
THE COUNTER-REFORMATION AND THE FAÇADE OF A GOTHIC CATHEDRAL THE DICTATION OF BISHOP LUIS DE TENA IN TORTOSA (1616-1622)

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Abstract

The facade of the Gothic cathedral of Tortosa was built in the seventeenth century according to the project of Martín Abaria (1621-1625) and chronologically coinciding with that of Maderno in Sant' Andrea della Valle. The layout is based on the architectural order of Serlio and Vignola. The iconographic program follows the dictation of the bishop Luis de Tena, expert in biblical studies, and it is he who induces the directives of the Council of Trent of Carlo Borromeo. The repositioning of the project has allowed its comparison with the façade executed, through the data obtained with the Terrestrial Laser Scanner (TLS), determining a common metric will of the number 100 of the *De civitate Dei* Augustine of Hippo, in the first body, both in the project, as in the execution of the façade. There is a metrological will for a Marian connection between the façade presided by the enthroned Virgin and the medieval 100 of the keystone of the presbytery with its Coronation.

Keywords: architectural traces, architectural treatises, Mannerism, cathedrals, Luis de Tena

1. Finishing a Gothic cathedral façade in the early 17th century

Many of the facades of the Meridian Gothic cathedrals were left unfinished, as the chronology of the Late Gothic is intertwined with the burgeoning influence of the Renaissance. Due to their geographic location, these structures had to undergo compositional and formal re-adaptations to accommodate a climate distinct from that of central Europe. Viollet-le-Duc (1814-1879) was, therefore, taken aback when he described the construction characteristics of cathedrals in the Medieval, such as Notre-Dame-de-l'Assomption de Clermont (1248), Saint-Just-et-Saint-Pasteur de Narbonne

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(1272), and Saint-Étienne de Limoges (1273) [1]. Robert de Lasteyrie (1849-1921) similarly noted the distinctiveness of cathedrals like Saint-Nazaire de Béziers (c.1215), Saint-Nazaire de Carcassonne (1269), and Saint-André de Bordeaux (c.1305) [2].

Both scholars identified a key distinguishing feature of this Southern Gothic style, which entailed a formal adaptation to a climate unlike that of central Europe. In Spain, Vicente Lampérez (1861-1923) also embraced this principle, uncovering significant formal disparities between the Gothic of Castile and that of Aragon, Catalonia and Valencia [3]. These differences were conceptualized by Josep Puig i Cadafalch (1867-1956) as the transformation of Northern cathedrals to suit the Mediterranean climate [4].

Conversely, the significance of the tradition of late classical geometry in these geographic regions lies in their differential geometric evolution compared to Northern models, founded upon section *ad triangulum* or *ad quadratum* [5], among others, incorporating proportional models with a Neoplatonist foundation [6].

The exceptional Cathedral of Saint Eulalia in Barcelona (1298) [7] was particularly emphasized by George Edmund Street (1824-1881). Its facade had to await completion by August Font I Carreras (1846-1924) after the Academy approved the neo-Gothic style scheme in 1895, a result of the 1882 competition [8]. This practice of opting for a neo-Gothic solution can be observed in other cases, such as Santa Maria del Fiore in Florence, completed according to the project (1863-1864) by Emilio de Fabris (1808-1883) after the 1861 competition, Duomo di Napoli (1876) completed in 1880 by competition winner Enrico Alvino (1809-1872), Duomo of Milan (1886) completed in 1888 by Giuseppe Brentano (1862-1889), and the unfinished San Petronio in Bologna with the 1887 competition. The tradition of determining Gothic facade projects through architectural competitions was derived from the legacy of contests held in Florence in 1490 and (1587-1588), Bologna in 1546 and 1570, and Milan in 1592 and 1606, with results focusing on Gothic or Mannerist design solutions.

However, some cathedrals did not await the 20th-century neo-Gothic trend, as was the case with certain cathedrals in the Spanish Levant, constructed primarily during the periods of Mannerism and later the Baroque. Notable examples include the Cathedral of Girona, designed by Miquel Llavina (d. 1660-1703) in 1680, the Cathedral of Valencia, designed by Conrad Rodulf (1703), and the Cathedral of Murcia, designed by Jaume Bort (1737). Therefore, it was unusual in the Iberian Peninsula, especially during the 17th century, for a Gothic cathedral like the one in Tortosa to have its facade completed in a different style, as proposed by Martín Abaria-Alaiz (f.1594-1648) between 1621-1625 (Figure 1).

The objective is to elucidate the iconographic and iconological underpinnings that served as the inspiration for the design of this façade, under the guidance of its architect, Martín Abaria, and Luis de Tena Gómez (+1622), who held the position of Bishop of Tortosa from 1616 to 1622.



Figure 1. Main façade of Tortosa Cathedral. Author's figure.

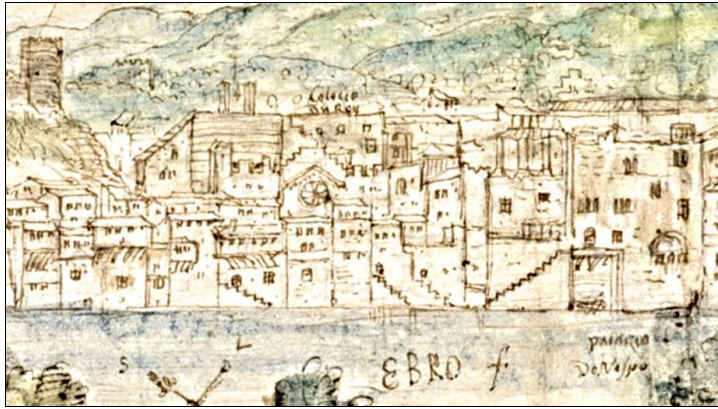


Figure 2. Detail of the west façade of the Romanesque cathedral of Tortosa (1563), Antoon van den Wyngaerde (1525-1571), Österreichische Nationalbibliothek, Wien Startseitehttps, Picture Archive, Cod.min 41 (fol. 8 r). Details (Cod.min 41) reproduced by kind permission of Österreichische Nationalbibliothek.

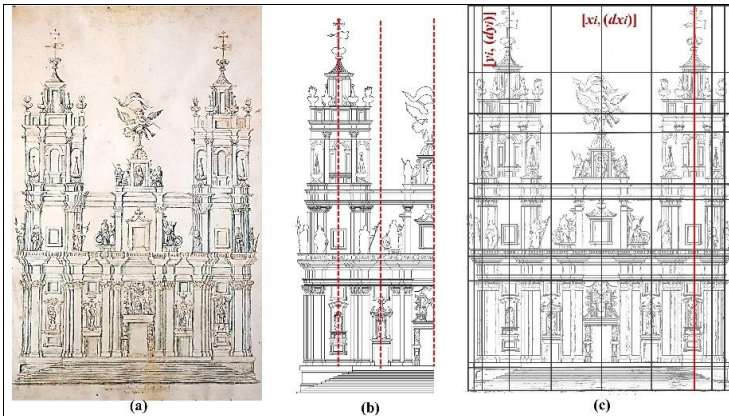


Figure 3. a) Martín Abaria ACTo, P-3's project; b-c) Methodology Computer-aided repositioning (CAD), redrawing of the parchment, interpretation by the authors. Details (ACTo, Fábrica 49) reproduced by kind permission of ACTo.

2. The fundamentals of the Tortosa cathedral main facade project

Bishop Martín de Córdoba Mendoza (c. 1510-1581) participated in the Council of Trent (1545-1563), following which Gaspar Punter Barreda (1590-1601) re-consecrated the cathedral on June 8, 1597, marking its second consecration. The cathedral faced the formidable task of constructing a new façade to replace the aging Romanesque cathedral façade (Figure 2). In February and October of 1597, the foundation stones for the Baptistry and Clock Towers were ceremonially laid. The initial façade project took shape in January 1703, marked by the celebration of the Eucharist with the intent to “*protect us from evil and shield us from all misfortune*” [9].

Luis de Tena Gómez (+1622) published a constitution with the aim of rectifying the financial affairs of the factory on September 18, 1620. Consequently, the Chapter agreed to resume the construction of the Seo. Martín Abaria assumed the position of magisterial in place of his father, Lope de Abaria. On April 14, 1625, he resigned from his role after receiving a payment of 20 pounds for the drawing of the façade on parchment (0.522x0.724 m). The drawing was executed using coloured ink and a graphic scale in Catalan palms, and it was preserved in the Chapter Archives (ACTo) [10] (Figure 3a).

With the arrival of the French army in 1648, he pursued titles of nobility and military recognition. As a supporter of the Count-Duke of Olivares, he organized the defence of Tortosa in 1642 and was subsequently banished to Benicarló [11]. The trace of his project has been repositioned through photography with a Nikon Digital Camera D5200, by means of a *Computer-Aided-Design* (CAD) system (Figure 3b-c). This repositioning allows the comparison of the project with the data obtained from the façade by Terrestrial Laser Scanner, using a Leica ScanStation P20.

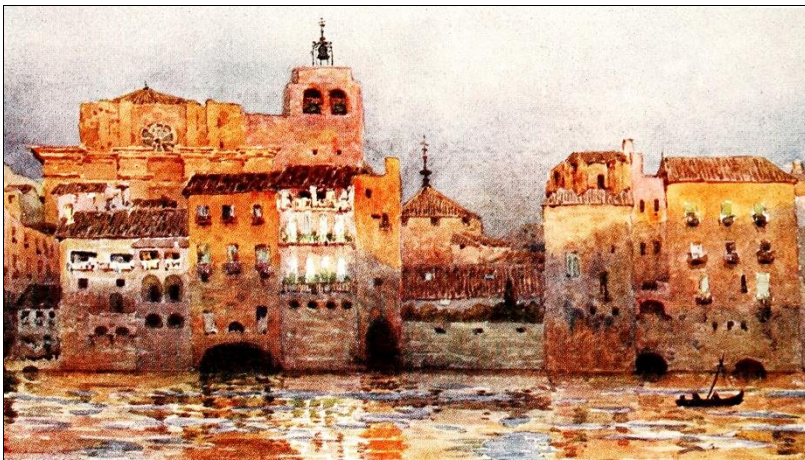


Figure 4. Detail of the façade. Aquarela William Wiehe Collins, *Cathedral cities of Spain*; 60 reproductions from original watercolours, by W.W. Collins, (1908) [12]; <https://babel.hathitrust.org/cgi/pt?id=uc1.b5266931&view=1up&seq=59&skin=2021>. Details figures Terms of Use, Licence referenced Public Domain Mark.

The project has not had critical fortune, from the neoclassical quote by Antonio Ponz Piquer (1725-1792), “*but its main façade does not say with such architecture, nor is it to be praised in Greco-Roman architecture, whose rules and decoration they set out to follow, for they made it monstrous*” [13].

Nor that of the English painter William Wiehe Collins (1862-1951), and describing: *It is extremely good Gothic, with a heavy baroque west façade, ugly and ill-proportioned* [14], representing it through a watercolour on the fluvial façade of the Ebro River (Figure 4). In a similar opinion, Canon Josep Matamoros Sancho (1866-1937), with neo-Gothic approaches, sees in the façade the rupture of the Gothic unity of the cathedral: “*It did not deserve a work so beautifully begun and with such purity of line, that it ended so disastrously in such a disharmonious way, as can be seen in the inharmonious façade that crowns it*” [15].

3. The context of bishop Luis de Tena’s figure

Luis de Tena served as a canon at the Primate Cathedral of Spain from 1599 and underwent an examination for purity of blood. His academic journey commenced in 1579 as a student at the Collegiate of Theologians of Alcalá de Henares (Archivo Histórico Nacional, ES.28079. Universities, L.1233, fol.41), and he furthered his studies at the Mayor de San Ildefonso in 1583. He later assumed the role of rector at his university and became a professor of Arts and Theology at Escoto, followed by a position in Prima of Santo Tomás [16]. Additionally, he is documented as a Canon Magistral and of Sacred Scripture in Toledo’s cathedral. He held a significant role in Madrid as the chief almoner of Queen Margarita of Austria (1584-1611) [17]. Notably, he served as the President of the Generalitat de Catalunya from 1617 to 1620 and was appointed as the regent of the Kingdom of Sardinia in 1621 after being elected as the bishop of Tortosa in 1616.

Luis de Tena exhibited familiarity with Spanish architectural treatises during his time at Alcalá de Henares (1579-1599), likely encountering Miquel de Urrea’s (fl. 1540-1565) 1582 edition of Vitruvius, printed by Juan Gracián. His exposure to these treatises also continued in Toledo (1599-1616), coinciding with the publication of Diego de Sagredo’s ‘*Medidas del Romano*’, the earliest book on Renaissance architecture outside of Italy (c. 1490-c. 1528). During this period, three Spanish editions of Sebastiano Serlio’s *Tercero y quarto libro de architectura* (1475-c.1554), translated by Francisco Villalpando (c.1510-c.1561), were published there. He was able to have the 1552 edition by Ivan de Ayala, the 1552 edition by Juan de Ayala (1563) and the 1573 edition by Miguel Rodriguez (1573). He was in position to know the first Spanish edition of Jacopo Barozzi da Vignola (1507-1573), published in Madrid in 1594 in the house of the illustrator Antonio Mancelli (+c. 1643) as the *Regla de las cinco ordenes de architectura / de Iacome de Vignola; now translated again from Tuscan into Romance by Patritio Caxesi*.

Additionally, Luis de Tena may have had contact with Doménikos Theotokópoulos (El Greco, 1541-1614), as he was acquainted with Don Luis de Castilla (+1618), the Archdeacon of Cuenca, who was the son of the Dean of the Cathedral of Toledo and the Archdeacon of Murcia, Diego de Castilla (c.1507-1584) [18]. El Greco had an extensive library with the main treatises of the fifteenth century such as: the Vitruvius by Philander (1551) and Cardinal Barbaro (1556), the *Libro Primo d'Architettura* (1566) by Serlio and the Spanish edition of the third and fourth book of 1552 by Villalpando, by Antonio Labacco (c.1495-1568) *Libro d'Antonio Labacco appartenente a l'architettura* (1559), the Rome *pinceps* edition (1562) by Vignola and the Spanish edition of 1594 by Patricio Cajés (c.1540-1612), of Andrea Palladio (1508-1580) the *I Quattro libri dell'architettura* (1570), as well as The *Ten Books of Architecture* (1582) by Leon Battista Alberti (1404-1472) by Francisco Lozano or the *General Perspective of the Monastery of San Lorenzo del Escorial*, by Pedro Perret (1555-1637) according to a design by Juan de Herrera (1530-1597) [19].

4. 'Commentaria et disputationes in epistolam D Pauli ad Hebraeos' by Luis de Tena (1612)

In 1612, Luis de Tena published *Commentaria et disputationes in epistolam D Pauli ad Hebraeos* (Figure 5a) in Toledo and London (1661) [20] (Figure 5c). This work underwent censorship by Fray Ignacio Fermín de Ibero (c. 1550-1612), the Abbot of Fitero, a doctor and professor of Sacred Theology at the University of Alcalá, and a censor of the Court of Inquisition. The publication received approval from the Magistral Canon of Cuenca, Pedro González del Castillo (1562-1623), who had familial ties to the author through Queen Margaret of Austria, whose funeral oration he eulogized. The first edition of the publication featured a frontispiece crafted by the silversmith and engraver Pedro Ángel (c. 1567-1618), bearing the coat of arms of Philip III of Spain (1578-1621) and the canon (Figure 5b) [21].

The configuration of this piece resembles an altarpiece designed for an altar, set against a backdrop of perspective with visible lateral walls and a coffered ceiling. It bears a resemblance to the model depicted in plate LXXV of Serlio de Villalpando's book IV. This structure is constructed in the Ionic order and features a split pediment in the attic, flanked by two angels. At the centre of this composition stands the representation of the Eternal Father, characterized by a substantial beard and a triangular nimbus within an oval cartouche. In his left hand, resting on his knee, he holds the world, crowned by a cross, symbolizing the Creator God of the Universe. In his right hand, he points towards his Son, Jesus Christ, who carries the cross, signifying the act of Redemption. Between these two figures, a phylactery reads: *sede a dextris meis* (Figure 6).

The altarpiece's configuration is aligned with the argumentative development in the text of Saint Paul. To the left of the Gospel column, the figure of Abraham is portrayed, and beneath the pedestal supporting him is the

inscription: *Et benedicent in semetipso omnes generationes terrae*, Genes 22, v.18.

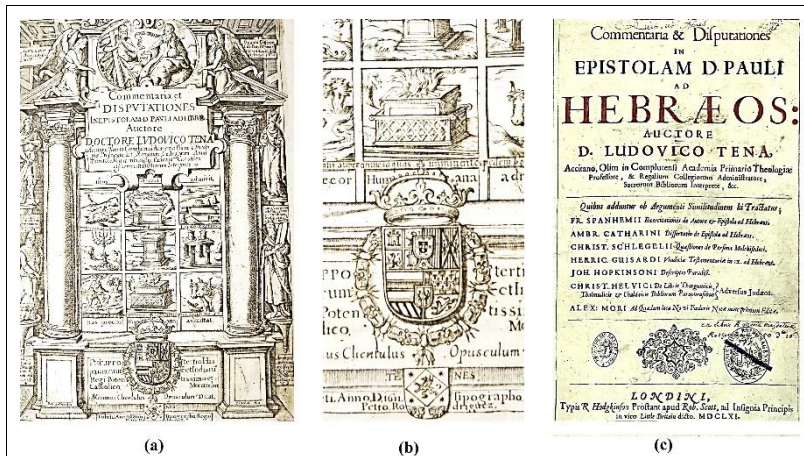


Figure 5. a) *Commentaria et disputationes in epistolam D Pauli ad Hebraeos* (1612) [20], <https://books.google.es/books?id=egzXk2-0hy8C&pg=&dq=Luis+Tena>; b) details coat of arms Philip III and Luis de Tena; c) *Commentaria et disputationes in epistolam D Pauli ad Hebraeos* (1661) [20], https://www.google.es/books/edition/Ludovici_Tenae_Commentaria_et_disputatio/B01EAAAACAAJ?hl=es&gbpv=0. Details figures Terms of Use, Licence referenced Public Domain Mark.

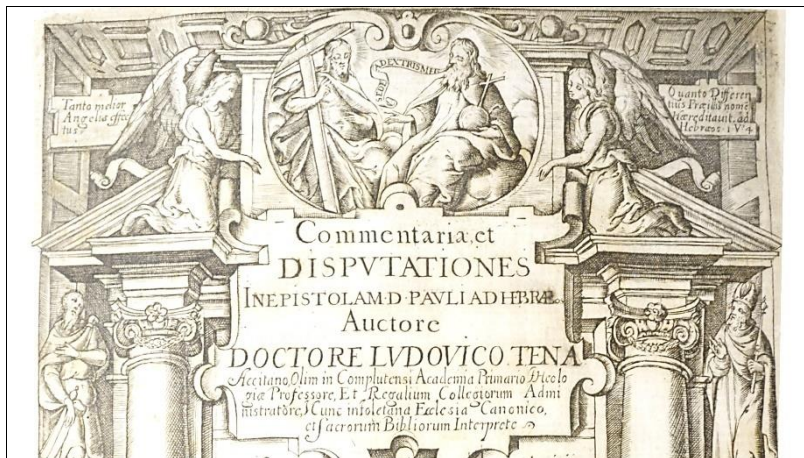


Figure 6. Detail of *Commentaria et disputationes in epistolam D Pauli ad Hebraeos* (1612) [20]. Details figures Terms of Use, Licence referenced Public Domain Mark.

Adjacent to the base stands the figure of Aaron, the great priest of the old Law, with the inscription: *Sed qui Vocatur a Deo, tanquam Aaron, Ad Hebr. 5, v.4*. On the right side of the Epistle column, the upper figure represents the king and priest Melchizedek, with the legend below: *Tu es sacerdos in aeternum, secundum ordinem Melchisedech Psalm 109, v. 4*. At the base, the figure of the

prophet Moses is depicted, along with the text: *Ampliori senim gloriae iste prae Moyse dignus et habitus Hebr. 3, v.3.*

In the *Emblematis prioris* the coats of arms are displayed on the architectural facade. Below this, there is a candelabrum with six arms extending from a single base, radiating a sacred fire. In the third vignette from the bottom, the depiction of Ezekiel's river, with its turbulent whirlwind, can be observed. In the central vignette on the top street, the Ark of the Covenant is safeguarded by two cherubim (Exodus 25). The Ark of the Covenant is guarded by two cherubim in the street in the top vignette (Exodus 25). The composition's center features the *Thimiamum effusus*, along with the altar of burnt offerings, symbolizing the Priesthood to come in Christ. At the bottom, the attribute displays precious stones offered as gifts, represented by *lapides et gemmas*. Below this image, a table is arranged with loaves of bread placed upon it. Completing the set in the lower motto are two oxen yoked to a plough, symbolizing labour.

5. 'Expositio in Jonam et Habakkuk prophetam' by Luis de Tena (1619)

There exists a work by Luis de Tena, who had already been appointed as the Bishop of Tortosa, which was never published - the 'Expositio in Jonam et Habacuc prophetam'. Although it received a license for printing dated in Madrid on January 13, 1619, it is preserved in manuscript form [BNE, Mss/498]. This work is divided into two parts: the first part is *Expositio in Jonam prophetam* (fol. 2) and the second part is *In Habacuc Prophetam* (fol. 211). The manuscript features a frontispiece with an unsigned intaglio engraving, titled *Comentariain Habacuc Auct. Lud. de Tena Epō. Derstusensis* (fol. 211 r) [22] (Figure 7a). There is also a manuscript copy of the work in the library of Ciconia, titled *Comentari in Joham Etabaa* albeit without any engraving.

The unsigned intaglio engraving on the frontispiece portrays an architectural doorway featuring a Corinthian capital and a fluted column with chapiteles colonnade (Figure 7c). The arch descends between two angels, each carrying a cartouche displaying the work's title. This portal leads to five paintings representing deer and gazelles, symbolizing allegories of the Vulgate and Habakkuk Psalms. At the centre of the composition is the Royal coat of arms of Philip III, to whom the work is dedicated, accompanied by the Latin inscription *Hoc munusculum tibi dicat*. Below this, Luis de Tena is depicted as the Bishop of Tortosa, adorned with a caplet, six tassels, and a coat of arms. A rhombus within the engraving showcases the central figure of a griffin, a creature resembling a giant eagle with white feathers, a sharp beak, powerful claws, and lion-like limbs. Surrounding the griffin are four eight-pointed stars, while four turbaned heads symbolize the Tenes lineage encircling its circumference. In comparison to its depiction in the *Commentaria et disputationes*, the shield, while maintaining similar proportions, signifies a significant difference in scale and meaning (Figure 7b).

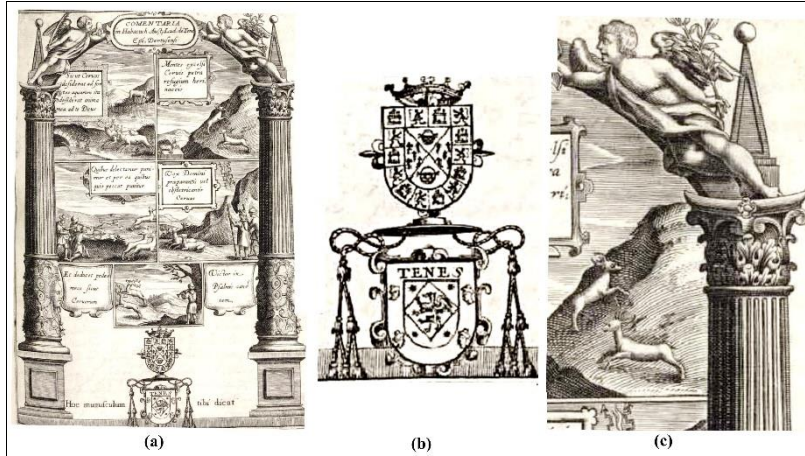


Figure 7. a) Frontispiece *Expositio in Jonam et Habacuc prophetam* (1619); b) details of the royal coat of arms of Philip III and as bishop of Luis de Tena; c) detail of column and Corinthian capital, [BNE, Mss/498, fol. 211 r] [23]; <http://bdh.rd.bne.es/viewer.vm?id=0000009908&page=1>. Details figures Terms of Use, Licence referenced Public Domain Mark.

In the central upper part of the Gospel column, there is an allegory of Psalms 42, specifically, *Sicut Cervus desiderat ad fontes aquarum, ita desiderat anima mea ad te Deus* (Vulgata L.II.Psal 42.2) [23, p. 184], which translates to “As the deer longs for the flowing streams, so my soul longs for you, O God”. Below this, the inscription reads: *Quibus delectamur punimur et per ea quibus quis peccat punitur*. In the second part of the Psalm 104, which honours the Creator and Preserver, it is mentioned, *Montes exelsi Cervis petra refugium herinaceis* (Vulgata L.IV.Psal 104.18) [24], with the inscription beneath it referring to Psalms 29: *Vox Domini praeparantis cervos, et revelabit condensa: et in templo eius omnes dicent gloriam* (Vulgata L.I. Psal. 29.9) [24, p. 129-131]. In the center at the bottom of the fifth square, two mottoes appear: *Et deducet pedes meos sicut Cervorum* and *Victor in psalmis canentem* (Vulgate, Habakkuk 3.19), with the Lord being described as one who strengthens and grants the agility of gazelle’s legs.

6. ‘Isagoge in totam Sacram Scripturam’ by Luis de Tena (1620)

In his capacity as the Bishop of Tortosa and President of the Generalitat, Luis de Tena published the work *Isagoge in totam Sacram Scripturam* which was printed in Barcelona in 1620. Notably, the engraving for the frontispiece was executed by Diego de Astor (1584-1650), a resident of Toledo and a disciple of El Greco. The frontispiece adopts a flatter altarpiece-like shape, as opposed to the architectural facades featured in his previous two works, signalling a shift in the model (Figure 8a).



Figure 8. Luis de Tena: a) frontispiece *Isagoge in totam Sacram Scripturam* (1620), b) detail of the frontispiece [24]; <https://www.digitale-sammlungen.de/en/view/bsb10327445?q=%28Isagoge+In+Totam+Sacram+Scripturam+Tena%29&page=4,5>. Details figures Terms of Use, Licence referenced Public Domain Mark. Details figures Terms of Use, Licence referenced Public Domain Mark.

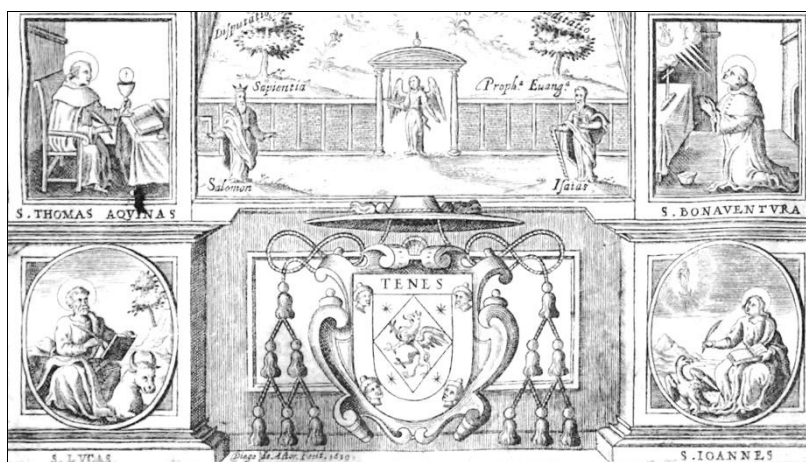


Figure 9. Detail of the frontispiece of the *Isagoge in totam Sacram Scripturam* (1620) [25], with the episcopal coat of arms of Luis de Tena. Details figures Terms of Use, Licence referenced Public Domain Mark.

The work's *Emblematis prioris* is signed by Jesuit Juan Esteban Fenoll (f.1620-1653), a pupil of Baltasar Gracián (1601-1658). This section includes the arguments for the work's three segments [24]. The frontispiece of *Isagoge in totam Sacram Scripturam* is represented by three flat panels, each bookended by the four evangelists: Matthew and Mark in the cornice and Luke and John at the base. In the lower part, on the table top, Luis de Tena's coat of arms as the Bishop of Tortosa is featured (Figure 9). Notably, in this case, it does not include the royal coat of arms.

Inside the Garden, four trees draw inspiration from the book of Enoch. The first tree symbolizes wisdom and stands next to the Gihon river, while the palm tree, signifying life, is positioned adjacent to the Tigris. Two fruit trees represent the concepts of good and evil and are located near the Pishon and Euphrates rivers. In the exterior corners of this composition, significant figures are depicted. Moses, representing the embodiment of the Law, appears alongside his successor Joshua, who stands before the fortress of a conqueror, set in the background next to a representation of the Holy Spirit. On one of the main facades, Solomon personifies wisdom, and Isaiah, as the prophet of the Gospels, is portrayed holding the saw of his martyrdom. Below these figures, the coat of arms of Bishop Luis de Tena is displayed. In the side panels to the right, Saint Peter is accompanied by Saint Gregory, Saint Augustine and Saint Thomas Aquinas. In contrast, on the opposing side, Saint Paul is joined by Saint Ambrose, Saint Jerome and Saint Bonaventure.

7. The Council of Trent Reforms and their initial impact on Martin Abaria's Project

Introducing Carlo Borromeo's *Instructionum fabricae et suppellectilis ecclesiasticae libri duo* (1577) to the Chapter of the Cathedral of Tortosa was likely a challenging task for Luis de Tena. The Chapter was grounded in the tradition of the *Prochiron, vulgo Rationale divinorum officiorum*, a work authored by Guillermo de Durando in 1291, and possessed direct knowledge of codex ACTo n°58 (folio XIII), as well as incunabula from Rome (1477) (ACTo n°258) and Venice (1482) (ACTo n°290).

The frontispieces of these texts had a reciprocal influence on the architectural iconographic programs. The design of the façade adheres to Borromeo's directives outlined in *De partibus exterioribus, et frontispicio*, (Liber I. Cap. III) [26]. Following consultations with the architect, the bishop delineates both the technical considerations and the iconographic standards for the main façade. These themes are to be rooted in Sacred History, a subject in which Luis de Tena possessed significant expertise.

The *Evangelicae historiae imagines* (1593) by Jerónimo Nadal (1507-1580), a colleague of Saint Ignatius of Loyola, serves as a Spanish source for this iconography (1491-1556). Within this text, various architectural details are disseminated [27] (Figure 10a) derived from Jacopo Barozzi da Vignola's *Regola delli cinque ordini d'architettura* (1507-1573) [28] (Figure 10b). Vignola's treatise was a principal work on architectural order and underwent further incorporation in later editions, including the Vatican works of Francesco Borromini (1599-1667) [29] (Figure 10c). This influence is evident in the representation of the Savior Son, who presides over the composition of the frontispiece of the *Precessionarium iustarum ecclesiae detrusensis* (1595) by bishop Gaspar Punter [30] (Figure 11c) and in the edition of *Evangelicae historiae* (Figure 11a). This aligns with the same approach that Abaria employs in the design of the Tortosa facade (Figure 11b).

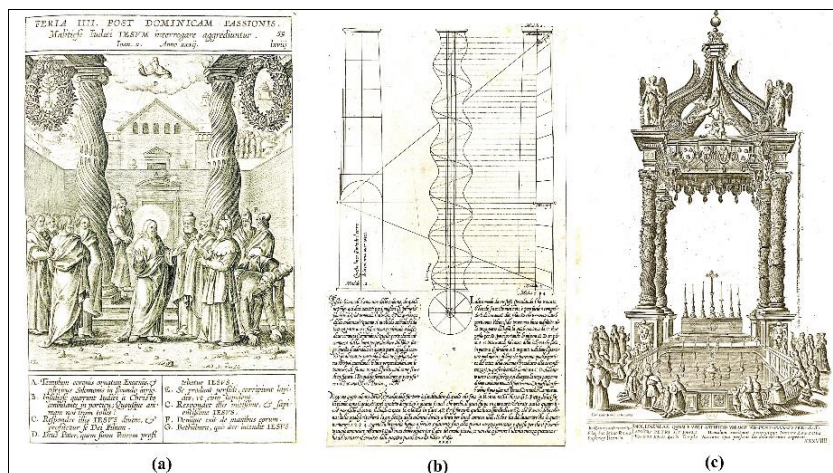


Figure 10. a) *Evangelicae historiae imagines* (1593), Jerónimo Nadal [27, p. 59], <https://archive.org/details/evangelicaehisto00pass/page/59/mode/1up>; b) the *Regola delli cinque ordini d'Architettura* (1562), Jacopo Barozzi da Vignola [28, p. 32], <http://architectura.cesr.univ-tours.fr/traite/Images/LES64Index.asp>; c) Rome edition (c.1625) of the Vignola's *Regola* by Giovanni Battista de Rossi [29, p. 35], <https://gallica.bnf.fr/ark:/12148/btv1b8478934c/f45.item> <https://gallica.bnf.fr/ark:/12148/btv1b8478934c/f45.item>. Details figures Terms of Use, Licence referenced Public Domain Mark.

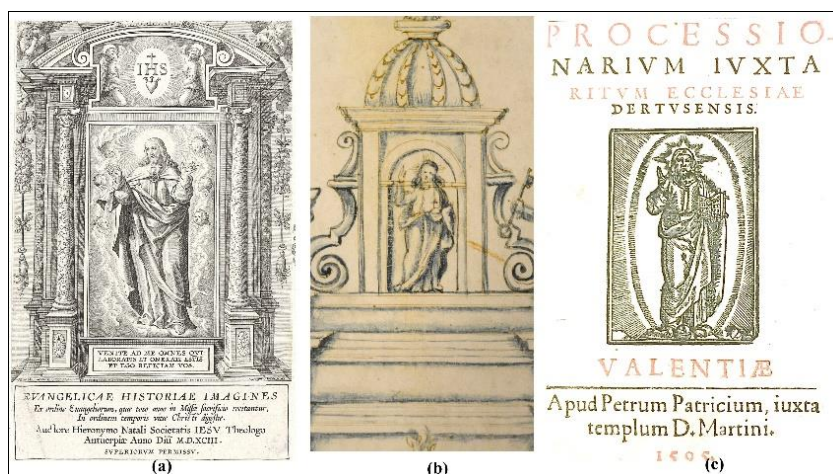


Figure 11. a) *Evangelicae historiae imagines* (1596) Jerónimo Nadal [33], b) detail of the façade by Martín Abaria (ACTo, P-2), c) *Precessionarium iustaritarum ecclesiae detrusensis* (1595) Gaspar Punter [30]. Details (ACTo, P-2) reproduced by kind permission of ACTo.

After the publication of Vignola's *Regola* (1562), closely followed by the release of the *Instructionum fabricae* (1577), the architectural design of the main church of the Jesus' company order in Rome was executed in 1568. The Gesù is regarded by Heinrich Wölfflin (1864-1945) as a paradigmatic example of the Renaissance [31].

The project received patronage from Cardinal Alexander Farnese (1520-1589), who withdrew support from Vignola's second project in 1570. This second design is known through the etching by Mario Cartaro (c. 1540-1620) titled *Templi. Iesv. Romae. Pars Anterior Iacobo. Vignola. Architecto. Inventore Marius Cartarus Incidebat Romae Anno 1573* (Figure 12a). Subsequently, the cardinal entrusted Giacomo della Porta (c. 1540-1602) with the final layout of the façade. The initial design overlay can be observed through Valérien Regnart's (d. 1613-1650) engraving of the *Praecipua urbis templa* (1650) (Figure 12b-c) [32].

Cardinal Borromeo was approached for financial support by St. Philip Neri (1515-1595) for the construction of Santa Maria Vallicella, the Chiesa Nuova of Rome (1574-1605). A collaboration involving Giacomo della Porta (1532-1602) took place, and two initial projects are documented: one by Martino Lunghiil Vecchio (1534-1591) executed around 1580 (Figure 13a), and another by Giacomo Lauro (1550-1605), based on Martino Lunghi (1581-1582).

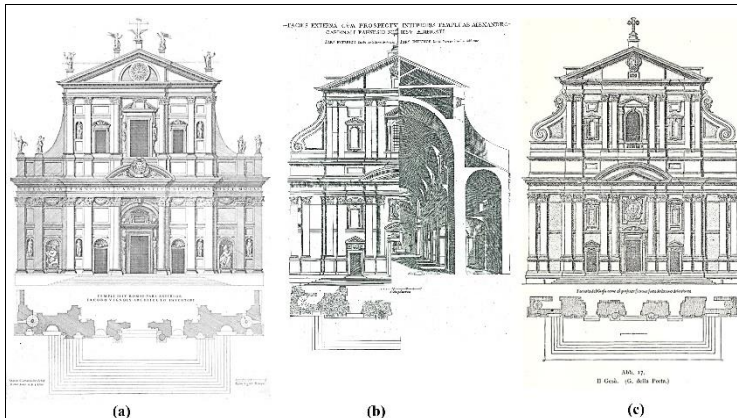


Figure 12. Façade of the Gesù Roma: a) Giacomo Barozzi da Vignola, engraving by Mario Cartaro (1573) Kunstbibliothek Berlin, Ornamentstichsammlung [Objekt-Id: 920310] <https://smb.museum-digital.de/index.php?t=objekt&oges=81885> <https://smb.museum-digital.de/index.php?t=objekt&oges=>; b) façade by Giacomo Della Porta (1571), interior by Vignola, *Praecipua urbis Romanae templa* (1650) [32]; <http://virtualna.nsk.hr/zrinski/1650/03/12/bz4-praecipua-urbis-romanae-templa-valerianus-regnartius/bz4-praecipua-urbis-romanae-templa-valerianus-regnartius-2>; c) by Giacomo Della Porta, *Renaissance und Barock eine Untersuchung über Wesen und Entstehung des Barockstils in Italien*, H. Wölfflin (1888) [31]. Details figures Terms of Use, Licence referenced Public Domain Mark.

Both projects share similar iconography, albeit with different representations. stand guard at the entrance door, accompanied in the lower section by Saint James the Greater and Saint Andrew, and in the second section by Saint John the Baptist and Saint John the Evangelist [33]. The iconographic scheme includes the figure of the Virgin and Child surrounded by angels in the arch of the main entry in a later project by Giacomo della Porta (c. 1593) (Figure 13b) while niches on the upper level contained Saint Gregory the Great and

Saint Jerome. The facade was completed by Fausto Rughesi (1597-1605) and thus stands as one of the earliest examples of the application of the post-Trentine provisions outlined in Carlo Borromeo's *Instructionum Fabricae* (1577).

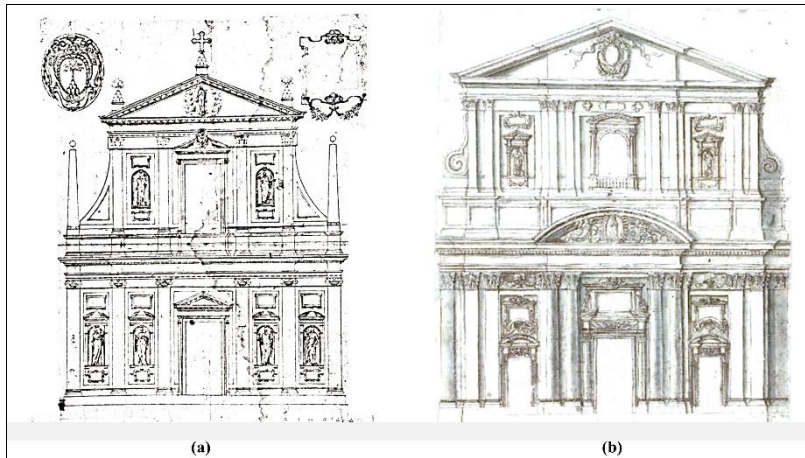


Figure 13. Evolution of the Project of the façade of Santa Maria Vallicea: a) Martino Lunghiil Vecchio (c. 1580), Biblioteca Ambrosiana, Cod. F 251, n.95; b) Circle of Giacomo Della Porta (c.1593), Milano (MI), Civiche Raccolte Grafiche e Fotografiche. Gabinetto dei Disegni. Details figures Terms of Use, Licence referenced Public Domain Mark.

Subsequent to the publication of these works, the *Regla de las Cinco Ordenes de Architectura* by Iacome de Vignola, translated by Patrizio Cascese (c.1544-1611) was released in 1593. It was published in Madrid at the house of the illustrator Antonio Mancelli (+c. 1643) [34] and in Seville at the printing house of Andrea Percioni and Juan de León [35].

8. The ‘*Instructionum fabricae et suppellectilis ecclesiasticae libri due*’ and the Martin Abaria project

The *Instructiones Fabricae* compels the architect to ensure that no profane themes are present on the façade and that it is adorned appropriately in relation to the church's construction and dimensions. It specifies that the *imago beatissimae Mariae Virginis, Iesum filium in complexu habentis*, must be placed above the main door. In the project the enthroned Virgin is crowned as in the main keystone of the presbytery of the Gothic cathedral (Figure 14a). According to Borromeo, the saint to whom the church is dedicated should be positioned on her right, and the saint who is the object of special devotion should be on her left. In Abaria's design, the city's patron saints, Saint Candida and Saint Cordula, are placed in the extreme niches (Figure 14b). The façade is protected by the city's other co-patron, the archangel Michael, the defender of the Universal Church. He is positioned on the second level, next to God the Saviour, with Saint Paul oddly on his right and Saint Peter on his left (Figure 14c). Above

the side doors, you can see Saint Augustine and Saint Rufus, symbolizing the reconstitution of the diocese in 1151. Above the first level of the project, there are depictions of the Apostles: Saint Matthias, Saint Simon, Saint James the Greater, Saint John, Saint Andrew, Saint Thomas, Saint Bartholomew and Saint James the Less.



Figure 14. Details of the Martín de Abaria project: a) Virgin enthroned, b) entrance stairway with Saint Cordula, c) guardian angel above the Saviour with Saint Paul and Saint Peter. Reproduced by kind permission of ACTo.

Isidoro de Aliaga Martinez (1568-1648), the author of *Advertencias para los edificios, fábricas de los templos* (1631) and the bishop of Tortosa (1611-1612), emphasized the importance of raising the church's entry platform to avoid having equal-sized stairs [36]. Pietro Cataneo (c.1510-c.1574), in his work *I Quattro primi libri di architettura* (1554), addresses the proportion between the staircase and the church's size. He suggests that a church with five naves should have nine steps (LIII, III) [37] (Figure 15a).

The bell towers, as described in *De turri campanili, et camapanis* (Liber I. Cap. XXV), should have a square shape, and their height should be proportionate to the church's size, as determined by the architect's judgment. At the top, the fastigium should be circular and pyramidal, rather than triangular, and it should feature a rooster securely affixed to support a cross, bearing mystical significance. In the case of a cathedral, the belfry should house seven bells, and it is also advisable to include a clock [26, p. 72r-74v]. The tower will be topped with a spire, a cross, and a weathervane to indicate wind direction (Figure 14c) [35, p. 7]. These architectural models can be found in the *Quinto libro d'architettura* by Sebastiano Serlio (1475-c.1554) (Figure 15b-c) [38]. According to the *Instructionum fabricate*, the access doors, *De ostiis* (Liber I. Cap. VII) should be located on the main facade and should be of varying sizes, with the number of doors corresponding to the number of naves within the church [26, p. 12r-13v]. Aliaga also suggested having at least three doors with niches for religious imagery [35, p. 7].

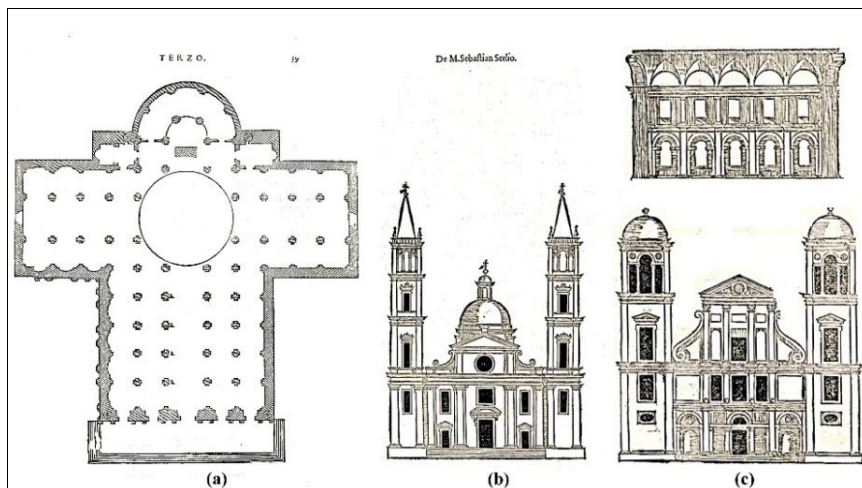


Figure 15. a) Pietro Cataneo, *I Quattro primi libri di architettura* (1554) [37], <http://architectura.cesr.univ-tours.fr/Traite/Images/ENSBA00269Z0600Index.asp>; b-c) Sebastiano Serlio, *Quinto libro d'architettura di Serlio*, (1547) [38, p. 27r-29r, fol. XXVII-XXVIII]; <http://architectura.cesr.univ-tours.fr/Traite/Images/INHA-4R1476Index.asp>, <http://architectura.cesr.univ-tours.fr/Traite/Images/INHA-4R1476Index.asp>. Details figures Terms of Use, Licence referenced Public Domain Mark.

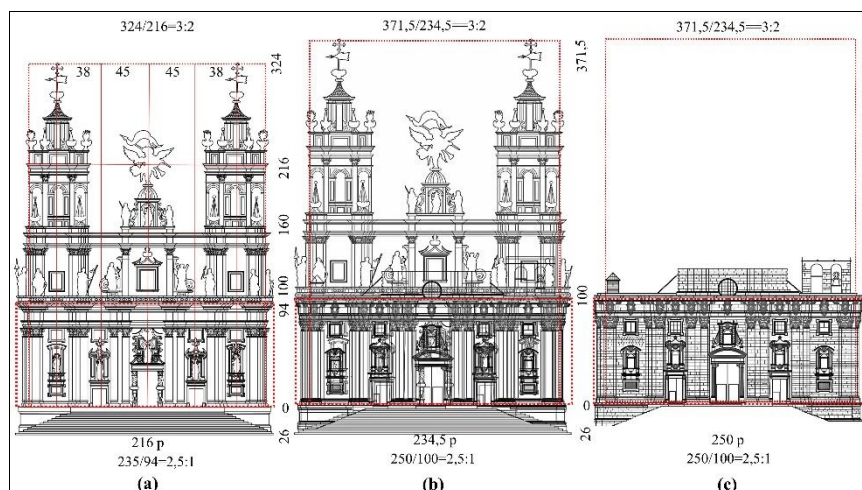


Figure 16. a) Abaria project, b) scaled overlay, c) executed façade. Author's figure.

9. The repositioning of Martín Abaria's project

The methodology employed enables a metrological comparison of the measurements of the executed facade in relation to Martín Abaria's project, with a margin of error of $[\pm 1.311p]$, and the facade of the cathedral, with a margin of error of $[\pm 0.068m]$. The completed work exhibits a deviation along the axis of the Gothic nave of just 0.873° , allowing us to measure it linearly at the ends of

the cornices on which it rests, resulting in a measurement of $[48.594 \pm 0.068\text{m}]$, equivalent to 250 palms (Figure 16c). In contrast, the dimensions of the project are $[234.54 \pm 1.311\text{p}]$, or 235 palms (Figure 16a), with a discrepancy of 15 palms (2.916 m).

If we superimpose both scaled drawings, we observe that the proportionality along the ordinate axis (x) is maintained, with a ratio of $(235 \div 250)$, which is 0.94. The measurement from the cornice to the door threshold is $[19.458 \pm 0.068\text{m}]$, corresponding to 100 palms, whereas in the project, it measures $[94.43 \pm 1.311\text{p}]$, equivalent to 94 palms. The measurement to the top of the balustrade is $[100.20 \pm 1.311\text{p}]$, which is also 100 palms. This metrology of 100 Catalan palms (0.194 m) in the project and the facade correlates with the 100 palms of Tortosa (0.232 m) in the Gothic presbytery. The abscissa axis (y) exhibits a proportionality of 0.94, with a ratio of $(94 \div 100)$ between the project and its execution.

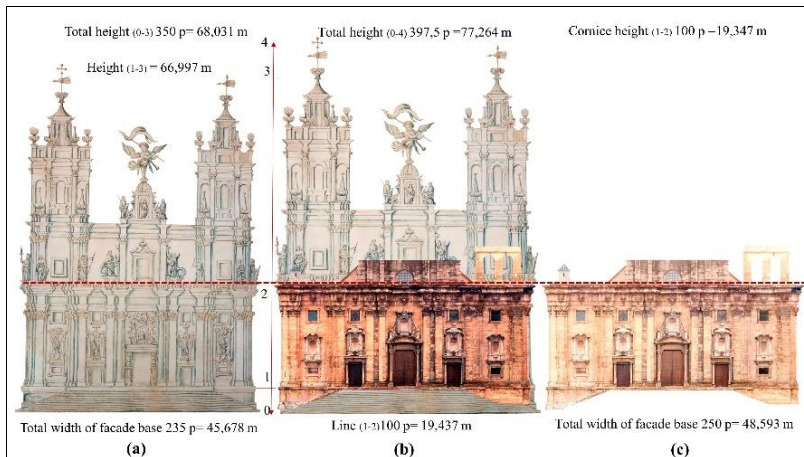


Figure 17. a) Martín Abaria project, b) scaled superimposition of executed work, c) photogrammetry of façade. Author's figure.



Figure 18. Keystone of the presbytery of Tortosa Cathedral (1441). Author's figure.

While the façade's execution differs in measurements from the rest of the project, it still maintains proportionality. The base of the bottom body was [250x100 p], whereas Abaria's project used (235÷94 p) with a proportion of (2.5÷1). The top of the weather vane's cross measures [223.04 ± 1.311p], equivalent to 324 palms and 40.5 canas. The base of the forward main body of the façade measures [214.03 ± 1.311p], falling within the range of 216 palms, with a 2÷3 ratio. Its height is 324 palms (Figure 16b). The second cornice is located at 160 palms [161.05 ± 1.311p], and the third at 216 palms, which is equal to the width of the façade body, built on a podium of 26 palms, with a total height of 350 palms and a ratio of (350÷235 p).

In Abaria's project, the compositional axes are metrologically arranged (38-45-45-38 palms), a circumstance that does not occur in the executed work, as it must conform to a Gothic plan. The reversibility of the process allows us to measure the total height of the tower on the podium at 66.997 meters with a total dimension of (235÷350 p) or (45.678÷68.031 meters) (Figure 17a). Repositioning the project on the executed work with a façade base of 250 palms (Figure 17d) yields a ratio of (250÷371.5) with dimensions of (48.593÷77.264 meters) (Figure 17b-c).

The proposal incorporates a numerical significance centred around the number 100, which can be traced back to Saint Augustine's *De civitate Dei* (L.XX.7.2). This numerical theme is present both in the primary body of the project and on the façade. The memory of the hundreds associated with the Virgin's Coronation in the medieval context, accompanied by ten angels, is a key element in the project, symbolized by the enthroned Virgin (Figure 18a-b).

10. Treatistics in the project for the façade of Tortosa Cathedral by Martín Abaria

In terms of the façade's composition, Martín Abaria incorporated ornamental details for the cornice inspired by the Spanish editions of the third (1540) and fourth (1537) books of Serlio's architectural treatises, which were compiled as *Tercero y quarto libro de arquitectura* (1552) by Francisco Villalpando (c.1510-c.1561); from Book III, and from Book IV (Figure 19a) [39]. Concerning the architectural order, Martín Abaria or his associates likely had access to the first Spanish edition of Vignola's *Regla de las cinco ordenes de arquitectura* translated by Patrizio Cascese (c. 1544-1611). This work was published in 1593, following the successes of the Gesù and Chiesa Nuova, in Madrid at the residence of the illustrator Antonio Mancelli (+c. 1643) [34, fol. XXVII-XXVIII], and in Seville at the printing house of Andrea Percioni and Juan de León (Figure 19b-c) [35, fol. XXVII-XXVIII].

Regarding the specific details of the façade, there are references suggesting that the sculptor of the altarpiece might have drawn inspiration from the treatises of Hans Vredeman De Vries (c. 1525-1609) and Wendel Dietterlin (1550-1599) [40]. The main door (Figure 20b) could potentially be associated with De Vries' *Das ander Buech, gemacht auff die zway Colonnen, Corinthia*

und Composita (1565) (Figure 20a) [41], or Dietterlin's *Architectura: Von Außtheilung, Symmetriaund Proportion der FünffSeulen* (1598) (Figure 20c) [42].

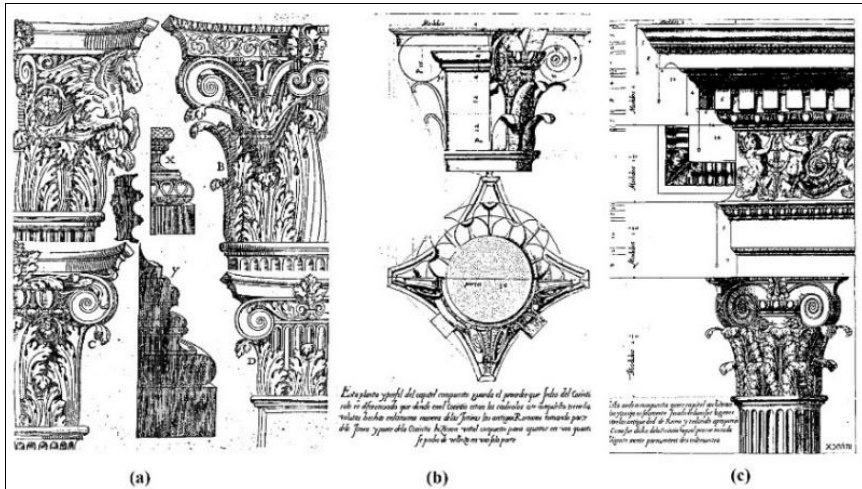


Figure 19. Details of composite order in Spanish editions: a) *Tercero y quarto libro de arquitectura* (1540) by Serlio [39, LXIII, fol. XXVII-XXVIII], http://architectura.cesr.univ-tours.fr/Traite/Images/B272296201_A101Index.asp; b-c) *Regla de las cinco ordenes de arquitectura* (1593) by Vignola [34, p. XXVIII-XXVIII], http://www.sedhc.es/biblioteca/tratado.php?ID_pubD=2. Details figures Terms of Use, Licence referenced Public Domain Mark.

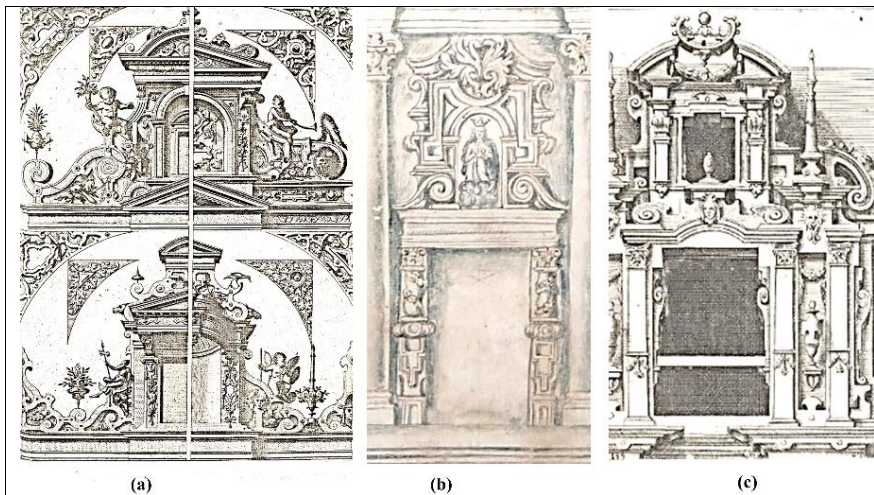


Figure 20. a) Details *Das ander Buech, gemacht auff die zway Colonnen, Corinthia und Composita* (1565), De Vries [41], <https://www.rijksmuseum.nl/en/search/objects?set=BI-1897-970#/BI-1897-970-30,31>; b) Portal Martin Abaria; c) *Architectura: Von Außtheilung, Symmetria und Proportion der FünffSeulen, und aller darauffvolgender Kunst* (1598), Dietterlin [42], <https://digi.ub.uni-heidelberg.de/diglit/dietterlin1598>. Details figures Terms of Use, Licence referenced Public Domain Mark.

In the case of the forniculations they could hypothetically have references to Veit Eck (1587-1604) *Etliche architectischer Portalen, Epitapien, Caminen und Schweyffen* (1596) (Figure 21) [43].

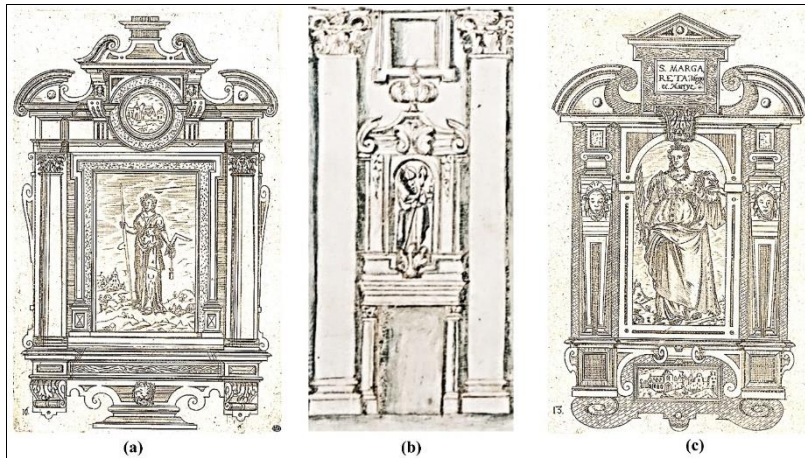


Figure 21. Details of Forniculas: a-c) *Etlichearchitectischer Portalen* (1595) Veit Eck [43], <https://www.e-rara.ch/zuz//zoom/2475166>; b) Martín Abaria. Details figures Terms of Use, Licence referenced Public Domain Mark.

11. The Roman influence on Martín Abaria's Façade Project for Tortosa cathedral

During the papacy of Pius V (1504-1572), the construction of Santa Maria in Transpontina (1566-1587) began. This project was overseen between 1589 and 1596 by two Spanish Cardinals, Juan Hurtado de Mendoza (1548-1592), who was educated in Alcalá and served as the archdeacon of the cathedral of Toledo, and Francisco de Toledo Herrera (1532-1596), the author of *Commentarii et annotationes in Epistolam Beati Pauli apostoli ad Romanos* (1602). Their concerns overlapped with those of Bishop Luis de Tena. The first section of the façade bears significant similarities to Martín Abaria's project (Figure 22c), as illustrated in *Insignium Romæ templorum prospectus exteriores interioresque* (1684) by Giovanni Giacomo de Rossi (1627-1691) [44], as well as in two detailed engravings from 1690 by Joachim von Sandrart (1606-1688) (Figure 22a) [45] which closely resemble the execution from the 17th century (Figure 22b).

The façade works were carried out according to a project by Giovanni Sallustio Peruzzi (c.1511-1572) (Figure 23a), with the participation of Giovanni Vincenzo Casale (1539-1593), renowned for his *ecclesia de la Transpontina in Roma* (c.1570) [BNE; Dib/16/49/85] (Figure 23b) and a good connoisseur of the *Regola de Vignola*. Later, he relocated to Spain and, in 1589, assumed the position of royal engineer at the Escorial [BNE; DIB/16/49/168]. The final stages of the façade's construction were overseen by the Bolognese architect Ottaviano Nonni (1535-1606), commonly known as Mascarino (Figure 23c).



Figure 22. a) Detail of Santa Maria in Traspotina [45], https://archive.org/details/gri_33125011119126/page/n3/mode/2up; b) Project by Abaria; c) Tortosa Cathedral. Details figures Terms of Use, Licence referenced Public Domain Mark.

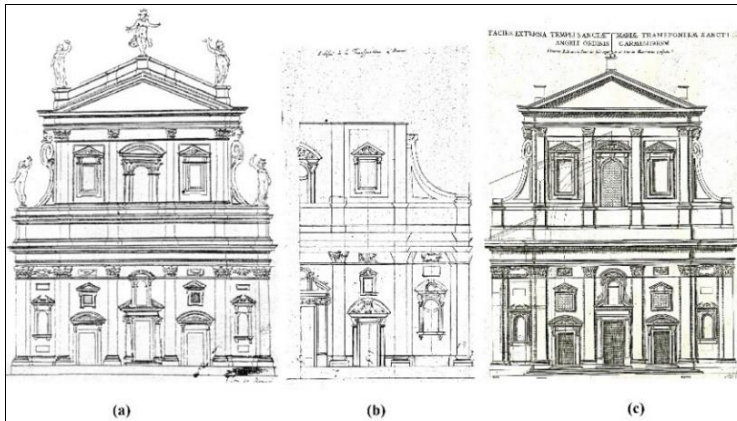


Figura 23. Santa Maria in Traspontina: a) Giovanni Sallustio Peruzzi (c 1580), Vienna, Graphische Sammlung Albertina; b) Giovanni Vincenzo Casale (c.1570), Madrid, BNE, B16-49, f.84r; c) Giovanni Giacomo de Rossi, *Insignium Romæ templorum prospectus exteriores interioresque* (1684) [44], https://archive.org/details/gri_33125011118912/page/n132/mode/1up. Details figures Terms of Use, Licence referenced Public Domain Mark.

While the content of the upper two sections differs, the scale of Martin Abaria's proposal (Figure 24c) and its overlay with Santa Maria in Traspontina reveal significant proportional correlations between the two designs (Figure 24a). The fundamental arrangements, both in the three principal axes of the doors and in the proportional aspects of the cornices across the three sections of the façade, exhibit certain resemblances (Figure 24b). Apart from the architectural orders associated with Serlio and Vignola, the Spanish version of Alberti incorporated elements of proportionality [46]. The growing interest in Vitruvius can be traced back to the 1556 edition by Daniele Barbaro (1514-

1570) and Andrea de Palladio (1508-1580) [47]. In this context, the classification of the will of proportionality by the engineer Silvio Belli (d. 1555-1579) in *Della Proportione, et Proportionalità* (1573) should also be considered [48].

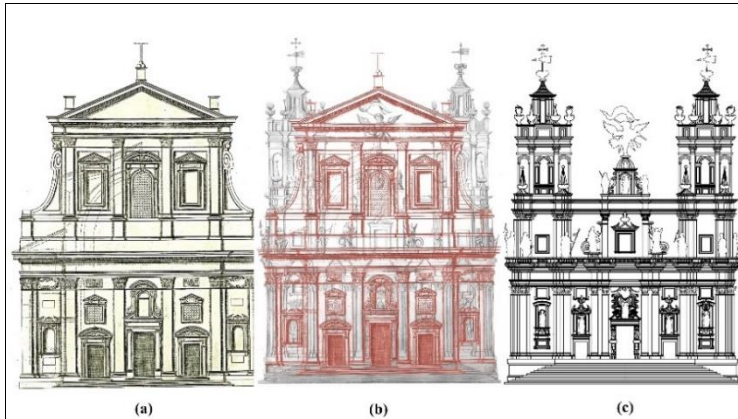


Figure 24. Superimposition and scaling of the Martin of Abaria and Santa Maria in Traspontina project. Author's figure. Details figures Terms of Use, Licence referenced Public Domain Mark.

12. Architectural design based on the theological ideas of Luis de Tena

Martín Abaria's project maintains a direct connection with the architectural order outlined in the treatises of Serlio and Vignola, while the iconographic program aligns with Borromeo's vision, as dictated by Bishop Luis de Tena. The methodology employed allows for the precise superimposition of Abaria's project with an accuracy of (± 0.255 m), which represents just 0.376% of its maximum dimension. Consequently, there are metric variations between the project and its execution. However, these dimensional disparities do not disrupt their shared proportionality, which adheres to the principles of $(2.5 \div 1)$ or $(3 \div 2)$, as documented by Alberti, Barbaro, and Belli.

This design system is deeply rooted in the theological insights of Luis de Tena, who provided compositional and iconographic directives. These principles were published in Tortosa after his involvement with the Chapter of the Cathedral of Toledo, where he engaged with prominent publishers of architectural treatises from the 1500s, including Greco. He later published *Commentaria et disputationes in epistolam D Pauli ad Hebraeos* (1612) [21]. Upon assuming the role of Bishop of Tortosa, he had the unique opportunity to dictate the iconography for the cathedral's main facade. His influence led to the placement of Saint Paul at the right hand of God, a motif similar to the restoration of London Cathedral after the 1666 fire, where Saint Paul presides over the facade pediment, inspired by the 1661 English edition of Luis de Tena's inaugural work. Saint Paul symbolizes the bishop's mentorship, stemming from

the theological conflict between saints Peter and Paul in Antioch (Galatians 2.11-15), wherein doctrine triumphed over practice.

On the other hand, the *Isagoge in totam Sacram Scripturam* (1620) was published a year before Martin Abaria assumed the position of master of the Seo. In this work, the twelve apostles symbolize the gates of Jerusalem, serving as both foundation and gateway (fol. 388), much like the representation seen in the first body of the cathedral's facade. Notably, the iconography does not include Saint Felipe, Judas Tadeo, Judas Iscariot, and Saint Mateo, which may be because they were positioned to guard the sides of the towers. Another figure, *Gabriei Angelus confortavis Christum* (fol. 269), stands above Christ the Saviour, who comes to redeem the captives (fol. 154). Saint Paul, known by his letters as *Magister Fidei*, *architectus Fidei* and *Turtur admirabilis* (fol. 309), is featured prominently in the work.

In the lower part of the project, the bishop adheres to the typical prescriptions of the Counter-Reformation as outlined in the *Instructionum fabricae et suppellectilis ecclesiasticae libri duo* (1577), by Carlo Borromeo. This section features the enthroned Virgin and the co-patronesses Sta. Cándida and Sta. Cordula. The two collateral niches represent a connection with the *ecclesia vetulam*, featuring the figures of Saint Rufo (c. 64-90), a disciple of the first bishop of Tortosa according to tradition, and Saint Augustine (354-430), under whom the canonical rule is governed.

13. The respect for the tradition of the metrological and symbolic significance

Through computer analysis, it has been determined that the first body of the facade, both in the project and its execution, shares a common metrological intent based on the use of 100 Catalan palms (0.194m). This number corresponds to the number 100 in Saint Augustine's *De civitate Dei* (L.XX.7.2) (Figure 25c).

The apse of Tortosa Cathedral, constructed between 1374 and 1441, adheres to a specific metrological condition based on the width of the chapel, equivalent to 24 palms, resulting in a total interior width of 150 palms of Tortosa (0.232 m). The number 150 corresponds to the number of psalms found in the Book of Psalms in the Old Testament of the Bible. Simultaneously, in the work attributed to Isidore of Seville, *Liber de Numeris* (Book of Numbers) [49], this number carries connotations of perfection and those predestined by God to eternal life through the Sacred Scriptures (Figure 25b).

The keystone of the presbytery vault symbolizes the Coronation of the Virgin Mary following her Ascension to Heaven, and it is positioned as a symbolic element presiding over the main altar from a height, signifying her Ascension to Heaven. The keystone was found at an elevation of 100 hands, with a diameter of 2.323 meters and a mass of 87.47kN. The solemnity of the Assumption is celebrated with great joy until the Feast of Mary's Kingship, which takes place eight days later. During this feast, Mary is depicted seated

next to the King of the ages, radiantly reigning as Queen and interceding as Mother.

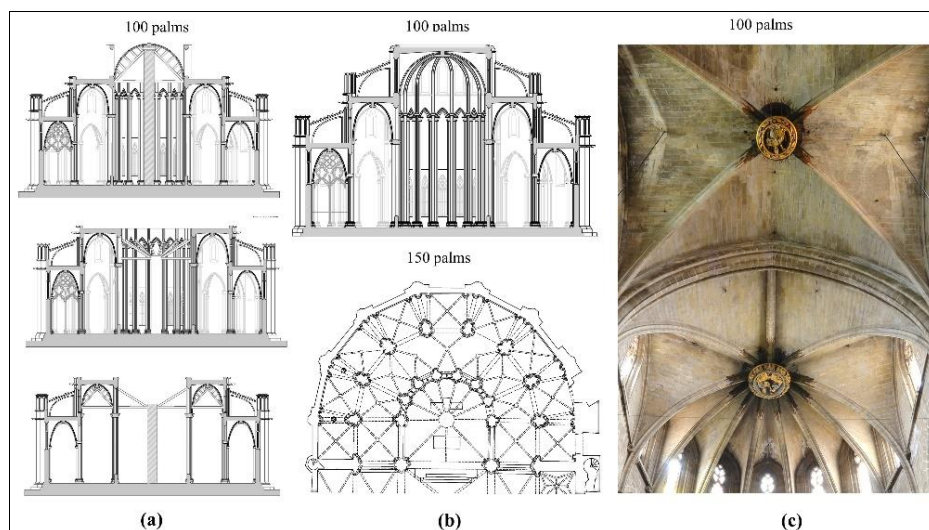


Figure 25. Santa María de Tortosa cathedral apse: a) presbytery key placement, b) metrology of the apse, c) keystone with Saint Augustine looking at the Major key with the coronation of the Virgin. Author's figure.



Figure 26. Keystones of the Romanesque cathedral sandwiched in the façade podium: a) situation of the key on the door of the cathedral, b) detail of the key Permanent Exhibition of the cathedral of Tortosa. Author's figure.

On Sunday, September 27, 1439, the date when this feast was observed, a public ceremony was held to install the keystone with this iconography. Consequently, the symbolic significance of the Renaissance's 100-unit metrology becomes evident, as demonstrated by the presence of the presbytery's keystone, which is depicted as the Coronation of the Virgin accompanied by a

choir of ten Angels (Figure 25a). This symbolic representation of the church's memory is also reflected in the execution of the facade, which involved the rediscovery of certain keystones from the old cathedral (Figure 26a), preserved and integrated at the base of the new facade by the masters of the 17th century (Figure 26b). Although the architectural design of the façade is based on the principles of Luis de Tena, the meaning of the Rule of Saint Augustine of his canons was always present (Figure 27).

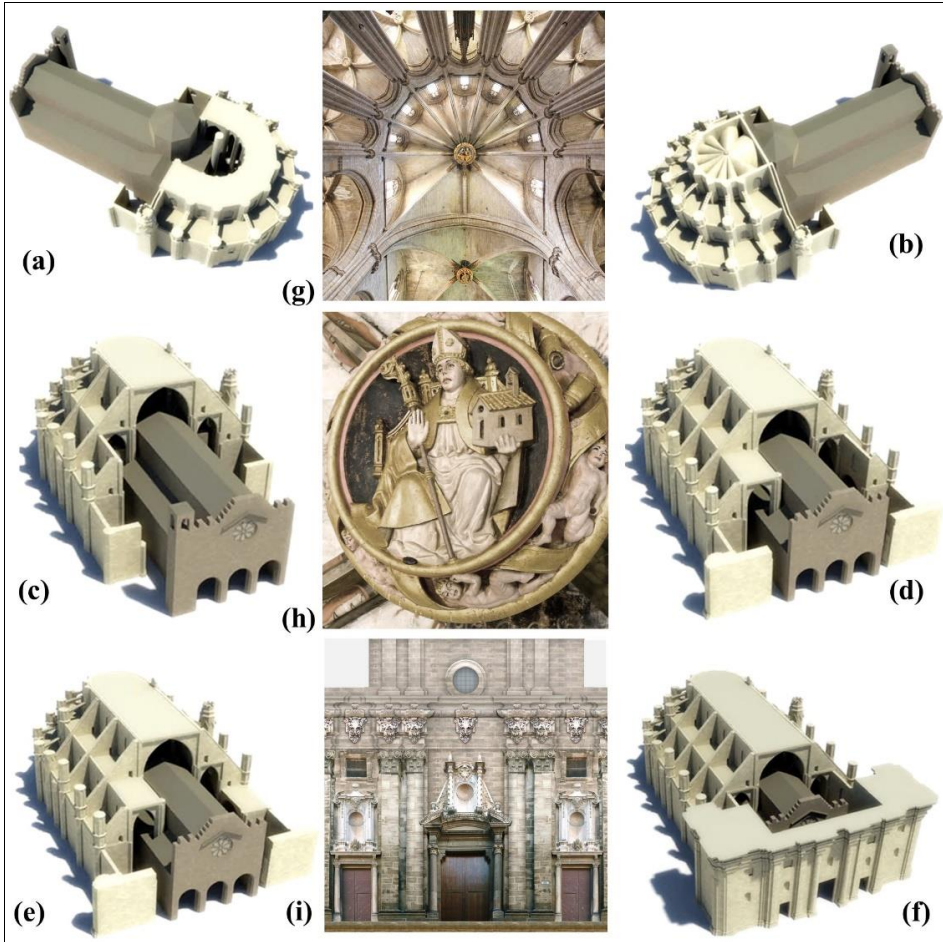


Figure 27. a-f) Constructive and symbolic evolution of Tortosa Cathedral (1158-1625), g) major keystone of the presbytery placed at 100 palms of Tortosa, h) key first bay of nave with Saint Augustine, i) main façade with the cornice at 100 palms Catalan. Author's figure.

14. Conclusions

From a hermeneutical perspective, it can be inferred that the project aimed to maintain a symbolic connection with the Gothic cathedral, evident in the proportional and metrological alignment of both the project and the main facade.

This assumption confounded detractors of the project's neoclassical and neo-gothic elements. The intricate construction techniques bridged the original Romanesque cathedral with its Gothic conclusion to create a modern humanist cathedral. As a result, the same location is home to three cathedrals that belong to distinct temporal periods.

References

- [1] E.E. Viollet-le-Duc, *Dictionnaire raisonné de l'architecture française du XIe au XVIe siècle*, vol. 2, B. Bance A. Morel, Paris, 1854-1868, 372-375.
- [2] R. deLasteyrie, *L'Architecture Religieuse en France. A L'Epoque Gothique*, Auguste Picard, Paris, 1926, 351.
- [3] V. Lampérez, *Historia de la arquitectura Cristiana Española en la Edad Media según el Estudio de Los Elementos y los Monumentos*, vol. 2, Impr. de J. Blass y cía, Madrid, 1909, 190 bis.
- [4] J. Puig i Cadafalch, *El problema de la transformació de la catedral del nord importada a Catalunya: contribució a l'estudi de l'arquitectura gòtica meridional. Miscel·lània Partas de la Riba*, Institut d'Estudis Catalans, Barcelona, 1921, 65-87.
- [5] J.F.M. Lund, *Ad Quadratum: a study of the geometrical bases of classic and medieval religious architecture*, B.T. Batsford, London, 1921, 1-4.
- [6] M.C. Ghyka. *Le nombre d'or, rites et rythmes pythagoriciens dans le développement de la pensée occidentale*, Tome I: *Les Rythmes*, Librairie Gallimard, Paris, 1931, 81-122.
- [7] G.E. Street, *The Gothic Architecture of Spain, with very beautiful drawings in his own hand*, John Murray, London, 1865, 302.
- [8] J. Urbano, *Hisp. Sacra*, **66(133)** (2014) 209-233.
- [9] R. O'Callaghan Forcadell, *Anales de Tortosa*, vol. III, Impremta catòlica Gabriel Llasat, Tortosa, 1888, 185-186.
- [10] V. Almuni and J. Lluís i Ginovart *Sancta Maria Dertosa. Catedral de Tortosa. Guia Històrica i Descriptiva*, Capítol Catedral de Santa Maria, Tortosa, 2000, 56.
- [11] M. Beguer. *Llinatges Tortosins*, Cooperativa Gràfica Dertosense, Tortosa, 1980, 52.
- [12] W.W. Collins, *Cathedral cities of Spain. 60 reproductions from original watercolours*, by W.W. Collins, J.H. Jansen, Cleveland, 1908, 59.
- [13] A. Ponz, *Viage de España*, vol. XIII, Por D. Joachin Ibarra, Madrid, 1785, 150.
- [14] W.W. Collins, *Cathedral cities of Spain*, Dodd, Mead and Company, New York, 1909, 116.
- [15] J. Matamoros, *La catedral de Tortosa. Trabajos monográficos acerca de su construcción y de su contenido artístico y religioso*, Editorial Católica, Tortosa, 1932, 33.
- [16] H. Rodríguez de Gracia, *Historia y Genealogía*, **7(1)** (2017) 147-188.
- [17] H. Rodríguez de Gracia, *Historia y Genealogía*, **9(1)** (2019) 45-78.
- [18] M. Lambraki-Plaka, *El Greco: ho Hellenas*, Ekdoseis Kastaniōtē, Athēna, 1999, 43-44.
- [19] J. Riello, *La biblioteca del Greco*, in *La biblioteca del Greco*, D. Capilla & J. Riello (eds.), Museo Nacional del Prado, Madrid, 2014, 41-78.
- [20] L. Tena, *Commentaria et disputationes in epistolam D Pauli ad Hebraeos*, Londini: Typis R. Hodgkinson prostant aspu Rob, Scott, Londini, 1661.

- [21] L. Tena, *Commentaria et disputationes in epistolam D Pauli ad Hebraeos*, Tipographo regio Petro Rodriguez, Toleti, 1612, frontispiece.
- [22] ***, *Inventario General de Manuscritos de la Biblioteca Nacional. I. (1-500)*, Ministerio de Educación Nacional. Servicio de publicaciones Dirección General de Archivos y Bibliotecas, Madrid, 1953, 348.
- [23] M. Mlčoch, *Psalterium, seu Liber Psalmorum: iuxta Vulgatam latinam et versionem textus originalis hebraici cum notis introductionalibus et cum argumentis exegeticis, quibus harmonia utriusque versionis demonstrator*, Hölzel, Olomucii, 1890, 211r.
- [24] M. Batllori and C. Peralta, *Baltasar Gracián en su vida y en sus obras*, Talleres Gráficos La Editorial, Zaragoza, 1969, 30 or 395?.
- [25] L. Tena, *Isagoge in totam Sacram Scripturam*, ex typographia Laurentij Déu, Barcinone, 1620.
- [26] C. Borromeo, *Instrucctionum fabricae et suppellectilis ecclesiasticae libri duo*, Apud Pacisium Pontium, Mediolani, 1577, 8v-9v.
- [27] J. Nadal, *Evangelicae historiae imagines: ex ordine Euangeliorum quae toto anno in missae sacrificio recitantur in ordinem temporis vitae Christi digestae...*, Martinus Nutius, Antuerpiae, 1593, 59.
- [28] J. Vignola, *Regola delli cinque ordini d'architettura*, Roma, 1562, XXXI.
- [29] J. Vignola, *Regola delli cinque ordini d'architettura*, Giovanni Battista De Rossi, Roma, 1625, XXXIX.
- [30] G. Punter, *Processionarium iusta ritum ecclesiae detrusensis*, Apud Petrum Patricium, iuxta templum D. Martini, Valentiae, 1595, frontispicio.
- [31] H. Wölfflin, *Renaissance und Barock: eine Untersuchung über Wesen und Entstehung des Barockstils in Italien*, T. Ackermann, München, 1888, 84-88.
- [32] V. Regnartius, *Praecipua urbis Romanae templa*, Francesco Collignon formis, Romae, 1650, fol 14.
- [33] A. Nova, *Römisches Jahrbuch für Kunstgeschichte*, **23-24** (1988) 385-394.
- [34] J. Vignola, *Regla de las cinco ordenes de arquitectura de Iacome de Vignola; agora de nuevo traduzido de toscano en romance por Patritio Caxesi Florentino*, En Casa de Antonio Mancelli, Madrid, 1593, fol. IIII-XXXII.
- [35] J. Vignola, *Regla de las cinco ordenes de a Punprchitectura / de Iacome de Vignola; agora de nuevo traduzido de toscano en romance por Patritio Caxesi Florentino*, En la imprenta de Andrea Percioni y Juan de León, Sevilla, 1593, fol. IIII-XXXII.
- [36] I. Aliaga, *Advertencias para los edificios y fábricas de los templos y para diversas cosas de las que en ellas sirven al culto divino y a otros ministerios*, apud viduâ Ioannis Chrysostomi Garriz, Valentiae, 1631, 7.
- [37] P. Cataneo, *I quattro primi libri di architettura di Pietro Cataneo Senese*, In casa de figliuoli di Aldo, Vinegia, 1554, 39r.
- [38] S. Serlio, *Quinto libro d'architettura di Sebastiano Serlio Bolognese nel quale se tratta de diuerse forme de tempîi sacri secondo il costume christiano, & al modo antico*, M. de Vascosan, París, 1547, 27r-29r.
- [39] S. Serlio, *Tercero y quarto libro de Architectura de Sebastiã Serlio Boloñes; en los quales se trata de las maneras de como se pueden adornar los edificios; con los exemplos de las antigüedades; agoranueuamente traduzido de toscano en romance castellano por Francisco de Villalpando architect*, en casa de Iuan de Ayala, a costa de Francisco de Villalpando, En Toledo, 1552, L3, LVII, LXIX, LXXI, L4.LXV, 39r.
- [40] J.J. Polo, *Edades Revista de Historia*, **9(1)** (2002) 87-122.

- [41] H.V. de Vries, *Das ander Buech, gemachtauff die zway Colonnen, Corinthiaund Composita*, Pola, Antorff, 1565, Engraving 4, 9.
- [42] W. Dietterlin, *Architectura: Von Außtheilung, Symmetria und Proportion der Fünff Seulen, und aller darauffolgender Kunst*, Hubert & Balthasar, Nürnberg, 1598, 186r.
- [43] V. Eck, *Etliche architectischer Portalen, Epitapien, Caminen und Schweyffen*, durch Johan Bussemacher, Getruckt zu Collen, 1596, 9-12.
- [44] G.G. Rossi, *Insignium Romæ templorum prospectus exteriores interioresque: a celebrioribus architectis inventi: nunc tandem suis cum plantis ac mensuris*, Jacobo de Rubeis, Roma, 1684, fol. 64 r.
- [45] J. von Sandrart, *Insignium Romæ templorum prospectus exteriores et interiores, a celebrioribus architectis inuenti*, Sumptibus Ioannis Iacobi de Sandrart, Norimbergae, 1690, fol. 244-fol.245.
- [46] L.B. Alberti, *Los diez libros de Architectura de Leon Baptista Alberto / traduzidos de latin en romance*, en casa de Alonso Gomez Impressor de su Magestad, Madrid, 1582, 286-290.
- [47] M.P. Vitruvius, *I diecilibriddell'architettura di M. Vitruvio tradutti et commentati da Monsignor Barbaro*, per Francesco Marcolini, Vinegia, 1556, 98-100.
- [48] S. Belli. *Della Proportione, et Proportionalità, Communi Passioni del Quanto*, *LibriTre*, appresso Francesco de Franceschi Sanese, In Venetia, 1573, 14v.
- [49] M.T. Pardillos, *Emblemata*, **6(1)** (2000) 285-305.