Some Considerations on Traité de L'Art de Bâtir by Rondelet and the Technical Literature of his Time

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ABSTRACT: The object of this paper is to understand the reasons for the success of Rondelet’s celebrated Traité théorique et pratique de l'art de bâtir, a text of fundamental importance in the history of writings on building construction. Hugely successful, this general treatise of building construction was first published, privately, from 1802 to 1817. By 1885, seventeen editions had been published. Rondelet’s Traité théorique which constitutes the first encyclopaedic approach on building construction quickly became a reference. The paper examines the treatise’s position in the architectural literature at the time of its publication. The first part focuses on the production of the work (financing, distribution modes, price and shape of the various editions). The second part concentrates on the specificity of its contents, and in particular on the use it makes of references and historical models.

In 1872 Viollet-le-Duc, mocking the architects who “by way of library boasted only Perrault’s translation of Vitruvius, one work by Vignola, another by Palladio, Rondelet’s Construction, and the Palais de Rome by Percier and Fontaine” (Viollet-le-Duc, 1872, T. II, p. 215), he placed the Traité théorique et pratique de l’art de bâtir among the four major architecture books considered trite works of the academic tradition. Clearly, the work was immensely successful; by 1885 seventeen editions had been published, as well as an Italian translation (1831–35) and a German one (1833–36). This success was a surprise to Jean Rondelet and his son Antoine. The first edition’s volumes (1802–17) were re-published several times even before the work’s completion, and those belonging to the reworked version (published between 1827 and 1832) were already out of print by 1830. What could have been the reasons for this success? Was the Traité, as Hanno-Walter Kruft (Kruft, 1994, p. 275) or Kenneth Frampton (Frampton, 1980, p. 30) would suggest, the “practical pendant” to Jean Nicolas Louis Durand’s Précis des leçons d’architecture? the “first comprehensive textbook on building construction ... one of the greatest rationalizing influences of the age” as described by Peter Collins (Collins, 1967, p. 204)? Or was it, on the contrary, one of these books, “of little real use,” that any real architect was nonetheless bound to have? Was it a “talisman” comparable to Recueil et parallèle des edifices de tout genre (1799–1801), to take up Robin Middleton’s stimulating suggestion (Middleton, Baudouin, 2007, p. 295)? We propose shedding light on this question by examining the work’s position in the architectural literature at the time of its publication.

A privately printed official book

The production of the Traité de l’art de bâtir is somewhat unusual: a privately printed publication partly financed by the government. Admittedly, Jean Rondelet was not pioneering in self-publishing his work – just be-
fore the Revolution the number of architect-publishers was steadily increasing (Journal des arts, 1804, p. 149) – but he gained some power and support unusual for most architects, from the project’s beginnings in 1783, even prior to the work’s writing, then in 1799 when its printing started. It was paid for by the government, under the protection of the Director of the King’s Buildings, between 1783 and 1784, that he gathered in Italy some information required for his book. Sixteen years later, under the Directoire, the Ministre de l’Intérieur endowed him with a major subsidy, buying 125 copies of his work, plus an additional 48 subscribed by the Ministry of War (Middleton, Baudouin 2007, p. 223). Altogether, out of 417 subscriptions in 1803, 173, that is more than a third, were from the government.

The reasons for this support are clear. The project and its author were at the heart of the time’s major institutions and administrations. The architect introduced his work in 1783 as a supplement to the works by the Académie. He wrote to the Director of Buildings under Louis XVI:

It has been the Royal Magnificence’s pleasure to send the Académie d’Architecture students [to Italy] to hone their good taste; but as decoration was always their prime subject, I believe that a trip with the express purpose of studying the construction of these famous Edifices ... would much serve the progress of the art of building ... (Rondelet, 1783).

It was not to England, where new materials were replacing traditional building materials, that Rondelet travelled to collect information useful to the art of building’s progress, but to Italy where, like any distinguished architect, he made his “Grand Tour,” staying for a year at the Académie de France in Rome. At the height of the Revolution the tone changed but the project endured. At the time the architect denounced in the Assemblée Nationale “the quixotic & exorbitant, often even unrealisable, projects” by the Académie d’architecture’s students and the “special protection” granted to those dealing with décoration: “Up to now a crowd of plotters & lackeys have surrounded the King & his Ministers, they have formed around them an impenetrable barrier, which has kept at bay all the citizens eager to communicate projects & observations useful to the State’s well-being.” (Rondelet, Mémoire, 1790, p. 8 and 12). He demanded the same advantages for the “three parts of architecture” (décoration, distribution, construction), that is to say, memberships in the Académie and specific competitions for the construction part. For the “general welfare,” Rondelet suggested creating a public body of architects, controllers and workers in charge, within an “école-Pratique des Arts,” of the contraction and upkeep of all public buildings. And from then on he was incessantly involved in the organization of the public works administration (Middleton, 2007, pp. 139-156). In 1799, when he appealed to François de Neufchâteau for funding, Rondelet was one of the main creators of the Conseil des bâtiments civils (Public Buildings Council) and the author of a great number of reports on behalf of the Ministère de l’Intérieur.

The government took part in his book’s dissemination by sending out many copies to schools, libraries and administrations, but Rondelet and then his son also dealt, as any architect-publisher would, with its marketing. A large number of advertisements and brochures – from the single page to the 16 page fascicule – were accordingly printed. Advertisements for the eight parts of the first edition could be found in the Journal des bâtiments, des monumens et des arts, the Journal des arts, des sciences et de la littérature and the Journal des savans. Several leaflets introducing the treatise’s successive versions were printed in 1799, 1827 and 1830 (Rondelet 1799, 1827, 1830), as well as table of contents (Rondelet 1818, Rondelet 1827) and excerpts (Rondelet 1829, Rondelet 1830a). Rondelet, following a common practice at the time, also published excerpts of the text (Rondelet, 1804) or plates (Rondelet, 1817). The atlas for the part on carpentry was sold separately in oblong shape without a title page, with just a label at the bottom of the first plate (Rondelet, [1817]). Later, from 1832, the work’s distribution was taken up by the major publishing-house Didot.

But Rondelet was not just content with reprinting several copies of his treatise. He amended, restructured and added to it to enhance its coherence and adapt it to topical building practice. The history of the books’ publishing is well known today thanks to the work of Robin Middleton and Marie-Noëlle Baudoin-Matusek who have gathered and described the first six editions. This work was complemented for this paper by examining the plates. As for content, three major versions can be recognized. The first includes the first four editions published between 1802 and 1817. As pointed out by Quatremère in 1818, this first treatise had undergone considerable extensions and additions that altered the material proportions of its tomes within the first fifteen years of its publication. Albeit in seven volumes, the treatise in fact consisted of four tomes divided into eight books: this made for poorly readable divisions and thus rendered research difficult (Quatremère, 1818, p. 366). The second version (5th edition) corrected this shortcoming. Published between 1827 and 1832, it comprised five volumes (Rondelet, 1827–1832). Rondelet had reorganized the order of this treatise “more methodically” (Quatremère, 1837, p. 22), subdividing the whole into ten books rather than eight. He added references in the footnotes and provided each part with a table of contents and “plate explanations.” He revised some parts of the text according to criticisms. Examining the figures shows the extent of the transformations. Eighteen plates were added to the initial 191 (Rondelet, 1802–1817), but 77 were modified. Fourteen copper-plates of the first version were touched up to improve their layout, to add or take out figures; 68 plates were re-engraved on copper, of which only 5 in an identical way and most with added or redrawn figures (Figs. 1-2). 28 plates were new. Rondelet added a dozen buildings or “large size” constructions built at the turn of the nineteenth century. He completed and improved the initial corpus, with drawings either drawn from recent archaeological publications, or from architectural treatises and collections already used for the first version. The coherence in many plates was enhanced by adding images at a similar scale (Figs. 3-4).
The third version comprised the 6 volume edition of 1855 and two 324 plate atlases. This version incorporated the volumes of the Supplément which Abel Blouet published in 1847 and 1848 in order to “revamp” the work, to “make it represent the contemporary art.” Blouet added new examples of iron construction which, according to him, initiated a “revolution in the art of building” (Blouet, 1847, T. 1, p. iv-v). The subject of Supplément’s second tome was to examine “the questions of art theory inferred from the construction.” He thus added to Rondelet’s work a doctrinaire, or even polemic, dimension which was absent in the first version; he asserted that “the best use of materials produces the best shapes” (Blouet, 1847, T. 1, p. viii) or that “it is only by studying construction that one can start learning the art of architecture” (Blouet, 1848, T. II, p. v).

Regarding form, the plates initially published in quarto, or the oblong bound atlases for carpentry drawings, were subsequently printed in folio, from 1834 (7th ed.) to 1885 (17th ed.). They were entirely and identically re-engraved on steel for Rondelet’s treatise and Blouet’s supplement in the 1855 edition. The price of the parts continuously increased, but the price of the whole stayed very reasonable. The eight parts forming seven volumes of 2399 pages and 191 plates cost 112 Francs in 1818. In 1834 the 7th edition composed of five volumes and a folio atlas of 209 plates was hardly more expensive (125 Francs) and could still be acquired in issues (Journal des savans, 1834, p. 758). In comparison, in 1805 Jean-Charles Krafft’s self-published collection, Plans, coupes et élévation des diverses productions de l’art de la charpente, comprising 81 pages of text and 205 folio plates on ordinary paper cost 160 Francs, and Bance aîné sold the 147 pages and 184 plates of Louis Bruyère’s Études relatives à l’art des constructions (1823-1828) for 144 Francs.
History and construction

As unanimously acknowledged by its contemporaries, the treatise was “the first to provide an extensive and comprehensive theory of construction” (Courtin, 1828, p. 165), and “the most comprehensive to be ...

Figure 3: Rondelet, Traité ..., plate LXXXI, first ed. 1805

Figure 4: Rondelet, Traité ..., plate CLXXXV, re-engraved in 1830

published on architecture considered in its scientific and material dimension” (Blouet, 1847, T. 1, p. iii). At the end of the eighteenth century the main technical fields of architecture were already the subject of specific publications, to the extent that the author of Manuel ou Guide de ceux qui veulent bâtir considered in 1818 that the number of books dealing with the art was “capable of surprising whoever would want to engage in the construction of buildings.” (Lecoy, 1818, p. 2) Among these, L’Architecture pratique by Pierre Bullet, published in 1691 and regularly updated during the eighteenth century (Charon, 2008, p. 55-71), was deemed the first book to provide “a complete body of doctrine, a short general theory of construction.” In the 1780s when Rondelet was working on his book’s conception, and during which according to his contemporaries “a kind of passion for building [had] taken hold of rich people, & even of a fairly large number of those who are not” (Journal encyclopédique, 1781), several general construction treatises were published such as those by Le Camus de Mézières (Le Camus, 1781) or François Monroy (Monroy, 1785). Compared to these octavo publications, usually comprising one or two volumes, similar in shape and content to the “toisé” by Bullet, the seven volume treatise, printed on quarto “grand-raisin” paper, with 191 fold-out plates, undeniably stood out owing to the extent of its text and the quality and number of its plates.
The work clearly belongs to the didactic category. Rondelet never expressed himself in the polemic mode, as would Michel de Frémin ("an Architect who knows only of the measures of the five Orders is a very-small & very-slight Architect.") Frémin, 1702, p. 22) or his contemporary Charles-François Viel ("the mathematical mind-frame is the most disastrous poison for the arts of the imagination" (Viel, 1809, p. 46). Neither did he develop what Quatremère de Quincy coined as the “metaphysics of art.” The treatise’s program closely corresponds with the one Rondelet introduced in his Discours pour l’ouverture du cours de construction (1806); that is to say, according to him, the “first comprehensive course on construction.” As a matter of fact, he wrote; “construction had not yet been taught in a public course. Stone-cutting, taught before me by Messieurs Louchet and Rieux under the name of Stereotomy, that is, the section of solids, is but a part of the science of construction.” (Rondelet, 1806, p. 9) “This art [construction],” he claimed, “comprises two major parts, which are theory and practice; on one hand, “the art of extracting, transporting, shaping and implementing materials,” on the other, a “science that leads all the operations of practice ... the result of experience and reasoning, founded on the principles of mathematics and physics applied to the various operations of the arts” (Rondelet, Discours, 1806, p. 10). This “essential” part, “one of the most difficult of the art of construction” was that which had required, according to him, the most work and research.

Philibert de l’Orme, renowned architect, published in 1561 a book on this way of building trusses, which he claimed he invented. However there exist constructions of that kind far older than this architect, such as the domes of the church of Saint-Marc in Venice and of several others in the same city; one of the most remarkable is that of Santa Maria della Salute (Rondelet, 1810, T. IV, p. 255). But Rondelet was not trying to write a comprehensive history of the art of building. He analyzed ancient types of construction (domes, vaults, arches, etc.) without delving into the cultural, social and economic context during which they were born. History served above all to inform the construction practice of his time. The first two plates of the Traité showed in parallel and in the same scale, in order of size, the most famous columns and obelisks (Fig. 7).
In this, Rondelet is transferring to construction the method of graphical parallels used by Julien David Leroy and widely circulated in compendiums of public and private constructions at the turn of the nineteenth century (Szambien, 1984, pp. 27-30). The other plates were not all as synthetic as these first two, but they often brought together several models. In the carpentry sections Rondelet reproduced only half of the models of floors which for the most part he borrowed from Plans, coupes et élévations de diverses productions de l’art de la charpente (1803-1805) by Jean-Charles Krafft, in order to compare these models. In his treatise Rondelet was obviously codifying the graphical parallel already used in the field of construction by Gabriel Pierre Martin Dumont in his Parallèle des grands entablements et de charpentes à l’Italienne (1765) or Pierre Panseron in his Cahiers de planchers (around 1790) (Nègre, 2008, pp. 193-204).

Although exclusively devoted to the material aspect of construction, the comparative approach did not reveal new models. The architect relied on a corpus attuned to his contemporaries’ tastes, formed by buildings from Classical Rome and “modern” Italy. His plates, it was deemed on the other side of the Alps in 1833, “put on view to be studied models of the best taste and exquisite beauty, that also represent a variety of the most famous ancient as well as modern monuments” (Biblioteca Italiania, 1833, pp. 90-91). English examples were rare and Gothic edifices, although the author considered them to be “beautiful examples of construction,” are practically absent from the first as well as the second version. “All people of taste and good Architects,” he wrote, “know that it is preferable to please through forms and beautiful arrangements, rather than amaze with a boldness of stereotomy that can only suit an “apareilleur” (stone mason). For works of that kind, it is not enough that they be reasonably solid, they ought in addition to have the appearance of being so” (Rondelet, 1803, T. II, p. 340).

He reached exactly the opposite conclusion with the ratios comparing the area of walls to the areas thus enclosed in the most famous classic and modern buildings: “One brings readers to see, thanks to applications made to different modern and classic buildings, that the architects who directed their construction seem to have followed neither rule nor principle since, in several of them, one finds parts where matter was needlessly spent, while others have barely what is required to resist the loads they bear” (Rondelet, 1806, p. 14). The choice of examples clearly vindicated classic architecture’s prevalence, but the method that consisted in comparing technical devices independently from the buildings implicitly led to challenging classical notions such as “solidity.”
CONCLUSION

It would not be possible for this paper to examine in detail the way the architect appropriated and diverted this corpus. Rondelet’s genius was doubtless to have produced a hybrid work equally acceptable to architects and engineers. Although some saw in the treatise a model of “optimal good taste,” others saw it exclusively as a book on construction: “We repeat this, the artist who seeks real talent must ban all those works fatal to genius [compendiums on palaces and villas] and keep only two or three of the kind, such as those by Le tarouilly, Percier, and Hittorf. On the other hand, he will need to have a good collection of books on construction.” Rondelet’s treatise was thus recommended along with works such as those by Brard, Bélidor, Perronet, Navier and Gauthier. According to Détournelle “Rondelet corrects his subject’s dryness. He thus dispels the serious meditations required by deep calculations ... Usually, these kinds of books on construction dry up the imagination; after reading this one, it is actually stirred.” (Détournelle, 1803, pp. 223-224). What is clear, however, is that the Traité de l’art de bâtir cannot be considered as equivalent to Jean Nicolas Louis Durand’s Précis des leçons d’architecture. Rondelet is not the proto-functionalist he was once considered; he did not openly challenge the relationships between décoration, distribution and construction, and his interest in sparingly using materials was nothing new. He published a book, meant for the general public, moderately priced, and largely financed by the government. This work constituted the first encyclopaedic approach to building construction, in which he systemized the method used by Lecorche, which graphically parallels also embraced at the turn of the century by several architecture and construction compendiums. In that respect, the connection Robin Middleton makes between Durand’s Recueil et parallèle and Rondelet’s Traité de l’art de bâtir is judicious. The historical references (texts or buildings) broadly used by Rondelet had, however, an identity-building function that ought to be emphasized: they helped to consider construction as an autonomous field. By reproducing the first image of a timber-framed house published by Pierre Le Muet in 1623, Rondelet included his work in current reflections on construction. Let us acknowledge that this autonomous approach to construction which brings forth a vast range of examples, from the “proud masses that seem to insult the sky” to “the pastor’s tent and his travelling dwellings” (Quatremère, 1788, p. v) managed to stimulate several generations of architects who, like Abel Blouet, unabashedly declared on behalf of Rondelet that “architecture is construction; construction is architecture.” (Blouet, 1847, T. I, p. vi)

REFERENCES

Journal des arts, des sciences et de littérature, 1804, 379, 5 Brumaire an 13, p. 149.


