derived from *soldo*, meaning money – at the expense of the medieval *miles*, had a decisive influence on many areas of civil life.

[22] Nicholas Adams, "The Fortifications Drawings", in *The Architectural Drawings of Antonio da Sangallo the Younger and His Circle*, ed. C. L. Frommel., vol. 1, *Fortifications, Machines, and Festival Architecture*, (Cambridge-London: The MIT Press, 1994), 62

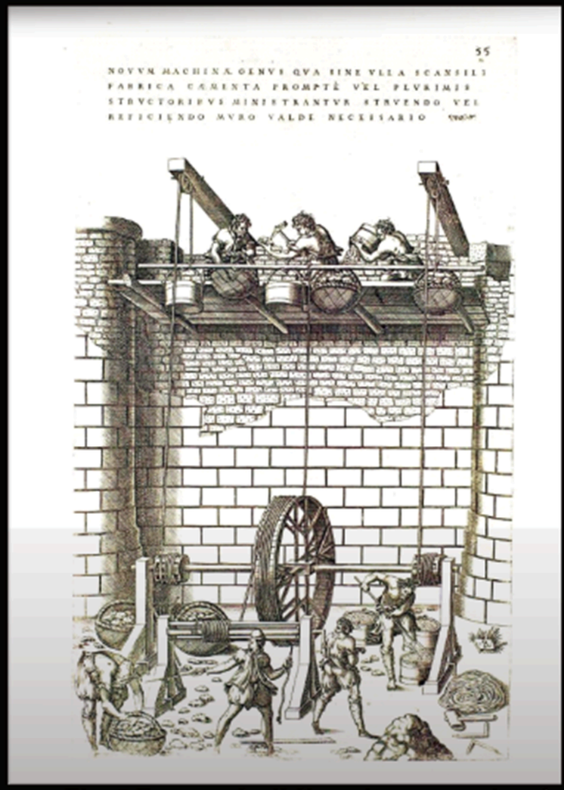


Fig. 5 Fortress building site, engraving from Jacques Besson e Béroalde de Verville, *Theatrvm instrvmentorvm et machinarum Iacobi Bessoni ...* (Lyon, Barthélemy Vincent, 1578), pl. 35

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The ability to sketch and survey sites of military interest, often for the purpose of espionage, in order to illustrate – using instruments such as the surveying compass – defensive structures in an orthographic projection or oblique axonometric projection (known as military or cavalier perspective) "with three-dimensional views that give buildings and infrastructures a pseudo-perspective" and thus obtain plans from a perspective view thanks to Dürer's perspective machine; the skills needed at the construction sites of fortresses to orchestrate several hundred diggers who moved enormous masses of earth, and then to oversee master builders, masons, unskilled labourers, carpenters and other workers who, after the foundations had been excavated, had to work synchronously to erect the so-called *terraglio* before the masonry finish could be applied to the structure; the diplomacy needed to cater to the wishes of princes, many of whom had a knowledge of architecture; the ability to collaborate (or clash) with the soldiers and government officials responsible for procuring raw materials and paying the workers; and – last but not least – the proverbial discretion of these figures, a highly valued asset in a context such as a theatre where surprise was critical to the success of the representations, and the speed with which they worked, essential particularly when erecting the most common provisional earthworks and equally fundamental in creating theatrical scenery]: all of these qualities made the science of military construction particularly suited to the installation of stage sets as complex as those mentioned here.

As compelling as they may be, however, these reasons alone cannot explain the parallels between war and theatre. This connection is also related to an aspect closely tied to the very nature of the theatrical sceneries examined here and the acknowledged intellectual qualities of their creators. In the original Greek culture, at least as of the final decades of the fifth century BC, all objects and operations connected with *mńchanń* always referred to the prodigious effect produced in it by the creator's *mètis*. Scholarship has also ascertained that the rootedness of *mńchanń* in *mirabila* and *mètis*, according to "a continuity founded on the particular affinities among *dólos*, *mńchanń* and *tèchnń*" continued throughout the Classical Age and beyond.

In a famous passage in his *Metaphysics* (982b), Aristotle – inextricably linking science and representation – viewed the act of experiencing wonder (*thaumazein*) as the foundation of philosophy, viewed as the path of the soul from *aporia*, the loss of a sure course, to *thêoria*, considered in its original significance as "the contemplation of a spectacle", in which the philosopher himself is considered a "spectator". With his *Mechanical Questions*, in turn Aristotle specified the nature of the surprising effect aroused by the use of machines:

> Among things that occur according to nature (*kata phusin*), we wonder at those whose cause is unknown; among things that occur *para phusin*, we wonder at those that come about by means of art (*technê*) for the benefit of mankind [...] Whenever, then, it is necessary to do something *para phusin*, because of the difficulty we are at a loss (*aporia*) and have need of art (*technê*). For this reason, we also call that part of art that assists in such situations (*aporiai*) a device (*mêchanê*) [24]

[23]See Andrea Wilson Nightingale, "On Wandering and Wondering: "Theôria" in Greek Philosophy and Culture", *Arion*, Third Series, 9 (2001): 23-58

[24]*Mech*. 847 a 11 – 28, English translation by Mark Schiefsky, "Art and Nature in Ancient Mechanic", in *The Artificial and the Natural : an Evolving Polarity* (Cambridge MA: The MIT Press, 2007), Introduction.

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Among Greek authors, the metaphor of the demiurge akin to the *machina mundi* (Baroncini) and the Aristotelian vision of the relationship between art and nature then encouraged the association of the mechanical device with the living being. This line of thought was embraced by prominent figures in the modern age, including Guidobaldo and Galileo, and presaged the terms of seventeenth-century mechanistic philosophy. This makes it easier to understand the reserve of princes, who offered only a few intimates or special visitors the privilege of enjoying the theatres they had commissioned. Indeed, the theatres were guarded – even with weapons – before spectacles were staged in order to protect them from the prying eyes of courtiers or, worse yet, possible sabotage, which was quite frequent according to the anonymous author of the *Corago*.[25] Like the artificial grottoes in gardens, so too the stage – which boasted automata and statues – became a sort of appendage of the prince's *Kunst– und Wunderkammer*, capable of arousing reverential admiration and its own inherent pleasure, independently of the event for which it had been conceived. This occurred in the extent to which one could glean in it a concise representation of the entire universe and the fulfilment of nature, seamlessly linked with the most mature expression of *ars*. Using Guidobaldo's words on the lever: "Ars enim mirabili artificio naturam ipsa natura superat; ita nimirum res disponendo, ut ipsa efficeret natura, si eiusmodi sibi producendos statueret effectus ".[26] In the sixteenth century the art of the architect and military engineer was the quintessence of *ars mechanica*, not only in terms of innovation, but also because this is how it was perceived, particularly in the tragic circumstances of sieges or because of the awkward and threatening presence of urban citadels, which were also employed to monitor and, if necessary, quell internal revolts. Indeed, the full correspondence of form and function that marked these works, and the radical overhaul of the planimetric and altimetric parameters on which the defences of the Middle Ages and early fifteenth century were based meant that – with a slight metonymic gap – the fortress was identified with the idea of the machine, in which "by means of curtains and bulwarks, as if with machines and instruments, man strives with few soldiers to repel many, and to maintain the advantage" [27]

And it was represented as a machine not only in coeval technical treatises but also, for example, in certain automatic theatres inspired by Heron's model and portraying siege scenes, such as the one that adorned the Grotto of the Samaritan in the Medicean garden of Pratolino, designed by Ferdinando Tacca, who can be credited with the plans for the Teatro della Pergola in Florence, and the automatic theatre mentioned by Ercole Bottrigari in his treatise entitled *Mascara, overo della fabbrica de' teatri* (1596–1598), composed of:

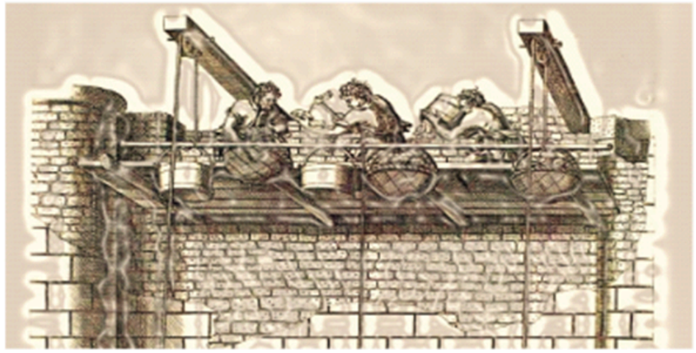
> […] a large wooden machine *in the form of scenery* [my italics] in which, as instructed by Heron the mechanic ... in his book on Automata, wheel power set in motion different relief images in the round ... including armed horsemen and fighters in ... a large crowd battling each other on foot and on horseback, and with wild beasts and monsters, ... and the conquest of fortresses, which suddenly appeared with batteries, or arquebuses and artillery[28]

[25]See *Il corago* […], eds. P. Fabbri and A. Pompilio, (Firenze: Olschki, 1983), cap. XXIII.
[26] Guidobaldo Del Monte, *In duos Archimedis aequeponderantium libros paraphrasis* […], (Pesaro: Girolamo Concordia 1588), 2
[27] "[…] per via di cortine et balcuardi quasi con machine et istrumenti s'ingegna l'uomo con pochi soldati di ributtarne indietro molti, et mantenersi con vantaggio", this dedicatory letter within the translation of Guidobaldo Del Monte's *Mechanicorum liber* (1577), published as *Le mechaniche* […] (Venice: F. di Franceschi, 1581), reflects a sentiment previously expressed by John of Salisbury (1120–1180) in *Policraticus* (6, 19): "Militia sine arte [mechanica] nihil est"
[28]"[…] una gran machina di legno in forma di scena, nella quale per forza di ruote nel modo da Herone il meccanico […] nel suo libro degli Automati insegnato si movevano diverse imaginette di rilievo di tutto tondo […] tra le quali compativano apunto cavalieri armati et combatenti in […] gran piazza l'uno contro l'altro così a piedi, come a cavallo, et con fiere e mostri, […] espugnationi di fortezze, che all'improvviso si vedevano comparire con batterie, o di archibugi et di artiglarie", Ercole Bottrigari, *La mascara, overo, della fabrica de' teatri et delle apparato delle sorte tragicatirisomiche. Dialogo* […], (1596-1598), Bologna, Civico Museo Bibliografico Musicale, cod 47 B 45, ff. 43-44

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What must be emphasized above all is that the primacy of the sixteenth- and seventeenth-century art of fortification in the civil arena, particularly in theatre, was part of a more general air of renewal that affected the very theory of war during the Renaissance. This took place as of the fifteenth century with the transition "from the tralatitious *imitatio* of the Roman *exemplum* to the innovative *restitutio* of the Hellenistic and Byzantine *scientia militaris*".[29] I am convinced that the significant concurrence of the rise of Italian theatre, theatrical scenery and festive displays in the late sixteenth century and the seventeenth century, and of the modern military revolution (1560–1660)[30] encouraged by the conquests of the scientific Renaissance in Europe, can be explained if we juxtapose the contributions of the science of military constructions to the overall technological progress of the societies of the Old Order, as discussed here, with the equally notable and effective intellectual advancement achieved thanks to the rise of military humanism. This was characterized by various epistemological parameters drawn from the interpretation of texts based on an ancient Latin and, above all, Greek and Byzantine polemological tradition that had been misunderstood or virtually ignored in Western Europe in the Middle Ages.[31] The study of the authors of classical military literature, categorized as *strategic*, *tactical* and *poliorcetic*, conducted on the works of Aeneas Tacticus, Onasander, Arrian, Aelianus and Frontinus among the Romans, would prove to be invaluable when the effectiveness of bastioned defence was questioned not only by military technicians and men-at-arms but also by artists, albeit for different reasons, as occurred from the very beginning of its evolution among the authors who, in turn, had a direct influence on the theatre of the era: witness Machiavelli[32] and Palladio.[33] This brings us to the use of the weapons of tactics and psychotactics, applied to increasingly sophisticated siege techniques. In a paradox of history, while the growing mechanization of conflicts effectively minimized the human factor in war, there simultaneously arose a current of thought among engineers and men-at-arms whereby, thanks to the modern *restitutio* of ancient military classics, the individual component represented by the soldier, the strategist and the military engineer was increasingly reappraised at the expense of defensive machinery and constructions.

Trained in a fertile intellectual milieu that was at once ancient and ultramodern, in which stratagems and the errors of the enemy were just as important to the outcome of a battle as the new war technologies, military engineers thus represented the ideal figures to oversee an illusory scenic machine as complex as that of the nascent *teatro all'italiana*. Accustomed as they were to the use of firearms, perceived as a renewed and anti-chivalric example of *deceit* yet also the emblem of a new technological marvel that had appeared on battlefields, they transposed this know-how to create theatrical scenery in which the pleasure wrought by the deception of the spectators' senses was a worthy viaticum for the secular liturgy of the prince and his court.



[29] Virgilio Ilari, «Imitatio, Restitutio, Utopia: Ancient Military History in Modern Strategic Thought», en Guerra e diritto nel mondo greco e romano, ed. Marta Sordi (Milán: Vita e Pensiero, 2002), 274.

[30] Regarding this contentious historiographical premise, established by Michael Roberts in 1956, critiqued by John Rigby Hale, and further elaborated by Geoffrey Parker see Ilari, Imitatio, 272-275

[31]Luigi Loreto elucidates the reception of Aelian's military treatise by the Byzantine Emperor Alexios I. During the 1116 campaign against the Turks, Alexios engaged in a theoretical examination of the text, formulating his observations—as recorded by Anna Komnene—in a notebook (en diphterais) for subsequent practical application (en aletheia) on the battlefield. Loreto argues that the distinction between diphterai and aletheia suggests that Aelian's work served not as a prescriptive military manual, but rather as an "epistemological parameter"—a framework for the cognitive organization of empirical data (ek empeirias polles). L. Loreto, "Il generale e la biblioteca. La trattatistica militare greca da Democrito di Abdera ad Alessio I Comneno," in *Lo spazio letterario della Grecia antica*, Vol. II, *La ricezione e l'attualizzazione del testo*, G. Cambiano et al. eds., (Roma: Salerno Editrice 1995), p. 564.

[32] "Debbesi, adunque, considerare come le fortezze si fanno o per difendersi da' nimici, o per difendersi da soggetti. Nel primo caso le non sono necessarie, nel secondo dannose [Consequently, it is imperative to evaluate the strategic utility of fortifications, whether they are intended for defense against external adversaries or for the control of internal subjects. In the former instance, such structures are arguably superfluous; in the latter, they may prove inherently detrimental to the stability of the state.], Niccolò Machiavelli, Discorsi sopra la prima deca di Tito Livio (1513-19), II, XXIV

[33]"Havvendosi da molti secoli addietro, fino a' tempi nostri per l'esperienza, e per l'esito di non poche guerre veduto, che non si è trovato alcuna città così munita e forte che l'essercito nemico, essendo stato convenevolmente gagliardo non habbi potuto, dopo non molta fatica e lungo spatio di tempo, farsene padrone […] non è meraviglia, che già sia nata l'opinione fra gli huomini […] essere impossibile ch'alcuna rocca, o fortezza si possa tenere e difendere contra l'impeto e la forza de' potenti nimici». [Having seen through experience and the outcome of many wars, from many centuries ago until our times, that no city has been found so well-fortified and strong that a suitably powerful enemy army could not, after some effort and a long period of time, make itself master of it […] it is no wonder that the opinion has already arisen among men […] that it is impossible for any stronghold or fortress to be held and defended against the impetus and force of powerful enemies.]" Andrea Palladio, *I Commentari di C. Givlio Cesare con le figvre in rame de gli alloggiamenti, de fatti d'arme, delle circonuallationi delle città, e di molte altre cose notabili descritte in essi. Fatte da Andrea Palladio per facilitare a chi legge, la cognition dell'historia*, (Venezia: P. de' Franceschi, 1575), Proemio. For an analysis of Palladio's engagement with military history, see Guido Beltramini, «Antiche battaglie», in *Palladio* / Centro Internazionale di Studi di Architettura Andrea Palladio, Guido Beltramini e Howard Burns eds. (2008), 342-355

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BIBLIOGRAPHY

Adams, Nicholas. "The Fortifications Drawings." In *The Architectural Drawings of Antonio da Sangallo the Younger and His Circle*, edited by C. L. Frommel, vol. 1, *Fortifications, Machines, and Festival Architecture*, 62. Cambridge and London: The MIT Press, 1994.

Adami, Giuseppe. "L'ingegnere-scenografo e l'ingegnere-venturiero. Le macchine e le scene di Francesco Guitti ideate per il torneo de *La Contesa*: Ferrara 1631." In *Barocke Inszenierung: Akten des Internationalen Forschungscolloquiums an der Technischen Universität Berlin, 20–22. Juni 1996*, 158–189. Emsdetten/Zürich: Imorde, 1999.

Adami, Giuseppe. *Pietro Paolo Floriani tra spalti e scene*. Macerata: Fondazione Cassa di risparmio della provincia di Macerata, 2006.

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

Adami, Giuseppe. "Tra guerra e teatro: scienza e tecnologia militare al servizio dello spettacolo nell'Europa di Antico Regime." *Biblioteca teatrale* 1/2 (2009) 2011: 13–45.

Adorni, Bruno. "La chiesa come il teatro: due architetture di Gaspare Vigarani." In *Barocco romano e barocco italiano: il teatro, l'effimero, l'allegoria*, edited by M. Fagiolo and M. L. Madonna. Roma: Gangemi, 1985.

Baldinucci, Filippo. *Notizie dei professori del disegno da Cimabue in qua* (1682). Vol. V. Firenze: V. Batelli e Compagni, 1847.

Baroncini, Gabriele. "Note sulla formazione del lessico della metafora 'machina mundi'." *Nuncius* IV, no. 2 (1989): 3–30.

Beltramini, Guido. "Antiche battaglie." In *Palladio*, edited by Guido Beltramini and Howard Burns, 342–355. Centro Internazionale di Studi di Architettura Andrea Palladio, Royal Academy of Arts in collaboration with Royal Institute of British Architects. Venezia: Marsilio, 2008.

Bisaccioni, Maiolino. *Il Cannocchiale per la Finta Pazza*. Venezia: G. B. Surian, 1641.

Bisicchia, Andrea. *Teatro e scienza: da Eschilo a Brecht e Barrow*. Torino: Utet, 2006.

Blumenthal, Arthur R. *Giulio Parigi's Stage Designs: Florence and the Early Baroque Spectacle*. New York: Garland, 1986.

Bottrigari, Ercole. *La mascara, overo, della fabrica de' teatri et dello apparato delle scene tragisatiricomiche. Dialogo* […]. 1596–1598. Bologna: Civico Museo Bibliografico Musicale, cod. 47 B 45.

Cavicchi, Costanza, Francesco Ceccarelli, and Rossana Torlontano, eds. *Giovan Battista Aleotti e l'architettura*. Reggio Emilia: Diabasis, 2003.

I Commentari di C. Givlio Cesare con le figvre in rame de gli alloggiamenti, de fatti d'arme, delle circonvallationi delle città, e di molte altre cose notabili descritte in essi. Fatte da Andrea Palladio per facilitare a chi legge, la cognition dell'historia. Venezia: P. de' Franceschi, 1575.

Il corago […]. Edited by P. Fabbri and A. Pompilio. Firenze: Olschki, 1983.

Cruciani, Fabrizio. *Lo spazio del teatro*. 2nd ed. Roma-Bari: Laterza, 1993.

Del Monte, Guidobaldo. *In duos Archimedis aequeponderantium libros paraphrasis* […]. Pesaro: Girolamo Concordia, 1588.

Del Monte, Guidobaldo. *Le mechaniche* […]. Venezia: F. di Franceschi, 1581.

Frabetti, Alessandra. "Appunti per una storia del teatro all'italiana: la centralità di Giovan Battista Aleotti." *Culture Teatrali* 15 (2006): 35–65.

Galluzzi, Paolo. "Machinae pictae: immagine e idea della macchina negli artisti ingegneri del Rinascimento." In *Lessico intellettuale europeo*, edited by Marco Veneziani, 241–272. Firenze: L. S. Olschki, 2005.

Ilari, Virgilio. "Imitatio, restitutio, utopia: la storia militare antica nel pensiero strategico moderno." In *Guerra e diritto nel mondo greco e romano*, edited by Marta Sordi, 269–381. Milano: Vita e Pensiero, 2002.

Loreto, Luigi. "Il generale e la biblioteca. La trattatistica militare greca da Democrito di Abdera ad Alessio I Comneno." In *Lo spazio letterario della Grecia antica*, vol. II, *La ricezione e l'attualizzazione del testo*, edited by G. Cambiano et al. Roma: Salerno Editrice, 1995.

Machiavelli, Niccolò. *Discorsi* […] *sopra la prima deca di Tito Livio*. Firenze: Bernardo di Giunta, 1531.

Matteini Testaverde, Anna Maria. "L'officina delle nuvole. Il Teatro Mediceo nel 1589 e gli Intermedi del Buontalenti nel Memoriale di Girolamo Seriacopi." *Quaderni degli Amici della Scala*, 1991, 11–12.

Molinari, Cesare. "L'idée de théâtre dans la Renaissance italienne." *Revue internationale de philosophie* 252, no. 2 (2010): 233–46.

Molinari, Cesare. "La scena vuota." In *Teatro e spettacolo nella Firenze dei Medici. Modelli dei luoghi teatrali. Firenze Palazzo Medici Riccardi 1 aprile–9 settembre 2001*, edited by E. Garbero Zorzi and M. Sperenzi. Firenze: Olschki, 2001.

Schiefsky, Mark. "Art and Nature in Ancient Mechanics." In *The Artificial and the Natural: An Evolving Polarity*. Cambridge, MA: The MIT Press, 2007.

«Schramm, Helmar, Ludger Schwarte y Jan Lazardzig, eds. Collection, Laboratory, Theater: Scenes of Knowledge in the 17th Century. Theatrum Scientiarum: English Edition 1. Berlin and New York: De Gruyter, 2005»

Valleriani, Matteo. *Galileo Engineer*. Dordrecht and London: Springer, 2010.

Ventrone, Paola. "La scena prospettica rinascimentale: genesi e sviluppo." *Culture Teatrali* 7/8 (2002–2003): 141–50.

Vérin, Hélène. *La Gloire des Ingénieurs: L'intelligence technique du XVIe au XVIIIe siècle*. Paris: Albin Michel, 1993.

Wilson Nightingale, Andrea. "On Wandering and Wondering: 'Theôria' in Greek Philosophy and Culture." *Arion*, Third Series, 9 (2001): 23–58.

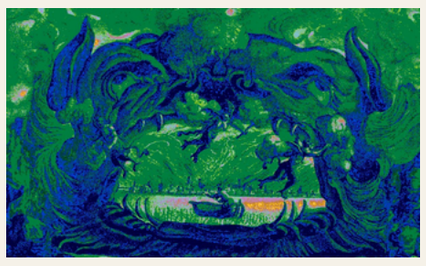
Yates, Frances A. *Theatre of the World*. London: Routledge & Kegan Paul, 1969.



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