
Renaissance and Reformation Renaissance et Réforme



Galluzzi, Paolo. The Italian Renaissance of Machines. Trans. Jonathan Mandelbaum

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Volume 44, numéro 1, hiver 2021

URI : <https://id.erudit.org/iderudit/1081161ar>

DOI : <https://doi.org/10.33137/rr.v44i1.37071>

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Éditeur(s)

Iter Press

ISSN

0034-429X (imprimé)

2293-7374 (numérique)

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Citer ce compte rendu

Hall, B. (2021). Compte rendu de [Galluzzi, Paolo. The Italian Renaissance of Machines. Trans. Jonathan Mandelbaum]. *Renaissance and Reformation / Renaissance et Réforme*, 44(1), 236–239. <https://doi.org/10.33137/rr.v44i1.37071>

expulsion in paintings, book illustrations, and ephemeral art. Readers are treated to a convincing and mesmerizing reconstruction of over a century of repression, violence, and attempts at obliteration of cultural memory. The book is a fascinating and riveting account of a multilayered and often changing story. Art historians, scholars of Iberian religious and cultural history and religious studies, and social scientists will all have something to glean from this new book which casts this minority in a new and complex light.

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<https://doi.org/10.33137/rr.v44i1.37070>

Galluzzi, Paolo.

***The Italian Renaissance of Machines.* Trans. Jonathan Mandelbaum.**

Cambridge, MA: Harvard University Press, 2020. Pp. xi, 276 + 107 ill. ISBN 978-0-674-98439-4 (hardcover) US\$39.95.

Paolo Galluzzi is the doyen of Leonardo da Vinci scholars today. He is the director of the Museo Galileo, formerly the Istituto e Museo di Storia della Scienza, in Florence. The work under review is a collection of the Bernard Berenson Lectures on the Italian Renaissance that he delivered in 2014. The first chapter, “The Sienese Machines,” at 101 pages quite a lecture, reworks material that Galluzzi first presented in 1991. Chapter 2, “Leonardo versus the ‘Ancient Philosophers,’” synthesizes material Galluzzi published between 1988 and 2015. The third and final chapter, “Immaterial Machines,” is the most fully original, although it draws on ideas Galluzzi first presented in 2005.

Lectures demand a level of thematic unity other forms of discourse lack. This is a challenge to Galluzzi throughout, but nowhere more so than in chapter 1. Historically, Leonardo belonged mainly to historians of art, but beginning in the 1960s our view of him was infiltrated by the history of science and technology, a process aided by the discovery of the *Madrid Codices* in 1965, abetted by the work of Ladislao Reti (d. 1973) and Carlo Pedretti (d. 2018). Today, Leonardo ranks as the premier Renaissance artist-engineer, but not as an isolated pioneer genius. He was, from this perspective, the highest exemplar of what Galluzzi has titled “The Italian Renaissance of Machines.”

This new, broader point of view demands a great deal of attention to Leonardo's "precursors," and especially the remarkable Sieneese duo, Mariano di ser Jacopo, called "*Il Taccola*, the magpie" (d. ca. 1453), and Francesco di Giorgio Martini (d. 1501). Galluzzi's long first chapter is burdened with the difficult task of introducing Francesco and Taccola (hardly household names), as well as numerous other precursors to Leonardo. In addition to description, we get Galluzzi's opinions on such questions as Taccola's search for a sponsor—Galluzzi refuses to name anyone, although Sigismund of Luxemburg, who spent most of 1432 in Siena, is a strong candidate. He emphasizes Francesco's intellectual debt to Vitruvius, the ancient Roman architect—as if every Italian Renaissance architect did not venerate Vitruvius. Such conclusions are thin gruel for any reader looking for insights into Renaissance technology. In general, Galluzzi's description of Francesco's work is the best in the literature for a short treatment, but it leaves out so much by way of technically interesting detail as to disappoint.

Chapter 2 is an attempt to define Leonardo da Vinci's self-taught genius by pitting him against textbook Aristotelianism as propounded in Italian universities around 1500. This is a hackneyed device, one that fails to articulate what Leonardo's approach to mechanics actually *was*, rather than what it was *not*. Leonardo was among the first to isolate machine elements, such as gear transmissions, from complete machines (mills or cranes, for example). This approach relied heavily on perspective drawing, and it resembles his approach to anatomy through the visualization of muscles, tendons, and bones. Galluzzi is aware of the comparison between mechanics and anatomy in Leonardo's work—he should, since it dates from the 1970s—but its heuristic value as an explanation is limited at best. Galluzzi seems to want to make Leonardo into a pioneering natural scientist, striving to articulate general principles or even natural laws based on his keen observations of how mechanical systems behave. While I agree that Leonardo does sometimes seem to lean in such a direction, it is difficult, if not impossible, to capture the essence of his method in such a formulaic manner.

Chapter 3 is the most difficult to characterize. It begins with discussions of the difficulties experienced by Renaissance editors and translators when they sought to create images of machinery described in ancient texts. Virtually no images of machines or weapons have survived from antiquity outside sculptural sources. This lacuna was especially severe in the case of Vitruvius, most keenly

in the Roman's descriptions of catapults (*ballistae*). From there, Galluzzi pivots to the "Theatres of Machines," those Baroque "encyclopedias" of instruments and machinery that remained popular into the eighteenth century. His brief treatment of the genre is frankly contemptuous and seems uninformed by modern scholarship. Galluzzi ultimately embraces those whom he regards as the true heroes of this excursus, a grab-bag of figures who sought to remake mechanics as a true mathematical science, including Francesco Maurolico, Niccoló Tartaglia, and Guidobaldo del Monte, all leading up to Galileo. The mathematization of mechanics is an important chapter in the history of science, far too important to be left to the coda of a book about Renaissance machines, and one where Galluzzi seems to be stretching very hard trying to link it to the main subject of these lectures.

By way of general criticism, Galluzzi focuses rather narrowly on Italy. Is Siena really so important—except as an influence on Leonardo—when the production of illustrated treatises on technology was a trans-national phenomenon, with French and German precursors stretching back to the fourteenth century? Why should the discussion of the "Theatres of Machines" omit the founding figure of the genre, the French Protestant mathematician Jacques Besson, who appears only once and in a footnote? Galluzzi includes the Jesuits Athanasius Kircher and Kaspar Schott, who extended the "Theatres," without any mention of the Jesuit campaign to use these printed displays of European technical marvels in their almost-successful campaign to convert to Christianity the Imperial Court in Beijing.

Despite its shortcomings, this is apt to become a canonical text in its field, given the status of its author and the imprimatur of Harvard University Press. Its discussion is short enough to appeal to the scholar who is peripherally interested in the subject and in need of a quick overview. Accordingly, some of the more egregious errors need to be entered into the record: Roberto Valturio wrote *De re militari* not *military* (85). There is no evidence that Francesco specified metal gears in his worm and rack gears (83). Galluzzi loves to drop names, especially Italians. Very well, but why use unconventional spellings: Biringucci instead of Biringuccio, Valturius instead of Valturio? And what is Oreste Biringucci doing in these pages anyway? Is this a confusion with Vannoccio Biringuccio? Perhaps these are translator's errors, the result of lack of familiarity with standard Anglo-American usage. Regardless, I refuse to believe that Verriocio's workshop used "burning mirrors [...] to smelt metals"

(144), a feat modern technology cannot match. Perhaps “soldering” was meant, which involves much lower temperatures. What can the phrase “the caustics of reflection” (159) possibly mean? The illustration on page 184 (fig. 98) shows Agostino Ramelli’s slewing crane, not a pump, even though footnote 66 identifies it correctly. Finally, Daniele Barbaro’s 1567 commentary on Vitruvius does not mention “rockets,” as claimed on page 176. Again, the translator may be responsible for some of these blunders, but Harvard University Press should have corrected such elementary mistakes.

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<https://doi.org/10.33137/rr.v44i1.37071>

Giro, Jean-Eudes et Alice Tacaille, éd. (avec la collaboration d’Anne Delafosse et Pierre Iselin).

«*Que me servent mes vers?*» *La musique chez Ronsard, avec un supplément vocal de 22 chansons.*

Rimes et musique du Moyen Age et de la Renaissance 1 / Études et essais sur la Renaissance 122. Paris: Classiques Garnier. 590 p. ISBN 978-2-406-09365-7 (broché) €58.

La notion que la poésie est une des variétés du chant remonte aux premiers vers de l’*Illiade* (« Chante la colère, déesse ») et de l’*Énéide* (« Je chante les armes et l’homme »). En France, au XIV^e siècle Eustache Deschamps réitéra la notion en insistant sur la parfaite unité des deux arts, chacun pouvant bien être appelé musique « pour la douceur tant du chant comme des paroles » (*Art de dictier*, 1392). Cette identité commençait toutefois à se dissoudre au cours du XV^e siècle, car poésie et musique subirent chacune une évolution pour ainsi dire contraire. La musique devint une discipline techniquement plus complexe qui exigeait un apprentissage long et spécialisé ; tandis que la poésie se transforma en un exercice d’érudition requérant la connaissance du grec et du latin que dispensaient les collègues, en somme une formation d’humaniste. Si Clément Marot, un des poètes les plus affectionnés des musiciens, ne semblait pas gêné par la scission entre les deux arts, Thomas Sebillet (*Art poetique françois*, 1548) condamna les libertés que s’arrogeaient les musiciens vis-à-vis des paroles qu’ils