

The Cultural Moment at the Beginning of Work on S. Ivo alla Sapienza

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S. Ivo alla Sapienza, Borromini's masterpiece (*fig. 1*), was built in the worst of times. Contracts were signed in December 1642 and the structure was begun in January 1643¹. It took eighteen months to complete, *in rozzo*. It was the child, not of peace and prosperity, but of war.

The tax rebellion of a hot-headed feudal nobleman, Duke Odoardo Farnese, was rapidly escalating into what history has come to call the War of Castro². Venice, Modena and Florence allied with Farnese, and Rome was threatened with invasion. We can sense the growing climate of fear in the pages of Gigli's diary. Castel S. Angelo was stocked with provisions and given a new enceinte in the summer of 1642, while the *mura urbane* on the Janiculum were planned in July 1641 and put up with amazing speed in 1642 and 1643. In the summer of 1642 papal forces commanded by Taddeo and Antonio Barberini skirmished ineffectively with the Duke of Parma. Household silver was confiscated and melted down in the summer of 1642. The wits said that Rome was already sacked. After a series of defeats of the papal army, ineptly commanded by Taddeo and Antonio Barberini, peace negotiations were undertaken in the first half of 1644.

But Urban VIII was by then a broken man. He died on July 29, 1644. On September 12, 1644, while the conclave was still in session, a contract was signed with the masons to finish the cupola (without the lantern) by the end of October. Three days later Innocent X was elected pope. Both in foreign policy and in art, the dove of peace would drive out the bees of war. As for S. Ivo, this pope would prove no friend of the Barberini or their Hadrianic plaything. It was not until seven years later, two-thirds of the way through his pontificate, that he let Borromini proceed with S. Ivo, and his only contribution to the church was the lantern and spiral³.

S. Ivo thus is a classmate, not of Palazzo Barberini or the baldacchino of St. Peter's, but of the bastions of the Janiculum. Why, we might ask, was money poured into the church when everything else was sacrificed for defense?

The motivation should perhaps be sought not in the papacy's strength but in its weakness. Finishing the Sapienza was a compensation for some of the glaring faults and omissions of the Barberini reign. It was meant to be one last entry on the positive side of the ledger before the accounts were definitively closed. In particular, S. Ivo was a cultural statement aimed at two people, or rather at two ghosts, Richelieu and Galileo, both of whom died in 1642.

Francesco Barberini was aware that his French rival, Cardinal Richelieu, had immortalized himself through the patron-

age of the college and library of the Sorbonne. The church of the Sorbonne had been begun by Le Mercier in 1635 and by 1641 it had reached the level of the lantern. Part college chapel, part public basilica, part mausoleum, it offered an example of the power of architecture to glorify a cardinal's name, regardless of the military record⁴. As the clock ticked down on the Barberini pontificate Cardinal Francesco must have seen that, although it would be impossible to compete with the splendor of Richelieu's achievement, he could at least insure that the Roman university did not remain disgracefully unfinished. S. Ivo, then, would be Francesco Barberini's answer to Richelieu's Sorbonne.

The second ghost that S. Ivo was meant to lay to rest was Galileo, who died on 6 January 1642, nearly blind and still under house-arrest at Arcetri near Florence. Both the pope and



Fig. 1. Rome, S. Ivo alla Sapienza.

Cardinal Barberini were relentless to the end in their severity toward the condemned scientist. Nicolas Claude Fabri de Peiresc wrote to Cardinal Francesco twice (5 December 1634 and 31 January 1635) asking for a mitigation of the severity of Galileo's confinement:

*si degerà far qualche officio per la consolazione d'un buon vecchio settuagenario e poco sano di corpo, la cui memoria difficilmente sarà scancellata nell'avvenire*⁵.

He went so far as to worry that the Galileo case would be compared in the future to the persecution of Socrates. Francesco Barberini replied dryly (2 January 1635) that he could not address the issue because he was a cardinal-advisor to the Holy Office. Peiresc worked tirelessly in this cause until his death, writing repeatedly to Cardinal Barberini on matters such as the hydraulic clock, tides, the solstice, and the observation of solar and lunar eclipses, matters that could only have reminded him of Galileo. Still Francesco Barberini never proposed any mitigation, nor would Urban VIII have accepted it⁶.

But Galileo's death finally freed the regime of an enormous embarrassment. Cardinal Barberini thought that there was still time to demonstrate that the papacy was not hostile to mathematics on principle. What better way to make his case than with a highly mathematical church (*fig. 2*)?

Here it is useful to focus on the mathematical culture of the Barberini court, and in particular on a Benedictine monk, Fra Benedetto Castelli (1578-1643). This fascinating man forms a bridge between the Barberini, the Sapienza and Borromini. Castelli had entered the Benedictine order in Padua in 1594 and by 1604 he was Galileo's fervent disciple. The two remained lifelong friends. Hundreds of letters are preserved between them in the national edition of Galileo's correspondence. Galileo's

Letter to the Grand Duchess Cristina of 1615, his key statement on the relation of science to religion, began as a letter to Castelli⁷.

Castelli's specialty was hydraulics. Following up on problems Galileo could not solve he invented the concept of velocity of flow. He felt that mathematics unlocked the secrets of rivers and seas, as recondite as those of the stars and planets. Hydraulics was an extraordinarily useful science in flood-prone central Italy. Young Msgr. Maffeo Barberini had twice been sent on diplomatic missions related to flood control, one in 1599 relating to the navigability of the Po near Ferrara and along the border of the papal state and Venice, and another in 1602 to control flooding in the Lago di Trasimeno⁸. So it was natural that when the newly elected Urban VIII wanted a tutor in mathematics for Taddeo Barberini, he chose Benedetto Castelli. Castelli dedicated a book on hydraulics to Taddeo in 1628⁹. He was made reader in mathematics at the Sapienza in 1627 on Francesco Barberini's recommendation, and he retained the appointment until his death in April 1643.

Working for the Barberini did not mean severing ties with Galileo. On the contrary, Castelli remained intensely loyal to Galileo all during the trial of 1632, and thereafter he desired nothing more than to retire to Florence to attend his aging master in the confinement of Arcetri. But Cardinal Barberini forbade the move. Galileo could not be allowed such company, and Castelli was far too valuable an ornament of the regime.

Benedetto Castelli knew Borromini. Around the time of the planning of S. Ivo in 1642, Borromini tried to investigate Hagia Sophia in Constantinople. It was the great model for churches dedicated to wisdom: "TEMPLUM SANCTAE SOPHIAE / ID EST SAPIENTIAE" ("Temple of Saint Sophia,

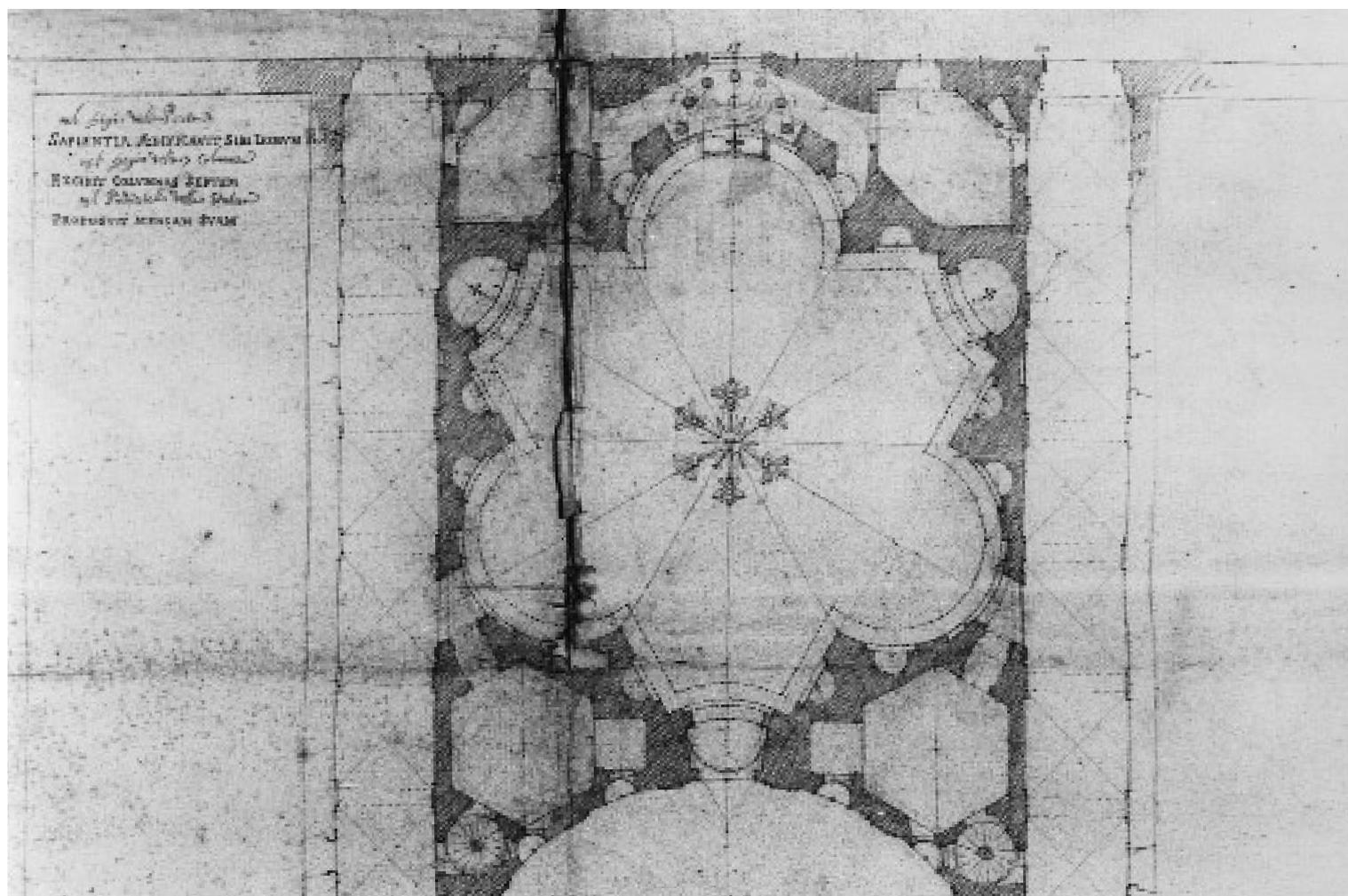


Fig. 2. F. Borromini, *plan of S. Ivo alla Sapienza*, 1642, Rome, Archivio di Stato.

that is of Wisdom”), as Borromini wrote on a drawing¹⁰. But Hagia Sophia was extremely difficult to study in this period. Copies of Ciriaco d’Ancona’s plans and sections of the church before the Ottoman conquest were preserved in the great *Libro* of Giuliano da Sangallo, and we know Borromini studied them. But there was nothing else to go on. No one would succeed in publishing prints of Hagia Sophia before Guillaume-Joseph Grelot’s travel book of 1680, which came out in time to inspire Hawksmoor but not Borromini¹¹.

So Borromini turned to the next best thing, a church that was assumed to be a copy of Hagia Sophia on Italian soil, San Vitale in Ravenna. We have two pencil drawings by Borromini after San Vitale, not made on site but copied from other drawings brought from Ravenna by none other than Benedetto Castelli. We know this because Borromini tells us directly, writing on the drawings (fig. 3):

*Alzata del tempio / di Ravenna fatto delli esarchi di giustiniano / a similitudine di S.ta Sofia / in Costantinopoli avuto / del padre Castello di S.to Paolo*¹².

In 1641 Castelli visited Venice to offer the Senate advice on the flooding of the lagoon. San Vitale belonged to Castelli’s order, the Congregazione Cassinese of the Benedictines, and he must have stayed there on his way to and from Venice. This is when he procured plans for Borromini to copy.

Benedetto Castelli is a bridge figure who connects Borromini to mathematics. But the best way to characterize the mathematics that fascinated the Barberini court is gentlemen’s geometry, or to revive a nineteenth-century term, recreative mathematics. Let us listen to Castelli as he describes his encounters with the Barberini entourage. The year is 1631, and he is writing to Galileo from Pesaro, where Antonio Barberini has taken the papal army to occupy the duchy of Urbino. He remarks with wry amusement on the gay times had by the many knights and gentlefolk in the cardinal’s entourage, while he devoted himself instead to the solution of hundreds of equations. One day he was approached by a group of literate gentlemen who wanted to be taught the principles of geometry:

*... fui pregato da una mano di gentilhuomini di garbo e letterati di spiegarli i principii della geometria, come feci con mia particolare consolazione, perché m’incontrai in ingegni non dozzinali, ma in particolare in quattro di quelli buoni, con i quali spesso si fece honoratissima ricordanza del gran merito di V.S.: e mi creda che sono restati stupefatti, e tanto piu quanto che prima erano aversissimi al nome di lei et alle cose sue, delle quali o non sapevano niente affatto, o le havevano apprese storpiate bene; ma hora sono acconci in altro modo, e intendo che studiano alla gagliarda*¹³.

Geometry, pursued as a demanding pastime, not so dangerous as astronomy since it pursued hypotheses and not reality, a science becoming the courtier and not threatening theological orthodoxy, in short, courtly geometry, was one of the fairies that bent over the cradle of S. Ivo.

Was the Università della Sapienza a hotbed of Galilean heliocentrism?¹⁴ Hardly. There were only two Galileans, both on the faculty very briefly, Castelli and his short-lived successor, Gaspare Berti, another scientist who knew Borromini¹⁵. But these islands of mathematical culture should not mesmerize us about the true nature of education at the Sapienza. The university was primarily a school of law, dominated by the elite corps known as the *Avvocati Concistoriali*¹⁶. The dominant culture was rhetorical. Lawyers believed in the expressive power of words, especially eloquent Latin orations. They trained students in an allusive language that made a fine accompaniment for heraldry, hieroglyphs and emblems¹⁷.

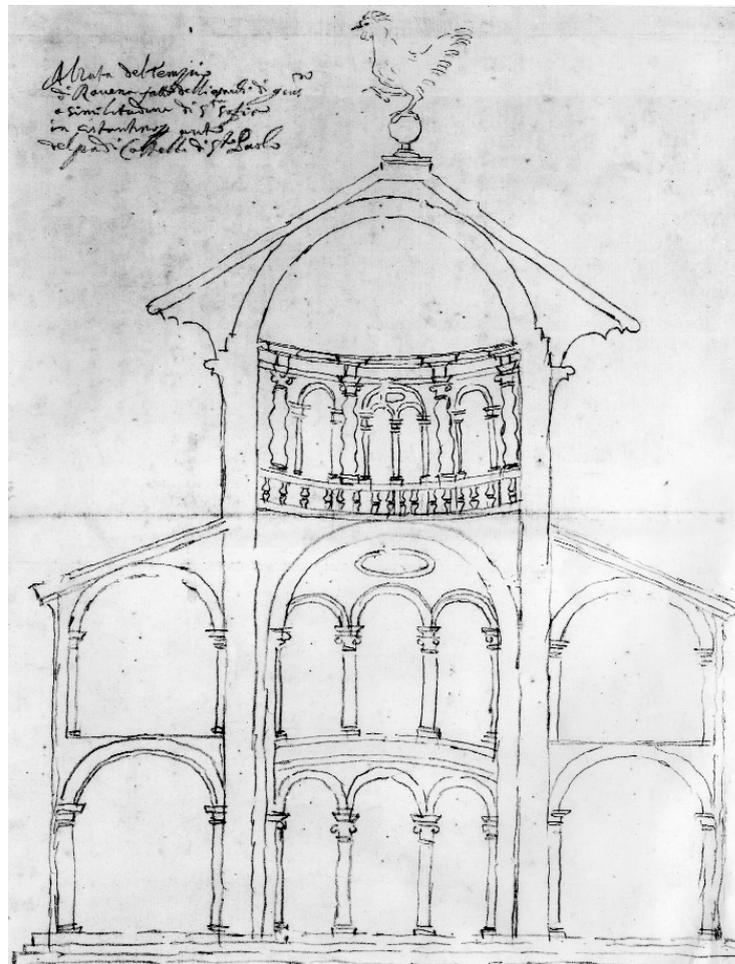


Fig. 3. F. Borromini, copy after B. Castelli, section of S. Vitale in Ravenna, c. 1642, Biblioteca Apostolica Vaticana.

In 1642, as S. Ivo was being planned, we meet for the first time a young Consistorial Advocate who would be associated with the Sapienza for his whole life, like an Oxford don of the old school. This is Carlo Cartari (1614-97) who would eventually become rector and guide the construction under Alexander VII¹⁸. On December 18, 1642, aged 26 and newly married, Cartari defended his thesis on dowry law in the large, flower-strewn aula of the Cancelleria. This was of course the residence of Francesco Barberini, and in spite of the war emergency the ceremony was well attended by cardinals and high prelates as well as Concistorial Advocates. Cartari, properly vested in the purple cappa and doctoral robes, was accompanied in procession by the beadles, Montecatini and Donato. The thesis was simple and the accompanying print simpler still. More florid was Cartari’s Latin discourse, which is recorded in detail in his diary, and is published here for the first time.

It was a brilliant but substanceless encomium of laurel. Laurel crowns the brows of the great but is also an ornament of Jurisprudence, the bulwark of a world rife with the horrors of rebellion and strife. Jurisprudence coerces the violence of evildoers and watches over the safety of the republic; it explains oracles; it opposes calumny, perfidy and vice; it is the safeguard of public felicity. It gives laws to cities and its golden reins are more excellent than the chains of Hercules. Crowns placed on the heads of kings by any other agency than Jurisprudence are sordid. Its ever-verdant symbol is laurel, the symbol also of the wise Urban VIII, evergreen in the coldest winter, the safeguard of wisdom and the ornament of public felicity.

Such rhetoric attracted far more admiration than the mathematical games that Castelli taught gentlemen at the Barberini court. But both rhetoric and mathematics shape the cultural moment that saw the birth of S. Ivo.

We might leave S. Ivo by stripping off all the overlays that have changed the form and meaning of the Barberini church¹⁹. Let us proceed from top to bottom. In 1644, when Urban VIII died, the vault was nearly finished but there was no lantern. That was added by Innocent X in 1652 and was grossly over-scaled, so much so that the fragile Barberini dome began to split apart and had to be belted with a heavy iron chain. There was no spiral and no flaming laurel crown at the top. There were no bridges to the dome, no “ski-slope” buttresses (*contraforti orbicolati*), and no ovolo molding made of cherubs’ faces. The buttresses between the six lobes were broad and stark; they were made slender and fussy in the time of Alexander VII. There was no Lamb on a Book with Seven Seals, the symbol of Divina Sapienza from Ripa, which was applied to the principal window under Alexander VII. There was no facade on Piazza S. Eustachio; the *gran teatro* we see there now was created under Alexander VII. On the inside there was no starburst in the vault, which was still unstuccoed brick and looked much more like its Hadrianic models, such as the “pumpkin” vault in the Villa of Sallust. There were no coretti and no double doors. There was no altarpiece and no floor with its crystalline pattern in black and white marble. There were no bees anywhere.

What was there? There was a dialogue between the concave exedra left behind by Giacomo Della Porta and the powerful convex apses that make up Borromini’s drum. Its six lobes push outward against the buttresses like sacks of water under high pressure. Everyone would have thought of antique rotundas like Minerva Medica, or more precisely, like the “funerary hexaonch” on Via Appia²⁰. The clever Barberini courtier, trained to read the inner man by observing the outer countenance, would have immediately guessed that he was about to enter a six-lobed interior. But that was not the case at all. He would have been dumbfounded to walk into a space shaped around an equilateral triangle (*fig. 4*). There are three apses swung from the sides of the triangle, while the three points are cut off by arcs swung in the other direction. The inner being of the church was far more complex than the outer countenance would have led anyone to suppose.

It is a shame that Benedetto Castelli did not live long enough to see this monumental embodiment of courtly geometry. Perhaps he was lucky not to outlive his beloved Galileo by more than fifteen months. Gaspare Berti, the other disciple of Galileo who took his place as professor of mathematics at the Sapienza, died soon after his nomination in 1643.

On the other hand, Cartari, young and resilient, lived through the wreckage of the Barberini regime and enjoyed a long and distinguished university career. Under the next pope he became dean of the Consistorial Advocates in 1647. He tried to convince Innocent X to continue S. Ivo, but in spite of his efforts it took seven years before the pope’s interest finally caught fire. However, Cartari did manage to establish a university archive in 1652-53, which was installed in one of the small hexagonal rooms near S. Ivo, to be precise, the southwest hexagonal room on the piano nobile, where we can imagine him at work under the stucco dove that still survives on the vault. It is to his credit that the university possesses such a fine archive and the documentation on S. Ivo is so full.



Fig. 4. Rome, S. Ivo alla Sapienza, interior.

Archivist more than author, Cartari compiled hundreds of volumes of notes but published very few books. His *Advocatorum Sacri Consistorii Syllabum* (Roma 1656) is a vast bio-bibliographical repertory of the Consistorial Advocates from the fourteenth century to his own day²¹. He never managed to complete his magnum opus on the history of the university, *De Romano athenaeo*²². But among the material collected for it we find a note to Borromini asking for help with the architect’s own bio-bibliography:

*Se altri autori l’abbiano fatta menzione di V.S. oltre Mons. Rasponi, Padre Macedo, e S. Fioravante Martinelli. Quali opere V.S. habbia pensiero di stampare*²³.

Cartari kept a diary of work on S. Ivo and spoke often with the architect. One senses a warm rapport²⁴. It was to Cartari that Borromini confided that he wanted to have hidden light over the altar, like Bernini’s Cornaro’s Chapel, and occasionally he would amuse Cartari with vivid illustrations of Vitruvian truths:

*intesi dal cavalier Borromini che l’uomo tanto era alto quanto era largo con le braccia in croce; e fattone poi da me stesso l’esperienza, trovai esser vero*²⁵.

Curiosity, pleasure, rarity, and erudition are the wellsprings of Cartari’s writing, the bulk of which, compilations of notes over many years, remained unpublished. At the time of Cartari’s thesis defense of December 1642, this vast mass of erudition lay far in the future. But it is the young Cartari who perhaps gives us the best image for the church the Barberini planned in the war-torn days at the end of the pontificate, as they jockeyed to outshine the ghost of Richelieu and put to rest the specter of Galileo: laurel, symbol of the wise Urban VIII, evergreen in the coldest winter.

Appendix

Appendix: Carlo Cartari's account of his thesis defense in the Palazzo della Cancelleria on 18 December 1642. (Archivio di Stato di Roma, Cartari-Febei 73, ff. 23v-27v; I am most grateful to Maurizio Campanelli for checking the text and filling many lacunae in my transcription.)

Franciscus Card. Barberinus Cardinales invitavit ad Cartharij disputationes

Die Dominicae 14 mensis Decembris in Sacello Pontificio, peracto sacro, Franciscus Cardinalis Barberinus caeteros S.R.E. Cardinales, ut meis publicis disputationibus interessent, invitavit, porrecto a me die 12 ipsi eminentissimo supplici libello tenoris sequentis.

Eminentissimo et Reverendissimo Significatissimo

Quella generosa benignità di V. Em.za, che ha continuatamente moltiplicate gratie in pro di Carlo Cartari, quella istessa di presente si supplica degnarsi nella prossima Cappella d'invitare il Sacro Collegio de' Significatissimi Cardinali, acciò si compiacciano intervenire alle pubbliche dispute di Conclusioni, che dal medesimo Cartari si sosterranno in Cancelleria giovedì 18 del corrente, giorno destinatogli da V. Em.za, che sarà effetto della sua singular benignità.

Catharij Disputationes publicae

Die Iovis 18 mensis Decembris hora 19 cum dimidia e domo exiens ad Cancelleriae Palatium properavi. Illius atrium, schalae, porticus et maior aula odore florum et herbarum in pavimento dispositarum redolebant. Praefatae aulae parietes circum circa aulaeis aspiciantur ornati; in principe ipsius facie cathedra collocata, peripatesmate ex auro et serico intertexto cum Roborae gentis insigniis ornata cernebatur. Hinc inde in modum theatri sedilia cardinalium aulaeis contacta erant disposita. In medio theatri quamplures scamnorum ordines aspiciantur: primus et secundus cum postergalibus aulaisque ornatus, ille pro Auditoribus Rotae, alter pro Advocatis Consistorialibus; tertius absque postergalibus, aulaeis tamen ornatus, pro Advocatis sive pro Urbis Archigymnasij Professoribus; alij usque ad ingressum theatri, sine aliquo ornamento, pro caeteris curialibus et adstantibus. Ego indutus cappa violacea et, ut vocant, caputium supra sinistrum humerum tantum deferens, associatus a Bidellis, Montecatino et Donato, Cardinales, Praesules aliosque venientes excepi. Cardinales venerunt in cappis violaceis, clavariorum praecedente. Post adventum Cardinalis Francisci Barberini Cathedram ascendo et stans, capite tecto, hanc habeo Praefationem, ad laurum alludendo qua Summus Pontifex Urbanus Octavus in insigniis utitur.

Praefatio

Ea lauri vel nobilitas est vel mitis naturae praerogativa, ut sola inter virentium ambitiones frondium Caesarum, Imperatorum, Triumphantium, Sapientium verticibus, tanquam amplissimum ornamentum gloriae, manibus imponatur, Cardinales, Principes Eminentissimi, S. Rotae Romanae Auditores integerrimi, Consistorialis Aulae Advocati celeberrimi, caeterique nobilissimi ac praestantissimi Auditores, sola etiam temerariam indignationem fulminum impetumque violentissimum adeo mitiget, ut eorum insanissimus furor, qui durissima quaeque perfringit ac dissipat implacabilis, cum teneris lauri frondibus innocuus placatusque colludat. Vernantem in foelicissima lauri viriditate Iuris Sapientiam mecum, si placet, recognoscite. Quis negaverit homo cor-

datum vim et impetum vitiorum fulmina esse supra omnem horrorem terroremque tonantis naturae formidanda, non quidem elevatis terrae exhalationibus conflata, sed e teterrimis Cocytii ..g.....bus vaporibus ad mortalium perniciem compacta et inter odia rebellantium Deo mentium fabricata? Quas clades calamitatesque non inferunt Reipublicae haec flagitiorum flumina plane Tartarea? Cuius fortunae parcunt? Cuius non irrumpunt in vitam? Cuius in domum aerumnas, miserias, funera vastationesque non immittunt? Unicum est contra hos ictus fulmineos tutamentum Iurisprudencia, quae dum cuique suum tribuit, alienae nequitiae violentiam coercet ac reprimit, dum sua explicat oracula, quasi tutelares frondes explicat ad Reipublicae securitatem, dum florentem in se virentemque iustitiam calumniae, perfidiae caeterisque vitiorum pestibus opponit, pacem et foelicitatem publicam sospitat ac tutatur. Verum nec minus ornamento eadem est quam praesidio; si enim laurus corona imperantium est insigne, Iurisprudencia, quae civitatibus leges dat, quae Reipublicae moderatur, quae aureis plane habenis multo praestantior quam Herculeis catheris mores hominum operationesque dirigit ad Iustitiae semitam, quam decens, quam augustum coronamentum capitum Sapientium est appellanda? Ipsae coronae sordent ac squallent, nisi Iustitiae manu iurisque peritiae nutu Regum verticibus imponantur. Quantum ergo in ipsa iurisprudencia decoris et ornamenti, si ab illa Regum stemmata sua trahunt decora et ornamenta? Quae cum ita sint, non immerito Urbani Octavi Pontificis vere Optimi ac Maximi semper viridantem laurum tanquam Iurisprudenciae symbolum mihi selegi, quippe quae supra quam dici possit tenuitatem meam vere tutatur et ornat. Ecquid enim praesidij, quid ornamenti sperare mihi licuit a Sapientissimo totius Sapientiae Patrono, quod mihi supra spem expectationemque cumulatissimum ab eo principe non acceperim? Cui quicquid sum acceptum referre debeo, explicare si possim. Rem e nihilo architectari Divinae solum Sapientiae fuit, et hanc tanti capitis Sapientiam Divinam omnino non discerim, quae haec in me praesidia ad foelicitatem, haec decora ad gloriam e nihilo, hoc est e meis tenebris, evocavit in hanc lucem amplissimam Romanae Maiestatis? Eadem etiam laurus Barberinorum principum genium prae se fert, quos et natura suis dotibus et divina providentia suis muneribus et ipsorum solertia suis laboribus elaboravit planeque perfecit ad tutamen Sapientiae, ad ornamentum publicae foelicitatis, sub quorum tutela inter rigentis hyemis inclementiam asperitatemque lauri viriditatem sempiternam admiramur. Vestram denique, Eminentissimi Patres, expressam in lauro pietatis, gloriae, munificentiae perennitatem venerabundus agnosco, vestrique beneficii tutelam in me decorando impar tantae beneficentiae planeque pudibundus suspicio.

His dictis, ad textus explanationem, insidens, devenio. Notabilia deinde colligo, ex quibus Conclusiones selegi. Successive Conclusionum folia adstantibus distribuuntur.

Ad nutum Decani surgo. Quinque argumenta, quibus Montecatino insurgit contra primam, secundam et tertiam Conclusionem, audio, repeto, iisque respondeo. Iterum Montecatino contra responsiones arguit; ego quinque recentiora argumenta repeto et solvo. Secundo Ferrettus insurgit quatuor argumentis contra quartam et quintam ex meis Conclusionibus; repeto et solvo argumenta. Tertio Donatus duas ultimas Conclusiones quatuor argumentis impugnat; ego repeto et solvo. Denique cunctis adstantibus has grates rependo.

Gratiarum actio

Dum me tutati estis et coronastis, lauri certe naturam regiam

induistis. Laurus fatidica est, in cuius folijs sortes mandabantur; ego in vobis humanitatis et sapientiae sortes veneror, quas ut mihi gratulor accepto beneficio, ita impari gratiarum actione perturbare non audeo, cum Principum indoles gratias malit serere quam metere.

His peractis, e Cathedra descendo, Bidellis praecedentibus, singulos Cardinales, Auditores Rotae, Advocatos Consistoriales et Praesules adeo, cunctisque gratias maiores quas possum refero et ad domum revertor hora vigesima tertia pulsata.

[Cartari had 1700 copies of his *conclusions* printed and distributed them widely in the fortnight preceding his defense. He then gives the yield according to status, naming the cardinals and some of the lawyers present:]

Interfuerunt ex cardinalibus in Urbe praesentibus Lantes, Roma, S. Honufrij [Antonio Barberini the Elder], Spada, Sacchettus, Spinula, Pamphilius, Roccius, Pallotta, Brancaccius, Franciottus, Macchiavellus, Bragadinus, Raggius, Caesius,

Verospius, Maculanus, Franciscus Barberinus, Caesarinus, Gabriellius. Defuerunt Cueva, Sabellus, Bentivolus et Carpineus, mala valetudine detenti. [Added in margin: Alborotius, Perettus, Antonius Barberinus, Ubaldus, Ursinus], et cardinalis Ginettus, qui, cum die praecedenti ad Urbem rever- sus esset, e domo non exibat.

Ex auditoribus Rotae Dunozettus, Ghisilerius, Peutingerus, Bichius, Cerrus, Carillus, Roias, Meltius, Verospius.

Ex advocatis consistorialibus Rubeus decanus, Varesius, Spada, Cecchinus, Cincius, Cultellus, Bayla, Montecatinus, Ferrettus et Donatus.

Ex praesulibus quamplures qui in scamnis aulaeis ornatis in angulo aulae a parte dextera collocatis insidebant.

Ex advocatis, procuratoribus et amicis numerus (ut dicam ita) innumerabilis.

Cartharius advocatos invisit

Die Veneris 19 mensis Decembris singulos advocatos invisens, iisdem in propriis aedibus de interessentia in publicis disceptationibus gratias egi.

¹ For the chronology see Marcello Del Piazzo, *Ragguagli borrominiani*, Roma 1968, pp. 132 and 233f.; E. Cirielli and A. Marino, *Il complesso della Sapienza: le fasi del cantiere, gli interventi successivi al Borromini, le manutenzioni*, in: "Ricerche di Storia dell'Arte", 20, 1983, pp. 39-64; J. Connors, *S. Ivo alla Sapienza: The First Three Minutes*, in: "Journal of the Society of Architectural Historians", 55, 1996, pp. 38-57; Federico Bellini, *Le cupole di Borromini. La "scienza" costruttiva in età barocca*, Milano 2004, pp. 155-203.

² Giacinto Gigli, *Diario romano (1608-1670)*, a cura di Giuseppe Ricciotti, Roma 1958, pp. 208, 225-32, 252-59; Ludwig von Pastor, *The History of the Popes from the Close of the Middle Ages*, trans. E. Graf, XXIX, 1938, pp. 382-401; Laurie Nussdorfer, *Civic Politics in the Rome of Urban VIII*, Princeton 1992; and the essay by Niccolò Capponi in the present volume.

³ J. Connors, *Borromini's S. Ivo alla Sapienza: the spiral*, in: "Burlington Magazine", 138, 1996, pp. 668-82.

⁴ Claude Mignot, *La chapelle et maison de Sorbonne*, in: *Richelieu et le Monde de l'Esprit*, catalogue of the exhibition, Paris 1985, pp. 83-93; Marc Fumaroli, *Le Cardinal de Richelieu fondateur de l'Académie Française*, in: *Richelieu et le Monde de l'Esprit*, catalogue of the exhibition, Paris 1985, pp. 217-35; idem, *Richelieu, Patron of the Arts*, in: *Richelieu Art and Power*, catalogue of the exhibition, ed. Hilliard Goldfarb, Montréal 2002, pp. 15-47; Hilary Ballon, *The Architecture of Cardinal Richelieu*, in: *Richelieu Art and Power*, catalogue of the exhibition, ed. Hilliard Goldfarb, Montréal 2002, pp. 246-59, especially pp. 257f.; and Alexandre Gady, *Jacques Lemercier. Architecte et ingénieur du Roi*, Paris 2005, pp. 95-101, 309-24.

⁵ Sante Pieralisi, *Urbano VIII e Galileo Galilei. Memorie storiche*, Rome 1875, pp. 304; the two letters are given on pp. 304-17. Relations between Galileo and Urban VIII are discussed in Richard Westfall, *Essays on the Trial of Galileo*, Vatican City 1989, pp. 39ff., and in the essay by John Beldon Scott in the present volume.

⁶ Pieralisi 1875, pp. 332-40, invents a fictitious but perceptive monologue in which Urban VIII explains his Galileo policy, which I paraphrase: Galileo's confinement is not so severe; in any case in Arcetri he is watched while from Florence he could flee to Holland. His troubles are his own fault. Perhaps sunspots, the Medicean stars, the moons of Saturn and the phases of Venus exist, and perhaps Venus and Mars have the sun at the center of their orbit, as even Vitruvius says; but it is false to use all this to argue the movement of the earth. What government would allow an astronomical system, which if not impossible is highly improbable, to deride its tribunals, indeed to be propagated by someone who had promised never to return to these issues? How many rumors would there be in Italy and abroad by rekindling a fire underneath these ashes? Hence we apply the brake, now slow now tight.

⁷ Among modern scholarship on Castelli the work of Favaro remains fundamental: Antonio Favaro, *Intorno ad un discorso sopra la calamità del P. D. Benedetto Castelli*, Rome 1884; idem, *Amici e corrispondenti di Galileo Galilei. XXI. Benedetto Castelli*, Venice 1908, reprint ed. P. Galluzzi, Florence 1983.

There is one full biography: Gian Ludovico Masetti Zannini, *La vita di Benedetto Castelli*, Brescia 1961; and shorter treatments in Giulio Pittarelli, *Notizie storiche sull'insegnamento della matematica nell'università di Roma*, vol. 6, Rome 1928, pp. 529-536 e vol. 7, 1929, pp. 17-28, 61-76; Stillman Drake, *Benedetto Castelli*, in: *Dictionary of Scientific Biography*, New York 1971, vol. 3, pp. 115-117; A. De Ferrari, *Benedetto Castelli*, in: *Dizionario biografico degli Italiani*, 21, 1978, pp. 686-90; Richard Westfall, *Science and Patronage. Galileo and the Telescope*, in: "Isis", 76, 1985, pp. 11-30; Cesare Maffioli, *Out of Galileo. The Science of Waters 1628-1718*, Rotterdam 1994, pp. 41-70 and 91-95; Alessandra Fiocca, *Giambattista Aleotti e la 'Scienza et arte delle acque'*,

in: *Giambattista Aleotti e gli ingegneri del rinascimento*, ed. Alessandra Fiocca, Florence 1998, pp. 47-101, especially pp. 94-101. The letters between Galileo and Castelli are scattered throughout Antonio Favaro, *Le opere di Galileo Galilei*. Edizione Nazionale, Florence 1890-1909; with others now in Benedetto Castelli, *Carteggi* (Archivio della Corrispondenza degli Scienziati Italiani, 4), ed. Massimo Bucciantini, Florence 1988.

⁸ G. Lutz, *Urbano VIII*, in: *Enciclopedia dei Papi*, Rome 2000, vol. 3, p. 298.

⁹ Benedetto Castelli, *Delle misure dell'acque correnti, legato insieme a Dimostrazioni geometriche della misura dell'acque correnti*, Rome 1628 (dedicated to Taddeo Barberini); *Considerazione intorno alla Laguna di Venezia*, [1641].

¹⁰ J. Connors, *Borromini, Hagia Sophia and S. Vitale*, in: *Architectural Studies in Memory of Richard Krautheimer*, a cura di Cecil Striker, Mainz am Rhein 1996, pp. 43-48, especially fig. 4. The relations between Urban VIII and the Orthodox Patriarchate of Constantinople, studied in the present volume by Ingo Herklotz, provide the context for the revival of interest in Hagia Sophia.

¹¹ Guillaume-Joseph Grelot, *Relation nouvelle d'un voyage de Constantinople*, Paris 1680.

¹² Connors 1996 (Hagia Sophia), fig. 5.

¹³ Favaro 1890-1909, 14, p. 296.

¹⁴ This is the thesis of Robert Stalla, *L'opera architettonica di Francesco Borromini nel contesto politico, culturale e storico del Seicento romano*, in: *Borromini e l'universo barocco*, catalogue of the exhibition, eds. Christoph Frommel and Richard Bösel, Milano 2000, I, pp. 23-33.

¹⁵ For Berti see C. de Waard, *L'expérience barométrique: ses antécédents et ses explications*, Thouars 1936; W.E. Knowles Middleton, *The History of the Barometer*, Baltimore 1964, pp. 10-18; P.J.S. Whitmore, *The Order of Minims in Seventeenth-Century France*, Paris 1967, pp. 165 and 171-75; Stillman Drake, *Gasparo Berti*, in: *Dictionary of Scientific Biography*, New York 1970, II, p. 83; Frank Prager, *Berti's Devices and Torricelli's Barometer from 1641 to 1643*, in: "Annali dell'Istituto e Museo di Storia della Scienza di Firenze", V, 1980, pp. 35-53; Ingo Herklotz, *Cassiano and the Christian Tradition*, in: *Cassiano Dal Pozzo's Paper Museum*, I (Quaderni Putiani, 2), Turin 1992, pp. 31-48; J. Connors, *Virtuoso Architecture in Cassiano's Rome*, in: *Cassiano Dal Pozzo's Paper Museum*, London 1992, vol. II (Quaderni Puteani 3), pp. 27-28.

¹⁶ Maria Rosa Di Simone, *La "Sapienza" Romana nel Settecento: Organizzazione universitaria e insegnamento del diritto* (Studi e fonti per la storia dell'Università di Roma, 1), Rome 1980.

¹⁷ Louise Rice, *The Pentecostal Meaning of Borromini's Sant'Ivo alla Sapienza*, in: *Francesco Borromini*. Atti del convegno internazionale (Roma 13-15 gennaio 2000), eds. Christoph Frommel and Elisabeth Sladek, Milan 2000, pp. 259-70; and see also the essay by Louise Rice in the present volume.

¹⁸ A. Petrucci, *Carlo Cartari*, in: *Dizionario biografico degli Italiani*, 20, 1977, pp. 783-86.

¹⁹ Cirielli and Marino 1983; Connors 1996 (The Spiral).

²⁰ Hemming Winfeld-Hansen, *L'hexaconque funéraire de l'area sub divo du cimitero de Prétextat à Rome*, in: "Acta ad Archaeologiam et Artium Historiam Pertinentia" (Istituto di Norvegia in Roma), IV, 1969, pp. 61-93.

²¹ His autobiography appears on pp. CCLXXI-CCLXXIII.

²² Archivio di Stato di Roma, Cartari-Febei, voll. 63-67.

²³ Archivio di Stato di Roma, Cartari-Febei, vol. 63, *De Romano Athenaeo Miscellan. I*, fol. 66, 1 dicembre 1664.

²⁴ Del Piazzo 1968, p. 227: "discorsi a lungo con il Cavaliere" (12 maggio 1660).

²⁵ Del Piazzo 1968, pp. 229-32.