

"*Sia funzion la rappresentazione*". Carlo Lodoli and the Crisis of Architecture*

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Abstract

Similarly with the progressive turn from magic to sciences, architecture underwent a slow transformation starting with the last decades of the 17th century. Inevitably, the increase in rationality provoked the loss of the mythical component that still infused the Early Modern architectural theory. Carlo Lodoli's thought plays an important part in this process, as it carries forth the questioning of the authority of ancient knowledge, practice and aesthetics, while emphasizing the ethical function of architecture. This paper is an attempt to see Lodoli's theory through the lens of the coeval scientific achievements, while presenting him as an actor of the architectural crisis at the end of classical modernity.

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"Del vero più bella è la menzogna."
Francesco Algarotti

Introduction

[1] Towards the middle of the 18th century, Europe was witnessing the first signs of the Enlightenment. In 1751 appeared the introductory volume of the monumental *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers* that was to become emblematic.¹ Around the same period, modern scientific theories, such as Cartesianism or Newtonianism, were being circulated in the cultivated milieus of capitals like Paris or Venice. Together with these advancements of reason, a similar movement is to be observed within the theoretical approaches to architecture. In 1753, two most

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¹ The encyclopedic enterprise was initiated by André François Le Breton in 1743, at first as a French rendering of Ephraim Chambers' *Cyclopaedia*, published in 1728. Once Diderot and D'Alembert joined the editorial board, the structure of this ambitious and erudite work was radically modified; the new Encyclopedia was to assimilate the Cartesian rigor, and the principles of English empiricism. In this matter confer Mallgrave 2005, p. 14; Calatrava Escobar 1992, *passim*; Im Hof 2003, pp. 124-127.

significant books, albeit advocating contradictory ideas, were published: *Essai sur l'architecture* written by the Jesuit priest Marc-Antoine Laugier,² and count Francesco Algarotti's *Saggio sopra l'architettura*.³ Apart from the temporal proximity, in itself significant, these editorial events suffered from the same strictures and aroused similar irritations amid a still rather traditional public. Thus, during the almost thirty years of its issuing, the encyclopedic enterprise was successively confronted with censorship, interdiction, and the need to resort to underground printing; in their turn, Laugier's reflections were received with irate displeasure, the manifestations of which varied from insult to charges of plagiarism;⁴ Algarotti's essay was itself critical towards these novel approaches and synchronized with the major conservative opinion in presenting the theories of a certain personage, Carlo Lodoli, with which he fundamentally disagreed.

[2] Plainly or indirectly expressed, Laugier's and Lodoli's architectural criticism shared with the encyclopedic general tone two underlying features: the disapproval of the traditionally consolidated preconceptions, and the appeal to first principles, extracted from direct observation and research. Although dissimilar in reasoning, both of them called for an increase in rationality and adequacy within architectural thought and design, as they concluded that modern architecture had drifted away from the primary patterns, losing at the same time a certain inner coordination between matter and form. It is particularly with regard to this last issue that one might consider relevant the surprisingly novel and visionary reflections of Carlo Lodoli, frequently looked upon as one of the forerunners of functionalism.⁵

² The first edition, in 1753, was published under the protection of anonymity. A second, enlarged edition was released in 1755, this time declaring the author's identity, while answering some of the imputations – such as ignorance, error, or plagiarism – proffered in the meantime. *Confer* Laugier 1755, the chapter "Avertissement sur cette seconde Edition", pp. v-xxxij. Two years later, the book was translated in English and German, reaping a fertile reception and enjoying a large distribution. For this particular aspect *confer* Hermann 1962, pp. 173-197; Mallgrave 2005, p. 23. – A complete digitized copy of the 1753 edition is available at http://openlibrary.org/books/OL24349583M/Essai_sur_l'architecture.

³ Count Algarotti's text had a certain fame precisely because it was ironically demolishing an unusual theoretical corpus. Since the first edition in 1753, this essay was more than once republished, during its author's life and after his death.

⁴ It is rather curious that the charge of plagiarism came from two directions: in France, one was alluding to Jean-Louis de Cordemoy, the early 18th century author of a *Nouveau traité de toute l'architecture*, while in Italy rumor had it that the French writer had borrowed the ideas – unpublished yet known – of Carlo Lodoli. In the first case, Marc-Antoine Laugier himself refuted the despicable accusation of those who attacked him "en répétant incessamment, que je ne fais que copier M. de Cordemoy, qui est le père de toutes mes idées. Mais quoique j'aye profité de ses lumières, je crois être autre chose que son copiste." *Confer* Laugier 1755, p. x. Three decades later, Andrea Memmo invokes again the plagiarism: "Ma niente di più brillante di quanto espone il padre, o l'abate Laugier [...] Questi sono presso a poco i consigli che dà l'abate Laugier, i quali se non sono nè tutti suoi nè tutti nuovi [...]." *Confer* Memmo 1833, vol. I, pp. 343-346 (my italics). About the coincidence between the ideas of Laugier and Lodoli, as well as about the acquaintance degree of each other's ideas, one should consult Schlosser 1984, p. 653; Hermann 1962, p. 191; Kaufmann Jr. 1964, p. 160; Rykwert 1980, p. 298.

⁵ A most interesting symptom is the recovery of the Lodolian ideas during the fourth decade of the last century. The proliferation of the studies and essays was mirrored, mainly in the totalitarian countries, by the emergence of a classicizing, yet extremely abstract architecture. *Confer* Grassi 1966, p. 13; Calligaris 1982b, p. 232; Cellauo 2006, p. 26.



1 Alessandro Longhi, *Portrait of Carlo Lodoli*, ca. 1759.
Venice, Galleria dell'Accademia⁶

- [3] A brief biographical survey should be, at this point, introductory.⁷ He was born in Venice, at the 28th of November 1690, as son of a count from Spoleto. Early in his life, he entered the Franciscan order, proving a particular inclination towards philosophy and mathematics. At the age of twenty he went to Rome, where he spent several years (1709-1712), during which he developed a taste for arts and history, and started his inquiries into other provinces of spirit. Later on, between 1715 and 1720, he moved to Verona, where he frequented the circle of Francesco Scipione Maffei, illustrious antiquarian and humanist, who kept a rich correspondence with the most prominent scientists of his time. However, Lodoli's most substantial activity, between 1723 and 1740, was displayed as "revisore" for the books to be published in Venice, during which time, because of his liberal approach, the editorial production seems to have flourished. He spent most of his life in the cloister of San Francesco della Vigna, famous for its 16th century church, designed by Francesco Giorgio and Andrea Palladio according to Pythagorean ratios.⁸ It was there that he undertook a private pedagogical task, particularly revealing for the diffusion of his architectural conceptions. He accepted but a small group of young Venetian aristocrats; Francesco Algarotti was among them, and later on Giovanni Battista Piranesi and Andrea Memmo would also join in. It is worth

⁶ Image reproduced from the Web Gallery of Art, <http://www.wga.hu/index1.html>.

⁷ Carlo Lodoli's biography is more or less sketchily summarized in each of the bibliographical entries devoted to him. The most significant are: Memmo 1833, vol. I, pp. 39-129; Calligaris 1982, *passim*; Farinati 1996, pp. 534-535; Cellauro 2006, pp. 34-44.

⁸ Wittkower 1962, pp. 102-107.

mentioning that Lodoli was frequently present in the Venetian erudite circles (especially in the entourage of the British consul Joseph Smith), were he could find opportunities to present his own theories, and that around him an entire collectivity, known as "i rigoristi", gathered, shared and continued spreading his ideas, even after his death.⁹ His pursuit in architectural theory roughly spanned from the 1730's to the 1750's and faced mainly a local environment. Carlo Lodoli was confronting solely Italian late Baroque architecture, quite often theatrical and abundantly ornamented. He spent his last years in solitude and suffering from a disease that eventually, on the 28th of October 1761, would cause his death.

- [4] It is on this unusual theorist's personality and thought that my paper will focus, while attempting to retrace his conceptual edifice, together with its sources and articulations. Not irrelevant, on the other hand, are the circumstances under which the Lodolian system was forged and spread; therefore, shaping the context against which it vehemently stands might be necessary. Finally, since Lodoli is addressing the issue of architectural truth as opposed to its ornate dissimulation, by emphasizing intrinsic qualities and inferred rules, I shall also approach the ethical dimension of his discourse, within the broader context of the coeval aesthetic theories.
- [5] Unlike more prominent figures, such as Piranesi, Laugier, Ledoux or Boullée, Carlo Lodoli was not a favored subject for architectural historians. However, placing him in the same context with the visionary architects of the late 18th century and even with the contemporary French theoreticians would seem rather misleading. We have no evidence of an authentic, historical interference: all we know about fra' Lodoli somewhat points towards isolation. As he was largely ignored in the 19th century, despite the *post mortem* publishing of the exhaustive account given by his disciple, Andrea Memmo, his 'portrait' is regrettably modern. We have to cope with this sort of 'modernity', since he was rediscovered after the First World War, in a time when the totalitarian architecture – mainly in Italy and Germany – was considered to have found a forerunner. Nevertheless, the Lodolian bibliography remains to this day rather scattered, despite the fact that prominent historians of architecture like Emil Kaufmann or Joseph Rykwert have contributed to it. The most complete published analysis, compared to which any subsequent essay proves almost redundant, was produced by Louis Cellauro in 2006. My own contribution is an attempt to see Lodoli's theory through the lens of the coeval scientific achievements, while presenting him as an actor of the architectural crisis at the end of classical modernity.

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⁹ *Confer* Haskell 1963, p. 320. It is a strange fact that the notion of "rigorism", imported into the philosophical vocabulary from theology, had acquired a depreciative meaning both in Venice and France, in the second half of the 18th century. Paradoxically, "rigorism" is gradually perceived as a sort of excess. *Confer* Rykwert 1980, p. 307.

Two Books in Search of an Author

- [6] The somewhat enthusiastic rediscovery of Carlo Lodoli in the 20th century irreversibly pulled him out of oblivion. Still, given the temporal distance, one is tempted to overestimate the real impact, as well as the true meaning of his ideas and vocabulary. It is obvious that his "functionalist" approach considerably differed from that of Louis Sullivan, as the word "function" didn't mean the same thing in the 18th century and two hundred years later. On the other hand, eager to prove the continuity, the modern interpretation itself is running the risk of omitting the initial context and relations. A careful historical view is therefore recommended.
- [7] When scrutinizing Carlo Lodoli's theory, one is discouraged from the very beginning by two conspicuous setbacks: his lack of an appropriate professional instruction, and the fact that he never published a treatise on architecture. In other words, he would most likely risk to seem irrelevant, were it not, paradoxically, precisely because this inquiry was conducted by an outsider with a differently shaped *forma mentis*, that his approach was so original, free of the misconceptions that the Vitruvian dogma had perpetuated for centuries.¹⁰ It is worth stressing that the traditional "portrait" of the architect-theoretician was itself being contested during the 18th century: thus, abbot Marc-Antoine Laugier was a member of the Jesuit order, just like fra' Carlo Lodoli was a Franciscan monk, Francesco Algarotti distinguished himself as a courtier and a cosmopolitan, with numerous yet unstructured intellectual pursuits, while Andrea Memmo was known as a well-read diplomat.¹¹
- [8] Lodoli's authorship still remains an ambiguous matter. While it is certain that he never published a treatise, the presupposition of his writing such an opus is likewise turbid. On the one hand, all his papers were forever lost – those that were not lost during his last travels between Venice and Padua were seized by the Inquisition, inadequately preserved and finally destroyed; on the other hand, some contemporary voices supported the supposition of a (more or less) imminent publication.¹² More than the accuracy of the

¹⁰ About the obsolescence of the Vitruvian theoretical system – relying on the somewhat Procrustean dependence on the three main categories and on the correlation between macro- and micro-cosmos, between the human and architectural proportions, but also between the general proportionality and the perfect numeric ratios – one should see Smith Capon 1999, *passim* and especially pp. 3-32.

¹¹ For the biography, career and role played by Francesco Algarotti, *confer* Kaufmann 1944, pp. 23-24; Haskell 1963, pp. 347-361. As for Andrea Memmo, *confer* Haskell 1963, pp. 364-368. About the absence of an specialized professional training as a more general symptom, one should see Cellauo 2006, p. 27. A salient elucidation of the interest in architecture expressed by these polymaths might be their bond with the freemasonry, as suggested by Rykwert 1980, p. 298.

¹² Girolamo Zanetti asserted in his book *Memorie per servire alla storia delle Belle Arti*, published in Venice, 1754 that Lodoli "dopo quattro lustri, condotto a fine il laboriose disegno, ha il suo sistema ridotto in carte, ed è pronto a darlo alla luce", *op. cit.*, p. 65 (my italics) *apud* Consoli 2007, p. 200; *confer* Farinati 1996, p. 534. Andrea Memmo himself declared that his maestro, although he refused to publish a treatise, had written extensively on architecture, even in a versified manner: "[A]veva molto scritto sopra di essa [architettura] ed in varii modi ancora [...] li aveva dettati in versi a maniera di antichi distici [...]"; we are given further another hint: "[...] quell'opera che stava dettando, e che tutta avea già scritta, ma che a pochissimi e in gran segreto lasciava egli

historical detail, the wavering balance between orality and writing compounds the difficulties of dealing in a systematic way with a diffusely scattered theoretical material, and of giving an answer to the question of status and role adopted by the author – a "Socrates" of architecture.¹³ Even if we are deprived of the unfiltered expression of the Lodolian thought, we can still resort to other two texts which, however, confront one with difficulties of their own.

[9] Francesco Algarotti was the first to formulate it, under the title *Saggio sopra l'architettura*, in 1753. The context of its writing, the ambitions and, moreover, the reception of this essay, are well enough documented. The fear that the maestro's reflections might be lost, and the conviction that he himself will never commit his writings to publishing, determined Andrea Memmo to ask one of Lodoli's disciples to compile them. After a first failed attempt (involving a certain Federico Foscari), he finally came to an agreement with count Algarotti; it was perhaps his notoriety, and the further wide circulation of the book that overcame the restrictions at first imposed by Algarotti – not to disclose such an enterprise, and, more importantly, not to interfere with it until the end. The fact is that, once the essay was published, all Memmo's expectations proved thwarted: Algarotti's version was but a sketchy rendering of the Lodolian doctrine, ironically indulgent and, in places, overtly critical.¹⁴ In order to remedy the consequences of what he considered to have been a most unfair distortion, after more than three decades of hesitation, Andrea Memmo published his own version of his maestro's ideas, under the title *Elementi d'architettura lodoliana ossia l'arte del fabricare con solidità scientifica e con eleganza non capricciosa*. Although planned in two volumes, this work was entirely published only towards the middle of the next century, when the initial pursuit had long since lost its timeliness. In fact, already by 1786, the year of the first edition, Lodoli was on his way of being forgotten, as the architectural debate was centered on other issues, such as the revolutionary utopias or the archeological discoveries and measurements (published by Julien-David Le Roy, James Stuart and Nicholas Revett among others) that were heralding the historicism.¹⁵

vedere", *confer* Memmo 1834, vol. II, p. 49.

¹³ His dislike of a system was most relevant: "[...] *sistema*, parola che il Lodoli non ammetteva mai rispetto a' principj architettonici [...]", Memmo 1833, vol. I, p. 14; Calligaris 1982a, p. 3. Almost all the commentaries on Lodoli mention the association with the Greek philosopher, on the grounds of this passage: "come già Socrate la Filosofia [...] intende di purgar l'Architettura", Algarotti 1784, pp. 8-9.

¹⁴ Memmo himself speaks about Algarotti's requirements, as well as the disappointing result: "[...] finalmente ottieni che [Algarotti] avrebbe esposti in un saggio i suoi principj, ma *con due espressi condizioni*, l'una che non ne avessi parlato mai allo stesso Lodoli, e l'altra *ch'io non gli avrei chiesto di veder che cosa stesse scrivendo [...]* non ne rimanemmo molto contenti nè l'uno nè l'altro [Memmo and Lodoli]." *Confer* Memmo 1833, vol. 1, p. 26 (my italics).

¹⁵ Besides, in 1786 all the major theoretical writings had already appeared. This is the background on which Lodoli is made to play an important *post mortem* role in the European debate on architecture. *Confer* Gambuti 1975, p. 130. Still, that Roman edition was incomplete, both volumes being printed only in 1834. After such a discontinuity, the authenticity of the second tome (regarding both Memmo's text and and Lodoli as its prime source) was doubly questioned. Nevertheless, this second edition remains the reference source.

- [10] In a number of ways – such as the style, purpose, or reasoning – these two texts (Algarotti's and Memmo's) seem to be complementary: the brevity of the first is contrasted by the prolixity of the second; one author wrote in order to contest, while the other composed a sort of glorifying apology; Algarotti distorted his character, whereas Memmo monumentalized his. The difficulties in retracing the original formulation are multiplied by the circumstances under which the two texts were written and published. Thus, Algarotti's essay appeared during Lodoli's life, more precisely in the period of intensive circulation of his opinions, while Memmo's book, initially published more than twenty years after the death of both his teacher and his rival, was reconstituted through recollection. Ultimately, the unsolvable problem regarding the analysis of this common material is its *authenticity*. In other words, what is at stake, in attempting to recover Lodoli's thought, is its degree of transparency and objectivity in relation to the ideas of this "author-character".
- [11] Francesco Algarotti's discourse might be rendered as follows: one of his contemporaries (nameless, mentioned as "valentuomo" or "filosofo") has identified in the field of both ancient and modern architecture more errors and abuses than anyone else before him. Having but *truth as his purpose* ("non altro avendo per fine che la verità"), this person has set himself to re-establishing the appropriate process of building, in such a way that the constitutive parts of an edifice should be the result of necessity, while *representation should be the correlative of function*.¹⁶ Accordingly, each of the building materials ought to be rightfully employed in order to signify themselves, a principle on which depends the edifices' degree of *honesty*, and the omitting of which provokes a punitive ruination.¹⁷ Finally, another major aspect pointed out by Algarotti was the rejection of the sister-arts system (based on *mimesis*), and the proclamation of *architecture as science*, coordinated by the intellect and *relating to universal laws*.¹⁸ Nevertheless, in Algarotti's opinion, applying these rules would lead to a terrible consequence: the condemnation of everything ever built. Therefore, debating upon the question of ornament – and,

¹⁶ "La buona maniera del fabbricare [...] niente ha da vedersi in una fabbrica, che non abbia il proprio suo ufizio, [...] che dal necessario ha da risultare onninamente il ornato [...]", Algarotti 1784, pp. 9-11.

¹⁷ It would seem that Algarotti was paraphrasing here one of the major ideas of Lodoli's theory: every material has its own laws on which, in the end, rely both its form and durability. "Niente vi va di più assurdo [...] che una materia non significhi se stessi, ma ne debba significare un'altra." *Ibidem*, p. 15. This "punitive" dimension of the ruin is in itself meaningful, especially at a time that was starting to appreciate the spectacle more than the calamity of ruination: "Cotesto [the concealing of a material into another] è un porre la maschera, anzi un continuo mentire che tu sai. *Dil che gli serepoli, le rovine; quasi una manifesta punizione del torto, che vien fatto del continuo alla verità.*" *Ibidem* (my italics). *Confer* also Cellauro 2006, p. 48.

¹⁸ "L'Architettura al contrario dee levarsi in alto coll'intelletto, e derivare un sistema d'imitazione dalle idee delle cose più universali, e più lontane dalla vista dell'uomo." Algarotti 1784, p. 21. Here, the word "imitation" is given a slightly different meaning than that current in the 17th century, be it only because it presupposes a more abstract relationship between the model (in this case the most universal ideas) and the copy.

ultimately, upon that of architectural language – the ingenious writer declares that falsehood outmatches in beauty the pursuit of truth.¹⁹

- [12] At a first glance, the manner in which this reasoning is transmitted is at once disdainful and personally taken. It is obvious that *Saggio sopra l'architettura* was ever intended as an objective theory,²⁰ but as an offensive against some ideas considered too extravagant, and even dangerous. Still, besides the reluctance, one should remark the intelligence with which they are expressed, recalling the already famous "querelle des anciens et des modernes".²¹ One should also observe that the style was more attuned to the aimed high-society public, to the point that, although Lodoli was portrayed as being even more inflexible than he is believed to have been, his theory could be easily assimilated.²²
- [13] Unlike this abbreviated literary exercise, Andrea Memmo's text has a more complex structure, combining various types of discursive strategy: biography, theoretical approach, polemic, treatise-like systematization etc. More significantly, although the author lacked both architectural knowledge and *praxis*, he was eager to learn by reading the most relevant treatises, for which, in 1784, when he had just started to write, he kept asking his friends.²³ This work, carried on with the intention of restoring Lodoli's true architectural theory, is worthy of consideration, among other reasons because it uncovers the plan of the presumed original treatise. There is also, at the beginning of the second volume, a chapter which clarifies some of Algarotti's interpretations and, most importantly, certain concepts, such as "solidità", or "bellezza architettonica", are further developed. Memmo's book is commonly considered to be the most faithful expression of its original source, notwithstanding certain reservations concerning the objectivity of the rendering and the correctness of the information.²⁴

¹⁹ "Questo ancora sarà il caso di dire, *che del vero più bella è la menzogna*." *Ibidem*, p. 44.

²⁰ In Andrea Memmo's opinion, count Algarotti has, in fact, written solely in pursuit of fame, "mirando agli applausi universali", in this way missing the veritable goal. *Confer* Memmo 1834, vol. II, p. 11.

²¹ Sambricio 1974, p. 68. One should observe that, paradoxically, the "ancients" position was defended by the younger combatant. As for the famous argument introduced, during the 17th century, by Charles Perrault, *confer* Mallgrave 2005, pp. 6-9. A similar attack, this time within the notorious competition between the Greek and Roman ideal, was launched, in 1765, by Giovanni Battista Piranesi (the most spectacular among Lodoli's disciples) in his book *Parere su l'Architettura*. Cf. Gambuti 1975, pp. 145-148; Kaufmann 1955, p. 315.

²² The presupposition that Lodoli was actually more flexible than he was believed to be, compared for instance with Laugier, has been repeatedly sustained. *Confer* Hermann 1962, p. 192; Krufft 1988, p. 260. According to Joseph Rykwert, Algarotti presented not only a more acceptable account of the Lodolian theory, but an even more advanced one as well. *Confer* Rykwert 1980, p. 297. Emil Kaufmann proclaimed Algarotti the first to have recognized the originality of Lodoli's thought. *Confer* Kaufmann 1955, p. 310.

²³ Pasquali 2002, p. 178.

²⁴ About Andrea Memmo's (self)shaping as the true revealer of Carlo Lodoli's ideas, *confer* Gambuti 1975, p. 130. Regarding the documentary quality of his writing, *confer* Kaufmann Jr. 1964, pp. 161-162; Krufft 1988, pp. 260-261. Despite the fact that he insisted on numerous aspects, a further inquiry into others, such as "analogy", might have proved useful. *Confer* Rykwert 1980, p. 325.

- [14] At this point, a short remark is necessary. Besides the fact that *Elementi d'architettura lodoliana* is somewhat anachronistic, it also had a limited circulation. In fact, neither Memmo's book nor Algarotti's were translated and, unless read in original, they must have had a little impact abroad. However, towards the end of the 18th century, a notorious compiler, Francesco Milizia, appears to have disseminated – as his own – the Lodolian ideas.²⁵

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The Conceptual Edifice

- [15] In the second volume of his book, Andrea Memmo reveals the structure of what might have been Lodoli's treatise, a scheme of his conceptual edifice. He does so by providing two versions, the first of which was conceived in nine chapters, and the second in six.²⁶ In what follows, I shall attempt to summarize the larger one.
- [16] Its first book (*Libro I*) would have examined various constructive systems, on an evolutionary line starting with ancient Egypt, continuing with the Etruscan and Greek orders, to end with the French (Gothic) and Spanish (Moorish) architecture; this overview of the architectural history would have prefaced the exposure of the Vitruvian fallacy. Starting from here, Lodoli would have exposed the faults and contradictions of the five architectural orders, demonstrating the inappropriate relationship between classical form and stone ("loro insussistenza in pietra"). This introductory chapter would have concluded with a plea for the necessity of imposing new rules ("un nuovo istituto") in order to free civil architecture from the captivity of false models. The second book (*Libro II*) would have attempted to argue for the vital importance of a *method*, based on *rationality* ("teoria raziocinante"), *empirical grounding* and the *objectivity of sciences* – geometry, mechanics, statics, stereotomy, physics, xylology ("zilologia"), and, more important, lithology. Once architecture was established as a science, new principles would have been determined ("devonsi esigere pricipii") in order to organize a system – architecture itself – composed of unchanging "primary elements" ("parti integrali immutabili") and "secondary elements" ("parti integrali secondarie"). The third book (*Libro III*), only barely sketched, would have treated the forms and structures of civil architecture, while the fourth (*Libro IV*) would have dealt with the concept of *solidity* ("solidità"), the first "primary element", as well as with the use and distinctive features of different primary (natural) materials, such as wood, stone, iron, etc., and secondary (artificial) ones – lime, cement, bricks etc. The fifth book (*Libro V*) was to analyze the

²⁵ "Il signor Milizia, che dopo letto il *Saggio* dell' Algarotti, gustò tanto di alcuni principii lodoliani che giunse a farli suoi proprii, ed a servirsi per sino dei termini strettissimi di lui usati da quel suo primo espositore, s'incontrò pure sì perfettamente nel pensar come il Lodoli sull'architettura [...]", Memmo 1834, vol. II, p. 110. *Confer* Pasquali 2002, p. 178.

²⁶ Memmo 1834, vol. II, cap. II "Divisione dell' opera lodoliana", pp. 49-64. Both versions, says Memmo, are authentic: "[...] credo che dovrebbero esser sufficienti le due tavole de'capitoli, nei quali divideva il suo trattato, lasciatemi dal suo e mio Foscari, *ch'io non farò ch'esattamente trascrivere.*" *Ibidem*, p. 50 (my italics).

second "primary element", *analogy* ("analogía ovvero proporzione architettonica in genere") and, correspondingly, symmetry and stereometry. The next two books (*Libri VI-VII*) would have elucidated the question of "secondary elements", focusing on *commodity* and *ornament*, approaching such matters as quantity and quality, norms and distribution, interior and exterior. The eighth book (*Libro VIII*) would have spoken about the components of the ancient constructive system, to which the new rules might be applied, together with the columns' true ratios, while the last one (*Libro IX*) is only mentioned, without any indication of its content.²⁷

- [17] The second version of the presumed Lodolian plan is conceived around the same notions and argumentation, albeit with a somewhat modified distribution. However, a conspicuous novelty is its concise richness in theoretical content; if the first account was limited to delineating a possible treatise, this second one is already operating with definitions and more detailed classifications. For instance, the author asserts (*Libro I*) that function and representation are to be scientifically achieved, and that solidity, analogy and commodity are the essential properties of representation.²⁸ Moreover, it is this second version that explains (*Libro II*) the two Lodolian key-concepts – *function* and *representation* – in conjunction with the matter on which they operate; finally, elements, rules and patterns for all the mentioned concepts, both "primary" and "secondary", are likewise provided (*Libri III-VI*).
- [18] Beyond the exact phrasing of a text which is tedious enough and sometimes threatened by inadvertences, we notice that Lodoli's theoretical edifice is centered on truly innovative ideas. The most outstanding is the pair *function-representation* on the basis of which, in fact, the entire criticism of ancient and modern architecture is further developed.²⁹ The way this conceptual pair works is formulated in a notable sentence: "One should not transpose into a representation a thing that has no function."³⁰ In other words, any kind of representation, and architecture as well, should be functionally justified. Still, this is not seen in terms of an external relationship between a building and its purpose, but as an *inner process*, an *intrinsic action*. This is what Lodoli is made to assert: "*The function* of some matter which is able to create a structure is that *multiplied and modified action* that results from the matter itself [...] according to *its nature* and *the set purpose*, and which harmonizes solidity, proportionality and commodity."

²⁷ For the first form of the Lodolian system, confer Memmo 1834, vol. II, pp. 51-58.

²⁸ "La retta funzione e la rappresentazione sono i due soli oggetti finali scientifiche dell'architettura civile. [...] La solidità, l'analogia ed il comodo sono le proprietà essenziali della rappresentazione." *Ibidem*, p. 59. Quite surprising is the gap between *solidity* and *function*. Such a demarcation makes sense once we understand what *function* represents for Carlo Lodoli. Confer Rykwert 1980, pp. 323-324.

²⁹ Rykwert 1976, p. 21. About the constant criticism (in Marc-Antoine Laugier's spirit) of those who pretend to remedy the Rococo by returning to a noble classicism, and thus persisting in their error, confer Sambricio 1974, pp. 69-70.

³⁰ "Niuna cosa metter si dee in rappresentazione, che non sia anche in funzione." Algarotti 1784, p. 11.

Correlated with this law, *representation* would then be the "*individual and total expression* resulting from matter when, *in accordance with geometrical, arithmetical and optical principles*, it is disposed towards the *set purpose*".³¹

[19] Such a definition not only confers a certain "organicity" to the process of turning matter into form, but also institutes a direct relation between nature and finality, adjusted by the neutral rigor of science. It is important to note that the terms themselves were in use within the scientific discourse. Thus, the noun *funzione* – derived from the Latin verb *fungi* (to execute, to operate) and adopted by the late Renaissance scientists in contradistinction to that of structure – was borrowed by Lodoli from the vocabulary of mathematics.³² Similarly, the word *rappresentazione* indicates, in fact, an analogy with natural phenomena; the most suitable way to explain nature's actions – affirmed Fontenelle in 1734 – was to endow them with *representations*. Within this scientific frame, the physicist Giovanni Poleni for instance (whom Lodoli knew well), investigated the "catenary curve" as applied to the San Pietro cupola in Rome; to him, the technical application of this notion was a *representation*.³³

[20] The elucidation of the meaning this conceptual pair had in 18th century, of which Lodoli was perfectly aware when applying it to architecture, is essential, since these terms constitute the "foundation" of his conceptual edifice. Only by resorting to the relation between function and representation is one able to understand the harsh criticism of the classical order, whose prototype was of a different material – wood – with obviously different properties and manifestations; to paraphrase Algarotti's paraphrase of Lodoli, the classical order's matter – fundamentally lithic – doesn't signify itself.³⁴

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³¹ "Che *la funzione* della materia tutta atta a compor fabbriche, è quella moltiplicata e modificata azione che risulta *dalla stessa materia*, qualor venga essa impiegata dimostrativamente, *secondo la propria indole ed il proposto fine*, e fa sempre essere concordi tra esse la solidità, l'analogia ed il comodo"; "Rappresentazione è *l'individua e totale espressione* che risulta della materia qualor essa venga disposta *secondo le geometrico-aritmetico-ottiche ragioni al proposto fine*." Memmo 1834, vol. II, p. 60 (my italics). The English translation in the main text is mine.

³² The verb *fungor* engendered, for example, the French *fonctionner* and the Spanish and Portuguese *funcionar*. A very erudite analysis on this word's etymology and implications is to be found in Rykwert 1976, p. 22. Thus, in the second volume of his *Opera Omnia* published in Lausanne in 1742, Jean Bernoulli defines *function* as "une quantité compsée de quelque manière que ce soit de [...] grandeurs variables et de constantes", *apud ibidem*.

³³ For the scientific dimension of the term *representation*, confer Rykwert 1976, p. 22. The definition provided by the secretary of the Royal Academy of Sciences, Bernard Le Bovier de Fontenelle, in his *Histoire de l'Académie Royale des Sciences*, states that "Le meilleur moyen d'expliquer la Nature, s'il pouvoit être employé souvent, ce serait de la contrefaire, & d'en donner, pour ainsi dire, des représentations, en faisant produire les mêmes effets à des causes que l'on connoit, & que l'on aurait mises en action". *Apud ibidem* (my italics). At the end of the 17th century and in the first half of the 18th century, numerous scientists were interested in the *catenary curve*. Among them, one should retain Philippe de la Hire, the Bernoulli brothers, the Scottish mathematician David Gregory, or the German philosopher Gottfried Wilhelm Leibniz. Through the agency of Giovanni Poleni, Carlo Lodoli also became interested in this matter. Confer *ibidem*; Calligaris 1982a, p. 3.

³⁴ *Vide supra* the note 14.

The Intellectual Background

- [21] Unlike other contemporary theorists, who usually developed their own conjectures within the architect's profession – and, consequently, within the *mimesis theory* – abbot Lodoli related to architecture through a scientifically irrigated reflection, based on calculation and experiment. As already outlined, this particular positioning was determined by his formative path and his later activities and concerns. Thus, apparently, Lodoli's main contribution to the 18th century debate on architecture was limited to promoting a fresh terminology, providing a starting point for a new reflexivity and language, as well as a connecting link between creativity and science. In fact, this novel discursive articulation is but the exterior aspect of a more profound revision of the fundamental architectural presupposition, undertaken through the framework of an exterior body of knowledge. Through the frequented authors, Lodoli placed himself within a complex epistemological network which blends modern thought, medieval scholasticism and ancient knowledge, made to communicate with the "Cartesian doubt" and the Enlightenment rationalism.³⁵
- [22] In attempting to reconstruct his mental build-up one should observe from the outset that Father Lodoli's knowledge was both vast and diversified. It appears that his intellectual pursuit and abilities were truly remarkable since, as Andrea Memmo lets us know, he was able to quote his authors by heart.³⁶ Both his instruction and pedagogy included theology, rhetoric, political ethics, natural laws, logic and metaphysic. We are not to forget that as a "revisore" he was committed to reading a variety of texts that must have, in one way or another, worked upon him. Being a scholar of his times, he was familiarized with the latest theories, and even in contact with some of their authors, when not personally acquainted with them. This is not only the case of Montesquieu,³⁷ but also that of the eccentric philosopher Giovanni Battista Vico, to whom he wrote several times and whose masterpiece, *Principj d'una Scienza Nuova d'intorno alla commune natura delle nazioni*, he unsuccessfully tried to republish in Venice, in 1729.³⁸ As it might enlighten some aspects of the Lodolian reasoning, a brief survey of Vico's system seems appropriate.

³⁵ About the attempt to bring scientific principles to bear upon architectural theory, *confer* Farinati 1996, p. 534. On the Cartesian rationalism, *confer* Mallgrave 2005, pp. 1-12. For the Enlightenment context, among other sources, *confer* Im Hof 2003, *passim*.

³⁶ "[...] faceva meraviglia l'udirlo al bisogno recitar passi interi a memoria citando libri, capitoli, e quasi per dir così le pagine di quelli co' riflessi ancora de' loro commentatori." Memmo 1833, vol. I, p. 46. The allusion to Lodoli's scholarship appears in the first pages: "[...] generalmente riputavasi per un genio fornito di molta scienza e di vasta erudizione." *Ibidem*, p. 4.

³⁷ The works of Montesquieu, with whom Lodoli kept a correspondence, were perceived as highly controversial in the still conservative Venice. *Confer* Haskell 1963, pp. 320, 326.

³⁸ Cellauro 2006, p. 35; Brusatin 1980, p. 87. The correspondence is attested for the year 1728. *Confer* Consoli 2007, p. 196. "Tra i forastieri l'onorarono di sue lettere il famoso presidente di Montesquieu, che lo conobbe in Venezia e che corrispondeva seco, Gio. Battista Vico del quale si ha una lettura a lui diretta, stampata alla testa del suo famoso libro della Scienza Nuova." Memmo 1833, vol. I, p. 75.

- [23] He surely was an unusual thinker, who resisted not only the still active scholasticism, but the modern theories – such as those of Locke, Descartes or Newton – as well. Meditating upon an impressive quantity of information gathered from numerous domains, he aspired to formulate the principles of a new science which should elucidate the nature of nations, natural law and, ultimately, the law governing the evolution of humanity itself. His extravagant views were to lead to a sort of "magical science" or poetical thought that, shunning the benefits of rationality, was supposed to interpret the totality of "signs" which compose our history. He considered the resources of fantasy to be crucial in the shaping of knowledge, to the point that, in a previous work, entitled *De nostri temporis studiorum ratione* (1709), he was expressing the fear that a science attempting to bring together reason and spirit into the service of the search for truth might produce a pedagogical tension.³⁹ Moreover, after having observed that Latin is full of Greek and Etruscan words, he developed a theory of origins and historical succession that would later become instrumental in both Lodoli's and Piranesi's architectural thinking. Fundamentally, Vico believed that philosophy was above all sciences and arts, sharing with Lodoli the same concern for truth and origin, and the same ambition to reconstruct a comprehensive historical survey; it is worth mentioning that in the courtyard of the San Francesco della Vigna monastery the Venetian friar accumulated a collection of architectural fragments which supposedly exemplified a theory of evolution. Nevertheless, there were some significant divergences between the two scholars, which touched upon the discursive importance of myth and metaphor, and the commitment to the new scientific discoveries.⁴⁰ In these, contrary to Vico, Carlo Lodoli appears indeed to have been sagaciously involved.
- [24] For instance, he was versed in natural sciences, having assimilated Galileo's views, especially those relating to engineering and the strength of materials; one of Galileo's books, *Discorsi e dimostrazioni matematiche intorno à due nuove scienze, attenenti alla Meccanica & movimenti locali*, published in Leyden in 1638, is thought to have inspired Lodoli's investigations and experiments undertaken through the medium of a *machina divulgatoria*⁴¹ on the main building materials known in Venice, and subsequently playing a major role in the configuration of his architectural theory.⁴² Furthermore, the very

³⁹ Consoli 2007, p. 198; Hazard 1946, vol. I, pp. 46-49.

⁴⁰ Israel 2006, p. 529. About Lodoli's collection, *confer* Farinati 1996, p. 534. On the question of the historical views *confer* Cellauro 2006, p. 35. As for the connections and divergences between Lodoli and Vico, *confer* Consoli 2007, p. 198, and Brusatin 1980, p. 87.

⁴¹ The theories of statics and strength of materials were applied in France starting with the last two decades of the 17th centuries, the results of such experiments also echoing in Italy. However, in the first half of the 18th century, it was Giovanni Poleni who was interested in analyzing the resistance of certain materials, among which steel, and also in using diverse mechanisms such as the *machina divulgatoria* invented by the Dutch scientist Pieter van Musschenbroeck. *Confer* Pérez-Gómez 1983, pp. 241-250. See also "Mechanics", in Burns 2003, pp. 189-190.

⁴² Cellauro 2006, p. 48.

encounter between Carlo Lodoli and Andrea Memmo, too aged to be his student, had been mediated by their shared passion for Galileo, as narrated by the author himself.⁴³

[25] Isaac Newton must have been no stranger to Lodoli either, as he was admiringly praised in the Venetian milieu as early as the second decade of the 18th century. Antonio Conti, a figure of some prominence with an excellent knowledge of the French and English cultures, was personally acquainted with him, having spent several years in England and having even written an essay on his philosophy, when he finally returned to Venice (from 1726 to 1749); despite the fact that his writings were published only after his death, he exercised a considerable influence among an enlightened, yet restricted public, and especially upon Francesco Algarotti.⁴⁴ This fashionable brand of Newtonianism should be, though, considered in a broader context. Since 1740, when Prospero Lambertini became Pope Benedict XIV, a noticeable reformation opened the way in Italy to a moderate Enlightenment; in the same year, the Jesuit Ruggiero Boscovich, a specialist in Newtonian astronomy and physics, was assigned to the Collegio Romano, gradually imposing the taste for Newtonianism to the cultured elite.⁴⁵ Given these circumstances, and the fact that he used to be in close contact with a convinced connoisseur such as Francesco Algarotti, it is highly probable that Lodoli was himself acquainted with Newton's system; what may come as a surprise is the fact that he was, at the same time, a follower of Descartes, at least in his pedagogical approach.⁴⁶ Last but not least, we should also add to this "epistemological portrait" his interest in natural laws as formulated by modern theorists such as Samuel von Pufendorf and Hugo Grotius, alongside that in classical authors like Cicero.⁴⁷

[26] Carlo Lodoli was not appealing solely to modern knowledge. Assuredly, his early training must have included scholastic authors, among whom at least two might be traced to his later architectural theory: Albertus Magnus, who proclaimed architecture to be science and not (mechanical) art, and Tomas Aquinas, who stated that the materials should be

⁴³ Memmo 1833, vol. I, pp. 4-5; Kaufmann Jr. 1964, p. 170. In Italy Galileo was still looked upon with reluctance. For example, his *Dialogo* could not be published until 1744. *Confer* Haskell 1963, p. 317.

⁴⁴ Haskell 1963, p. 319. Most significantly, the best book Algarotti wrote, in which he exposed Newton's theories on light and colors, was *Il Newtonianismo per le dame ovvero Dialoghi sopra la luce, I colori e l'attrazione*, 1737. *Confer* Favero Carraro 2004.

⁴⁵ In the fourth and fifth decades of the 18th century, Italy witnessed a movement of English-oriented Enlightenment surpassing, from this point of view, the still Cartesian France. *Confer* Israel 2006, pp. 513-515. See also "Cartesianism" and "Newtonianism" in Burns 2003, pp. 46-47 and 214-215.

⁴⁶ About the Lodolian Cartesianism *confer* Calligaris 1982b, p. 233. As for an overview of Descartes's natural philosophy as a coherent, all-embracing system, as well as for the relationships and confrontation between Cartesianism and Newtonianism, *confer* Henry 2004, pp. 10-25, especially pp. 12-15.

⁴⁷ "Usava sopra tutto il Trattato degli uffizj di Cicerone, e fra i moderni quello de'doveri dell'uomo e del cittadino di Samuel Puffendorfo [...] Simili ed altri pochi libri scritti in latino od in francese [...]." Memmo 1833, vol. I, p. 54. *Confer* Calligaris 1982b, p. 233. About the natural law at the beginning of the 18th century, *confer* Hochstrasser 2004.

used according to their nature.⁴⁸ As we shall see further, he also must have read *De Architectura libri decem*, since at least two of his principles are rooted in the Vitruvian dogma. Finally, going back in time, we also discover Greek philosophy among Lodoli's intellectual pursuit. Although we can only surmise what authors he had actually read, his acquaintance with a particular brand of dialectics is more than once emphasized: both Memmo and Algarotti have him acting not only like Socrates, and thus appealing to maieutics, but also behaving like a modern cynic philosopher.⁴⁹ Perhaps the *more socratico* was his way to cope with the composite epistemological material outlined above. Last but not least, the ability to direct himself (and his pupils) towards the ultimate principles reveals a sort of intellectual rigor that may be paralleled, *mutatis mutandis*, to the contemporary encyclopedic enterprise.

[27] What Diderot and D'Alembert aimed to achieve was not just another catalogue of definitions similar to the precedent French and English attempts of the late 17th and early 18th centuries. Taking as their starting point Ephraim Chambers' *Cyclopaedia*, itself a model of classification and of a wide net of cross-references, they envisaged an "enchainment of learning", a sort of unity which would encompass the diversity of the arts and sciences.⁵⁰ Another fundamental aspect concerns the program which was to be accomplished: to urge against unsupported speculation, to act as a public pedagogical tool and to demonstrate that reason could be instrumental for each human activity.⁵¹ In amassing all the disparate information, the new *Encyclopedia* was only proposing this in order to reveal a general system of knowledge. Accordingly, human understanding was divided in three faculties (memory, imagination, reason), to which the three parts of the work corresponded: history, arts and philosophy.⁵²

[28] It is difficult to tell if Lodoli was actually familiar with the issues of the *Encyclopedia*, albeit he mastered French and could resort to various ways of being kept informed on such an enterprise. However, even if he himself seems to never have spoken on this matter,⁵³ it is certain that his disciple, Andrea Memmo, was familiar with it, since in a manuscript dated 1785, offered to the Accademia di San Luca in Rome, he pointedly referred to D'Alembert's *Discours préliminaire de l'Encyclopédie*.⁵⁴ Even if we lack

⁴⁸ "[...] architectonica sapientior quam usualis" (Albertus Magnus); "[...] artifex qui fecit serram ad secandum, facit eam ex ferro, ut sit idonea ad secandum [...]" (Tomas Aquinas). *Confer* Calligaris 1982b, p. 233. As Calligaris mentions, the sources and passages that demonstrate this assertion are to be found in Assunto 1961.

⁴⁹ "Tanto poi erasi immerso nella lettura de' greci filosofi, ch'io credo che camminando per le strade di Venezia gli sembrasse già d'essere nel Pireo, o sotto i portici d'Atene, od in uno di que' boschetti ove quegli antichi famosi, nella maggior parte impazziti di saviezza, tenevano le loro scuole", Memmo 1833, vol. I, p. 115; Algarotti 1784, pp. 8-9, *vide supra* the note 10; *confer* also Cellauro 2006, p. 32.

⁵⁰ Russell 1993, p. 6.

⁵¹ Calatrava Escobar 1992, p. 23.

⁵² Hazard 1946, vol. I, pp. 279-283.

⁵³ Brusatin 1980, p. 87.

⁵⁴ Pasquali 2002, p. 173.

certainty in surmising any sort of relationship between Carlo Lodoli and the encyclopedic systematization, a number of shared characteristics are noticeable: firstly, an understanding of knowledge as a whole, to which all sciences, arts, and crafts should participate; secondly, rigor as an instrument of organizing knowledge, in order for it to become efficient and to provide adequate responses and explanations; thirdly, the quest for objectivity and reason; the fourth trait would be the contestation of ancient, obsolete dogmas;⁵⁵ last but not least, one of the most significant common features is the proclaimed conjunction between arts and sciences – Lodoli's attempt to provide a functional (and thus scientific) architectural theory is similar to D'Alembert invitation to marry each mechanical art to its proper science.⁵⁶

- [29] To say that Lodoli's program was confined to substituting for artistic creativity a sort of scientific objectivity would mean to simplify a much more complex speculative approach. His revolutionary discourse was, in fact, part of a much larger phenomenon that covered the 17th and 18th centuries, and was described as the crisis of modernity. For the *ars aedificatoria* this brought, together with the disjunction between theory and practice and the loss of metaphorical content in the wake of the scientific revolution, "an unprecedented inversion of priorities: truth – demonstrable through the laws of science – constitutes the fundamental basis upon which human decisions are made over and above 'reality', which is always ambiguous and accessible through the realm of 'poetics'."⁵⁷
- [30] Carlo Lodoli is perhaps the first to address the question of "architectural truth". He does so by intervening at the juncture between myth and reason. His quest for truth has a moral dimension: it touches upon the ethics of architecture just as much as it engages objective building principles. What Lodoli fundamentally provides is not an architectural theory but, one might venture to say, an architectural philosophy.⁵⁸

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Architecture and (Aesth)ethics

- [31] In order to adequately grasp the implications and the significance of Carlo Lodoli's theoretical approach, one should briefly survey the aesthetic ideas of the first half of the 18th century. The first remark would be that architecture was usually seen in conjunction with painting and sculpture, within a conception inherited from the Renaissance about the three arts as derived from *disegno*. Although the sister-arts system was devised during the 17th century (together with the notion of *belle nature*), it was not until 1746

⁵⁵ The "conflict" between Lodoli and Vitruvius is paralleled by that of the *Encyclopedie* against antique beliefs: "Une qualité dramatique reste attachée à son histoire. Elle a lutté contre l'ancien, pensées et forces; *incipit vita nova* [...]." Hazard 1946, vol. I, p. 280.

⁵⁶ "[...] marier chaque art mécanique à la science dont cet art peut tirer des lumières, comme l'horlogerie à l'astronomie, la fabrique des lunettes à l'optique." D'Alembert, *Histoire des membres de l'Académie française*, Paris, 1787, VI, p. 335 *apud* Argan 1983, p. 207.

⁵⁷ Pérez-Gómez 1983, p. 5.

⁵⁸ "[...] avendo egli esaminati i sistemi degli antichi architetti con uno spirito forse troppo filosofico, compariva agli adoratori di quelli quasi un visionario [...]." Memmo 1833, vol. I, p. 4.

that its unity was achieved, through the famous book of Charles Batteux, *Les beaux arts réduits à un même principe*. This author, widely praised as the official voice of the 18th century aesthetics, conceived a prolix theory around the *mimesis* principle: all arts, architecture included, were supposed to imitate "nature", albeit this notion was pretty vaguely divided into the "real" and the "beautiful", and a very ingenious distinction was made between "imitation" and the "employment" of beautiful nature.⁵⁹ This aesthetic thesis had a considerable impact on the debate upon architecture, reinforcing a similar hypothesis previously formulated by a certain Amédée Frézier in 1738, in his book *Dissertation historique et critique sur les Ordres d'architecture*.⁶⁰ As a result, only several years later, two most influential texts, namely D'Alembert's *Discours préliminaire de l'Encyclopédie* (1751) and Marc-Antoine Laugier's *Essai sur l'architecture* (1753) shaped the image of a natural paradigm to be followed, still topical towards the turn of the century.⁶¹

[32] This is not, by far, the only architectural topic to have been discussed in the age of Enlightenment. However, in a European polyphony composed of varied voices, such as the Vitruvian tradition, the rise of the revival spirit – Gothic as well as Greek – or Palladianism, France dominated, be it only because it had provided – with the foundation, in 1671, of the *Académie Royale d'Architecture* – an institutional framework for theorization and even dispute.⁶² Consequently, it was the French authors that Lodoli could have entered in dialogue with. Certainly, we cannot tell for sure what exactly did he read or know. However, given the knowledge of French and his correspondence, as well as the contact with the cultivated circles in Venice or Verona, one is not to ignore the possibility that Lodoli could have actually been familiar with these theories.

[33] Before Laugier's inciting book, a certain functionalist tendency had already become obvious in France. In 1702 Michel de Frémin published his *Mémoires critiques d'architecture*, which supported the preeminence of functional attributes over formal appearance, attempting, at the same time, to define true architecture; according to him, this could only be the result of a direct relationship with its purpose, quality and placement.⁶³ Michel de Frémin might have given just another discourse on *decorum*,

⁵⁹ Charles Batteux, *Les beaux arts réduits à un même principe* (1746), Édition critique par Jean-Rémy Mantion, Aux amateurs des livres, Paris, 1989, *passim*. A concise analysis of his theoretical approach is to be found in Saint Girons 1990, pp. 84-86.

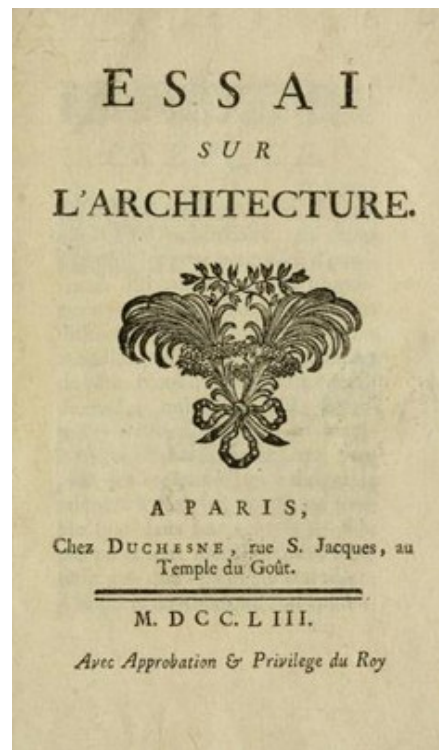
⁶⁰ In fact, Frézier was unconvincingly speculating on a passage found in Vitruvius' treatise. Confer Cellauo 2006, pp. 50-51.

⁶¹ The theory developed by Quatremère de Quincy in the last decade of the 18th century and afterwards, beginning with the article "Imitation" published in *Encyclopédie méthodique*, in 1788, argued the imitative purpose of architecture. Confer Saint Girons 1990, p. 85; Russell 1993, p. 9.

⁶² Szambien 1998, p. 310. The most significant polemic started in 1683 between Claude Perrault and François Blondel, triggering the famous quarrel between the ancients and the moderns. Vide *supra* the note 21.

⁶³ "L'Architecture est un Art de bâtir selon l'objet, selon le sujet & selon le lieu; cela signifie que le premier soin d'un Architecte consiste en faisant son dessein de concevoir la fin pour laquelle l'on luy ordonne un Bâtiment; [...] il doit ayant bien compris l'usage propre du Bâtiment, imaginer &

even if unsuitable for the French taste, had he not illustrated his views with gothic examples such as the Nôtre-Dame cathedral or Sainte-Chapelle; thus, he became the first to envision an unorthodox synthesis between classical and medieval architecture.⁶⁴ A further step in the configuring of the functionalist theme was made by Jean-Louis de Cordemoy, whose *Nouveau traité de toute l'architecture*, published in 1706, was advocating the necessity of truth and of the natural in architectural design. He not only argued against the Vitruvian dogma – *via* Claude Perrault – in declaring his admiration for the gothic structure, but (first and foremost) he introduced the idea of adjusting architectural style/order according to materials, technique and use.⁶⁵



4 Title page of Laugier's *Essai sur l'architecture*, first published anonymously, Paris, 1753. Research Library, The Getty Research Institute⁶⁶

[34] Finally, this functionalist approach was brought to its rounded expression – indeed, one might say turned into an archetype – by Marc-Antoine Laugier, notorious for returning to the issue of the "primitive hut", which speculated, in fact, on a Vitruvian *topos* about the primeval humans copying natural forms and processes in their first dwellings: "[...] they

arranger tout ce qui naturellement doit s'assortir à cette fin; [...]." Frémin 1702, pp. 22-23.

⁶⁴ Frémin 1702, p. 26. See also Rabreau 1997, p. 102. About the Graeco-Gothic synthesis and its aftermath *confer* Bergdoll 2000, pp. 13-14, and Mallgrave 2005, pp. 11-12.

⁶⁵ "Ce n'est pas assez que l'on sçache disposer, ou distribuer toutes les choses [...] si les endroits où elles doivent être employées, n'ont pas entr'eux une belle disposition ni une convenance selon l'usage ou la commodité pour lesquels ils sont faits; ou si dans cette disposition on y fait des choses contraires à la nature & à l'*accoutumance*." Cordemoy 1714, p. 85. *Confer* Gambuti 1975, pp. 123-124; Schlosser 1984, p. 644.

⁶⁶ Image reproduced from http://openlibrary.org/books/OL24349583M/Essai_sur_l'architecture.

began, some to make shelters of leaves, some to dig caves under the hills, some to make of mud and wattles places for shelter, imitating the nests of swallows and their methods of building. Then, observing the houses of others and adding to their ideas new things from day to day, they produced better kinds of huts."⁶⁷ In the first chapter of his essay, entitled *Principes généraux de l'Architecture*, Laugier gives a touching narrative about the difficulties the primitive man had to face when trying to find a shelter. Drifting from place to place, he finally stopped in a forest where, while contemplating nature, he discovered the basic architectural principles. In fact, the French abbot is forging the paradigm of the classical temple itself – he actually mentions the Maison-Carrée in Nîmes – concluding that the noblest way of building is rooted in a very simple and natural process; conforming to it not only prevents from errors but, at the same time, ensures the enterprise's perfection.⁶⁸

[35] Seducing as it might have appeared, Laugier's demonstration was vitiated from the very beginning. He tried to impose an evolution pattern founded on an idealized and impossible to prove (pre)historical reality. Furthermore, taking it as a starting point, he established a direct kinship between the wooden structure and the classical order, and even an historical succession as well. Last but not least, in the name of strict correspondence, he even produced a "catalogue" of architectural elements to be rightfully used.⁶⁹ On the other hand, beyond all these misconceptions and limitations, Laugier opened the way to rationality, inasmuch as his theory was fundamentally logical. In the analogy with the primitive hut, it was the process that was being emphasized, more than the morphology: this was the path to be followed by the architect in order not to deviate towards license and abuse.⁷⁰ Laugier's goal was to seize the essential beauty, derived from the natural paradigm and not from an antique authority.⁷¹ It seems that by the middle of the 18th century the Vitruvian system, or at least its aesthetic dimension, had finally proved outgrown.

[36] Although Lodoli disagreed with the idea that an architecture made of stone could have possibly been derived from a wooden structure, there are, however, at least two areas of

⁶⁷ This passage can be found in Vitruvius II, i, 2-3: "[...] coeperunt in eo coetu alii de fronde facere tecta, alii speluncas fodere sub montibus, nonnulli hirundinum nidos et aedificationes earum imitantes de luto et virgulis facere loca quae subirent. Tunc observantes aliena tecta et adicientes suis cogitationibus res novas, efficiebant in dies meliora genera casarum. Cum essent autem homines imitabili docilique natura, cotidie inventionibus gloriantes alios alii ostendebant aedificiorum effectus, et ita exercentes ingenia certationibus in dies melioribus iudiciis efficiebantur." Confer Vitruvius 1955, pp. 78-79.

⁶⁸ "Telle est la marche de la simple nature: c'est à l'imitation de ses procédés que l'art doit sa naissance. La petite cabane rustique que je viens de décrire, est le modèle sur lequel on a imaginé toutes les magnificences de l'Architecture. C'est en se rapprochant dans l'exécution de la simplicité de ce premier modèle, que l'on évite les défauts essentiels, que l'on saisit les perfections véritables." Laugier 1755, pp. 9-10.

⁶⁹ On the flimsiness of Laugier's theory, see Bergdoll 2000, pp. 12-13.

⁷⁰ Gambuti 1975, p. 20; Smith Capon 1999, p. 7.

⁷¹ Rabreau 1997, p. 103.

concern in common with Laugier. For example, the interest in the primeval genuineness and in the functional principles was shared by Lodoli as well; then, the tendency to restrain the role of the ornament, which for Laugier represented a condition for achieving essential beauty, was turned by Lodoli into a condition of truthfulness and direct expression of the function.⁷²

[37] A significant dissimilarity between Lodoli and the other contesters is that he criticizes the Vitruvian dogma from within: two of his cardinal tenets are taken from *De Architectura*. Thus, the plea that the building process should be permeated by reason ("devonsi unire fabrica e ragione") repeats one of the first sentences in the *Liber I* ("Opera ea nascitur et fabrica et ratiocinatione."), while the famous pair *function-representation* ("niuna cosa [...] metter si deve in rappresentazione che non sia anche veramente in funzione") reformulates a sentence from the *Liber IV* ("Ita quod non potest in veritate fieri, id non putaverunt in imaginibus factum posse certam rationem habere.").⁷³ In other words, the Lodolian revolution against the classical way of building was a matter of interpreting certain passages of the text that legitimized classical architecture itself. If this is indeed the case, the novelty would then consist in reinforcing this interpretation by means of an ethical content.

[38] To the Venetian friar the adequate way to derive representation from function made sense only when the *true function* and the *true representation* were at stake. Moreover, since ornament was not necessary (being but an accessory that eventually would accrue the outer attractiveness), and real beauty emerged from the just employment of materials, one is tempted to regard the Lodolian theory as a sort of turning of aesthetics into ethics.⁷⁴ After all, as Algarotti had said, Lodoli's only purpose was the truth ("non altro avendo per fine che la verità") and the way to obtain it meant resorting to sciences and their universal rules. However, it is not truth in itself that would have insured the ethical dimension of architecture, and not even its pursuit, but the consequences this quest might have. For Lodoli, it meant sacrificing the Vitruvian tradition that assured the preeminence of artistry (importance of ornament, concealment of structure, falsehood in the use of materials etc.) in the name of reason and science. For Algarotti, on the

⁷² About the shared emphasis on the functional principles, see Wilton-Ely 1996, p. 735. Francesco Algarotti points out a common attitude (Claude Perrault, Laugier and Lodoli) towards the architectural ornament: "Il nudare gli edifizii di buona parte de'loro ornamenti, quando inutili, fu ancora predicato da altri, che sopra l'Architettura hanno in questi ultimi tempi più sottilmente ragionato." *Confer* Algarotti 1784, pp. 12-13 and the note 1 from p. 13.

⁷³ Vitruvius, I, i, 1: "[...] his personal service [the architect's] consists in craftsmanship and technology." *Confer* Vitruvius 1955, pp. 6-7. The second paragraph, "Thus what cannot happen in reality cannot be correctly treated in the imitation", is taken from Vitruvius, IV, ii, 5. *Confer ibidem*, pp. 216-217. Certainly, one cannot see here a direct translation of the Vitruvian sentence. Still, as Louis Cellauro argued, the word "in veritate", being a direct allusion to truth ("veritas") should be understood as "function", while "in imaginibus" stands for "representation". *Confer* Cellauro 2006, pp.32, 46-47.

⁷⁴ Rykwert 1980, pp. 323-324. For a more applied discussion on the question of architectural ethics, see Harries 1997, *passim* and especially pp. 84-136.

contrary, the arts and the sciences had to remain independent from one another;⁷⁵ even if alerted to the wrongness of the fabric, the architect should better preserve its falsity than challenge an entire tradition. This is, in fact, the gist of the quarrel between the friar and his former disciple.

[39] Except for a rather modest, yet revealing, practical application of his ideas (the restructuring of the Pilgrim's Hospice at the San Francesco della Vigna monastery, in particular the inner compartment and the design of the windows), Lodoli was more interested in defining a new attitude towards building as such than in revolutionizing the aesthetic taste, or in the return to an ideal prototype. In order to achieve this, he called for a reinforcement of the Venetian moral climate within which the debate upon architecture was carried on.⁷⁶ He thus announced the broader mutations that were to come towards the end of the century in Western Europe. The fact that his ideas were reluctantly received despite the broad diffusion provided by Algarotti, as well as the oblivion following his death, notwithstanding Memmo's later account, are to be seen as signs of a profound crisis, encompassing the architectural one. The very difficulty of dealing with this "functionalist" approach is the equivalent of a refusal to face the new stage of modernity.

[40] Similarly with the progressive turn from magic to sciences,⁷⁷ architecture underwent a slow transformation starting with the last decades of the 17th century. Inevitably, the increase in rationality provoked the loss of the mythical component that still infused the Early Modern architectural theory. An entire system of relations between the macro- and the micro-cosmos, and of analogies between the human body and the building, as well as the metaphysical content given to the notion of *mathesis* were left behind in the name of reason.⁷⁸ Lodoli's thought plays an important part in this process, as it carries forth the questioning of the authority of ancient knowledge, practice and aesthetics, while emphasizing the ethical function of architecture.

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⁷⁵ Oechslin 1970, p. 153.

⁷⁶ Rykwert 1980, p. 321.

⁷⁷ An excellent introduction into this matter is to be found in Rossi, 1997.

⁷⁸ Pérez-Gómez 1983, pp. 8-10.

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