

Finance and Design in Four Religious Structures: A Comparative Study

Joseph Connors

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To this conference of distinguished economic historians and historians of the building trades, I come as an outsider, though an admiring one, from the plainer and simpler world of architectural history. We architectural historians revel in the concrete and the tangible, and we are constantly pushing open doors, intruding into cellars and scraping off layers of plaster to see what lies beneath. We love drawings, since they give us some idea of the genesis of a plan and can show us paths not taken by patrons or designers. They show us the imagination of the architect at work. We go to inventories to fill bare rooms with furniture and collections auctioned off long ago, and we try to imagine the rituals of domestic or religious life taking place in our buildings. We walk the streets in the hope of seeing how buildings relate to one another in urban space.

Gradually architectural historians are becoming more sensitive to the organization of the workforce, to the price of materials and labor, and to the effects of immigration. And we are fascinated by the rise of the profession of architecture and the recruitment of men and sometimes women who rise up into the profession from the trades, or who move laterally into it from the arts, or who descend down into architecture from mathematics and the sciences.

This paper is an attempt to bridge fields, finance and design. A simple metaphor comes to mind: an airplane in flight. To understand the speed with which the airplane will move, we study the engines: jet or propeller; one, two or four. But to know where the plane will land, we must locate the flight plan. The engines are the finances and the flight plan is the design. I will look at the interaction of engines and flight plan for four great religious buildings: the Süleymaniye in Istanbul, the Cathedral of Florence, Borromini’s S. Ivo alla Sapienza in Rome, and St. Peter’s, specifically the facade and the piazza.

Süleymaniye

Applying the concept of engine propulsion and flight plan to the greatest of the Istanbul mosques, the Süleymaniye, is relatively simple. The Süleymaniye was designed by Sinan and built between 1550 and 1558. We have registers for slightly under half the building expenses, covering the last five and half years of construction. It could be built this quickly because of the

military organization of the work force. Construction was mobilization. For a military expedition each guild of skilled workers in Constantinople was assessed a certain number of men who had to accompany the army. The provinces were similarly assessed, both in Europe and Asia. 3523 workmen worked 2,678,506 days. 51% were Christian, but they were generally unskilled workmen, while Muslims, who constituted 49% the workforce, performed skilled tasks of stonecutting, carpentry, drafting, glazing and roofing. The costs of construction were paid directly from the personal treasury of the Sultan, which was augmented by the spoils of the conquest of Belgrade, Malta and Rhodes. Thus one could say the engines of this enormous construction were Rolls Royce.

The flight plan was relatively direct. The mosque was a symbol of power, structural and political. It corrected Hagia Sophia, which was a strange combination of central dome over a long basilical nave. The Süleymaniye was instead centralized. The thrusts of the dome are equal in all directions. Hagia Sophia was a fragile structure, with thrusts relentlessly pushing out the vertical supports. In contrast, Sinan built the Süleymaniye as the most solid of buildings, with completely rational disposition of thrusts, meant to outlast the devastating earthquakes which recur once a century. This was a strong building, meant to convey the growing strength of orthodox Islam under the sovereignty of an absolute Sultan. Sinan said to Süleyman:

My emperor, I have built you a mosque that will remain on the face of the earth until the Day of Judgment, and when Hillaj Manusr comes to shake Mount Damavand from its foundations, he will be able to shatter the mountain but not this dome.

Strong financial engines, and a strong sense of purpose, led to the rapid construction of this most monumental of imperial buildings.

Florence Cathedral

The Süleymaniye was the child of war, but war was the bane of most large communal enterprises in Italy. In Florence the financial management of the cathedral was turned over to the Arte della Lana in 1331, and from that point forward it was financed by a levy on the ordinary tax revenues of the Comune. Compared to the levy for construction of the third circuit of walls, it was light, around 0.83% (2 denari on the lira) of communal income. There was also a tax on wills and occasionally collection boxes would be set up in the branch office of the Arte della Lana to collect the “denaro di Dio,” and from 1367 on the cathedral had the right to a percentage of the pardons, graces and amnesties granted to citizens in Florence and to subject comunes. On the expense side of the ledger, the Opera del Duomo also had to pay for other works, some closely allied to the cathedral, such as the Campanile of Giotto and Talenti, and others that were more in the sphere of the Comune, such as the Loggia dei Priori and the paving of the piazza della Signoria. At its high point, in 1387 and 1388, when it was building the cathedral at full speed but also engaged in other projects, the total revenues could rise as high as 2.5%. But excluding loans for military purposes, and setting aside its other building projects, the normal assessment averages out to approximately 1% of ordinary communal revenues over the century 1337-1432. It

was this sure and steady income that paid for the cathedral. Support for the enterprise was widespread and constant among the citizenry. Any suspensions of payment in time of war were always imposed with great regret, and normal financing restored as soon as possible. This was truly the cathedral of the Florentine people.

Sant'Ivo alla Sapienza

“Comparable only to a drama of nature, like a waterspout driven over the surface of the sea,” is the way Borromini’s first biographer, Eberhard Hempel, described S. Ivo alla Sapienza, the university chapel of Rome. Indeed, the church has never failed to evoke comparisons with natural phenomena, from seashells to swirling columns of fire. To the visitor who enters the courtyard of the Sapienza through the portal in the bleak western facade, the cupola comes as a breathtaking surprise, like a geode hidden inside a crusty shell. Movement, pressure, thrust, flame, flight: these are the images that this masterpiece conjures up. Borromini’s drawings multiply such impressions, and the scholar who holds them in his hand might be forgiven for wondering whether they are the plans of a church or examples natural geometry, diagrams of the structure of a crystal or a snowflake.

But this architectural wonder was propelled by the feeblest of financial engines, motors hardly worthy of a Piper Cub that has to hop from airfield to airfield to stop for gas. Yet as sometimes happens with very light aircraft, the flight pattern, at first erratic, produced in the end maneuvers as daring as any seen in the whole baroque period.

S. Ivo was the chapel of the communal university of Rome, “la Sapienza.” In 1431 Pope Eugene IV turned over to the university a lucrative tax, *gabella vini forensis*, a 6% duty on imported wine. The more people drank, the higher the take; but never did the gabella do as well as in an Anno Santo, when Rome was flooded with thirsty pilgrims. But for many popes this tax was too good to waste on the university. It was siphoned off for the Capitoline Palaces, for the Ponte Sisto, and for various repairs on the Acqua Vergine, including Bernini’s epoch-making project for a new Fontana di Trevi, begun in 1631 but later abandoned. While it was in construction the pundits said, “What a miracle! This pope manages to turn wine into water.”

The spigot of finance was thus frequently turned off at the Sapienza and the building went up with excruciating slowness. Leo X, a lover of learning, gave it a great boost, but after his death in 1521 his dream of a grand chapel to S. Leo fell into limbo. The sixteenth-century popes built the schools bay by bay (or barrel by barrel). The courtyard is a “scudoteca” for the arms of many late-Renaissance and baroque popes: the palle of the Medici, the dragon of Gregory XIII, the lion of Sixtus V, the eagle and dragon of Paul V, and the bee of the Barberini.

It was in fact Urban VIII who finally began S. Ivo in 1641, during the last, disastrous years of the Barberini pontificate. It should have been called S. Leone, but because by the seventeenth

century a group of lawyers called the *Avvocati Concistoriali* controlled the university, it is called after the patron saint of lawyers, St. Yves de Kermartin in Brittany, or S. Ivo. The Barberini pontificate lasted only eighteen more months and there was time to finish only the bare bones of the church in rustic brick, including the cupola but not the lantern. It must have looked like a ruined tempietto from Hadrian's Villa.

The next pope, Innocent X, elected in 1644, hated the Barberini and tried to subvert everything they had done. He turned his attentions instead to Piazza Navona. Half-finished, S. Ivo was abandoned to wind and weather. Then finally in 1651-52 Borromini found a way to tempt the pope back to the church. He redesigned the lantern, putting a fantastic spiral on top, something that had not been thought of in the Barberini pontificate. The lantern was covered with the heraldry of the new pope (Pamphilj giglio, dove and ball); it was the spiral that gave this small chapel a real presence on the Roman skyline. On top of the spiral is a ring of stone that seems to be in flame. And then on top of this a strange bulbous crown of gilt iron rods that support a ball, cross and dove. A Pamphilj dove, or the Holy Spirit? Innocent probably enjoyed the ambiguity. On the interior of the lantern Borromini installed a dove on the end of a long iron rod. It fell in the 19th century, but it must have looked like the Paraclete descending in the middle of the space amidst gilt tongues of flame. This was a hot piece of architecture, with flames outside and in.

It took one more pope to complete S. Ivo. This was Alexander VII, the pope of Piazza S. Pietro. He was a lover of learning and wanted to turn the Sapienza into a real university. He had Borromini build a great library, the *Biblioteca Alessandrina*, and he set up a well-furnished botanical garden. The lantern of S. Ivo was finished but he made the stucco decoration much more "regal." This is his word; we might have said fussier and more decorative.

Now let us look at the costs. Urban VIII, pope number one, in 18 months of work spent 12,000 scudi on the bare brick structure. Alexander VII, pope number two, spent 25,000 on the Sapienza (though of course one must include the library in these costs). But Innocent X, the middle pope, spent only 1400 scudi for the lantern and spiral. It might be said that he was the one who got the most for his money.

It is the spiral that caught the imagination of generations of late baroque architects, from Messina to Copenhagen. And when it comes to interpreting the meaning of the church, it is the spiral that has drawn down on itself much summer lightning. It has been called a symbol of the Tower of Babel (converted of course to Christianity), of the Pharos of Alexandria (flaming on top like a lighthouse), or a papal tiara (note the jewels and pearls), or Mount Purgatory, or the tower of the seven liberal arts, and much more besides. But did these far fetched images really influence Borromini? I think not.

This is a university chapel and the spiral is an image of education. Not perhaps our ideals of

education, but those that prevailed at the Sapienza. One went to the Sapienza to get a laurea in law, the passport to a good job in the papal bureaucracy. Various texts and drawings contemporary with the construction show that the spiral was meant to be climbed. One mounted inside the lantern, then over the stepped roof, then back into a chamber (Oppenord shows some visitors catching their breath in this room), then up and around the spiral, then finally into the flaming stone crown at the summit, which is a wonderful place to survey tutta Roma. In symbolic terms, the visitor mounts a bejewelled path, that is an ennobled path, to a huge laurel crown, that is a laurea, a laurea in flames, let us say an inspired laurea.

This was a polemic image directed at a much more successful educational institution, the Collegio Romano, founded by the Jesuits in 1551 to offer a free education. The Jesuits were phenomenally successful educators. They had 2000 students while the Sapienza could only draw 100 or 125. At just about the same time as Borromini's spiral they began a cupola on S. Ignazio, the church of the Collegio Romano. It was designed by the Jesuit scientist and architect Orazio Grassi, who is remembered today as Galileo's antagonist. Grassi proposed the Egyptian symbol of timeless wisdom, the obelisk, topped by the Jesuit symbol IHS in a sunburst. This was the response to the much more labile image of the bejewelled spiral mounting up to the flaming laurea at S. Ivo.

The Sapienza had the last word, both legally and symbolically. It won a lawsuit against the Jesuits, who were forbidden by the court to give a laurea in law. And as a finishing touch, on the west side of the Sapienza Borromini added a pair of monumental doors. The three emblems over the door read as an iconographic sentence. The book, sword and scales at the left stand for Justice; the snake staring at its image in a mirror at the right stands for Prudence. The sentence reads, "A winged laurea" (the emblem in the center) "in Juris-Prudence [awaits the student who goes through] this portal." The door, of course, faces in the direction of the Collegio Romano.

We should be grateful that the slow trickle of the gabella on imported wine forced the Sapienza to go slow. It would have been a shame if a less talented architect had built the church before Borromini. And even with Borromini in charge, it fascinating to observe the changes in plan that came about after the roulette of each conclave. I think we find it more exciting to observe a polemic dialogue across urban space than to contemplate a static image designed and built from the ground up without an infusion of new ideas. The tiny stunt plane of S. Ivo, with its sputtering engine and its erratic flight plan, in the end delivered a brilliant performance.

St. Peter's Nave

For powerful engines and ambitious flight plans one need look no farther, in the early modern period, than St. Peter's. Julius II had Bramante begin it 1506. Originally Bramante had proposed a church with a central plan, a tempio in the language of the Renaissance. This is what is shown on the famous Caradosso medal of 1506. But the pope objected and Bramante added a

long nave to the tempio. This idea was taken up by his followers. Raphael's nave would have been about twice as large as the present one, protruding far out into the present piazza. Antonio da Sangallo, the heir to thirty years of planning at St. Peter's, built a huge wooden model between 1539 and 1546, which he hoped would guide the building operations for decades after his death. He died just as it was being finished, but his followers, who controlled the building operations of St. Peter's, said the model was "a meadow, where one will always be able to graze."

"You speak the truth," replied Michelangelo with consummate rudeness, "a meadow for sheep and oxen who know nothing about art." Michelangelo was asked by Paul III to take over St. Peter's when he was past seventy, and he accepted on condition that he be given *carte blanche*. He had the Sangallo model banished and he set about shrinking the over ambitious church. He returned to a much smaller central plan, pulling down the huge ambulatories that Sangallo had already begun. He eliminated the long nave and the Tower of Babel belltowers. Sangallo's followers said the name of the church would have to be changed from San Pietro to San Pietrino. Michelangelo devoted most of his energy to the apses, with their powerful clusters of pilasters, cliffs of travertine that wrapped around the dome. They needed no facade. Or, in the words of a sympathetic observer, St. Peter's was "tutta facciata."

But nonetheless Michelangelo in his spare moments began to think of a facade. His design is perhaps preserved in a fresco in the Vatican Palace. The east end of the church is shown with a Pantheon-like pediment on four colossal columns, with ten more colossal columns lined up behind it. Probably the great sculptor intended these to be monoliths. But he would have had to possess the resources of Midas to produce them and to live to the age of Methusalah to finish the facade.

When Michelangelo died in 1564 much of the Constantinian basilica was still standing. Julius II tore down only the rear or west end. The east half of the nave was closed off by a wall, the famous "muro divisorio," which sealed the building from the weather and gave it new life. Packed full of tombs and relics removed from the demolished half, this well-preserved fragment was St. Peter's, as far as most pilgrims were concerned. During the Holy Year of 1575, 47,000 masses were said in the old nave and only a handful in the new, which was still a construction site open to rain and wind. Conservative churchmen thought the wisest course of action would be to abandon both the Sangallo model and Michelangelo's facade and leave the old nave standing. It was a time machine to bring the pilgrim back to the age of Constantine.

All this changed in 1605. In that year Paul V, of the Sienese Borghese family, came to the throne determined to have the glory of finishing St. Peter's. Energetic and still relatively young (in fact his papacy would last fifteen years, 1605-20), he was set on leaving a mark, "cose magnanime." He had Carlo Maderno pull down the old nave in 1606. Twenty of its columns found a place in the new facade, which was built in 1607-15. We know from the accounts that

450 masons worked on it day and night. Maderno's strategy was to finish the facade first and then build the nave behind it. Between 1612 and 1615 an unprecedented army of 612 masons worked on the great barrel vault, while 600 more worked on the flanks. In 1615, in a great scenographic gesture, the muro divisorio was pulled down to allow a view of the whole interior, the longest church in Christendom, a far cry from Michelangelo's San Pietrino.

But how was all this paid for? Peter Rietbergen has an interesting essay which begins with the shepherd grazing his flocks on the arid plains of central Spain and the artisan banging away in his shop in Todi, both subject to the taxes that went to finance St. Peter's. Julius II had set up the Fabbrica di San Pietro as a small committee to preside over construction and to find funds. It sold indulgences and dispensations from the usual rules of matrimony and ordination, and it confiscated bequests and arranged settlements with priests denounced for excessive possessions. The Fabbrica was reorganized several times under successive popes. In 1538 an agreement was reached with the emperor Charles V that allowed the sale of indulgences to continue in German lands but changed the arrangements for Spain and Portugal. The money collected there was to be used for a crusade against the Ottoman Turk, and hence this tax was called the cruzada. However, after much renegotiation, eventually the cruzada brought 20,000 scudi a year to the pope, while the Spanish king got some 300,000 scudi. The pope's share was like a tax on a tax, dependable, but hardly enough to pay for a huge church.

So, in the mid-sixteenth century the popes turned more to Italy. Julius III ruled that a fifth of all donations inter vivos and many bequests considered unsuitable were to go to the Fabbrica. Pius IV set up a system of spies to make sure notaries reported anything suspicious. An army of much-hated commissioners went around with letters patent patrolling the papal states, on the lookout for faulty wills and bequests. They bought their offices, and had the added incentive of keeping 5-10%, and eventually up to 20%, of any confiscated property. By the early seventeenth century this system, combined with the cruzada from Spain and Portugal, produced about 70,000 scudi per year.

Paul V paid for the nave and facade of St. Peter's by capitalizing this annual income on the Roman bond market. In 1605 the Monte della Fabbrica sold 3000 shares that brought in 300,000 scudi. In 1612 a second Monte della Fabbrica brought in 200,000 scudi. But there must have been other funds as well. Over the course of his reign, 1605-20, it has been estimated that Paul V spent 1,510,506 scudi on St. Peter's, an amount equal to a year's revenue of the papal state.

Obviously this was an extremely powerful financial engine. The flight plan it enabled was ambitious and clear. Paul V dictated the brief and Maderno carried it out: cover all of the holy ground of the old church, recreate the early Christian entrance portico, build the longest church in Christendom, erect a facade that was a huge stageset for the Easter blessing, and last but not least, commemorate the Borghese name. Pasquino, the talking statue, was quick to note that

“Borghese” had edged aside the “Princeps Apostolorum.” Without the military organization of the Ottoman sultan, the pope had created a building of mythic grandeur. In fact, soon after it was built a traveller who knew Maderno’s wood model for of the facade used it as a yardstick by which to judge the newest mosques of Constantinople, including the Süleymaniye and the more recent Blue Mosque.

This was obviously not an engine to be used for small projects. That would be like putting the Concorde on the route from Peretola to Pisa. Any flight plan devised for St. Peter’s had to be ambitious. But it could be a little eccentric. This is the case with the Piazza San Pietro. When Alexander VII was elected pope in 1655, he immediately called Bernini to his chambers and began to plan great things. In a twelve-year reign Alexander would become the “papa di grande edificazione,” who would change the face of baroque Rome with his concept of the piazza as urban “teatro.”

The greatest teatro of all would be the Piazza San Pietro. Here Bernini’s colonnade sweeps around two fountains and a central obelisk, moved there three-quarters of a century earlier. The architecture follows the outlines of an oval, that is to say, the two colonnades follow the circumferences of two circles, each with its center displaced to the right or the left of the obelisk. The fountains at first look like they might be at the center of their respective circles, but they are not. The real centers are halfway between the fountains and the obelisk, and are marked with granite disks on the pavement. Every time I have ever visited the piazza I have seen tourists standing on these disks. The reason is that from this viewpoint, at the center of a circle, the forest of columns turns into a thin screen.

The same financial engine that generations before powered the construction of the facade and nave of St. Peter’s was available to finance the construction of the piazza. Times were bad. Payments from the cruzada were in arrears, and Paul V’s debts had not all been paid off. Nevertheless, the fabbrica managed to float a bond on its annual income in 1656, and another in 1659, the latter for 200,000 scudi, which was raised to 300,000 scudi in 1662 and to 400,000 scudi in 1668. To make the loan appealing it was issued as a monte non vacabile, that is, a loan with 4% interest payable after death to successive bearers. But there was a catch. The monte was non vacabile only for 30 years. During that time it could be paid to successive bearers, but only on condition that the original bondholder willed or gave it to someone older than himself. After 30 years, the interest on the monte would continue to be paid only to the original montisti, and when they all died, the capital would revert to the fabbrica. The Fabrica was appealing to wealthy celibate clerics who did not care what happened to their money after their deaths. It was trying to insure itself both against perpetual interest and against creditors who might live too long.

It has been calculated that it cost about 477,000 scudi to build the north wing of Bernini’s

colonnade and about 494,000 scudi to build the south. When one adds paving (23,650) and the statues, where work continued for a generation more, the total perhaps surpassed a million scudi. Here too we sense the thrust of a Rolls Royce engine. But the form the piazza took, the flight plan, came about in an unexpected and quirky way.

What was wanted was a covered passageway to shield pilgrims from the rain and the sun. A painting of the mid-seventeenth century shows a canvas awning supported by staves to shelter pilgrims during the celebration of Corpus Christi. That was all right for pedestrians, but carriages had to be sheltered too, since the door of the Vatican Palace was next to the facade and ambassadors could not be expected to trudge up on foot.

A drawing by a French artist, Israel Sylvestre, shows the piazza in 1646. It consisted of a narrow trapezoidal area immediately in front of the church facade, and a wide field further away, with the obelisk in the center and a single fountain, placed at the juncture of two pilgrimage roads by Bramante. There was much more space to the north or left of the piazza than to the south, where blocks of older houses still stood. It was thus not by chance that Bernini began his colonnade on the north side. This was an insurance policy against a short pontificate. Even the most unsympathetic successor on the throne of St. Peter would have felt compelled to duplicate the colonnade on the south.

The reasons for the oval shape of the lower piazza, later called the piazza obliqua, are also evident in the veduta. It fit beautifully into the open space on the north. On the south, on the other hand, it would have to be imposed by force on a crowded neighborhood. It may have been the idea of the pope himself. Or it may have been Bernini's. But whoever thought it up, from 1656 onward the oval remained a constant in the design. What fluctuated was the type of portico: wide or narrow, high or low, single or double, useful or useless.

The pope had inherited a long series of projects drawn up for his predecessors. All somehow combined an open loggia on the ground floor with closed rooms on the upper floors. So near the Vatican, this was prime space. The upper floors were designated as a residence for the Swiss Guard and offices for the curia. But none of this pleased Alexander VII. In his first instructions to the building committee, issued in July 1656, the pope vetoed the upper story: "senza fabrica sopra, ma co' balaustri e con statue a ogni pilastro." So the portico was destined to house nothing. It passed through several more stages. One showed arches with doric pilasters, which was probably meant to be built in brick with travertine reserved for the details. But in the end it was decided to erect 333 travertine columns, a fantastic enterprise that involved enormous quarrying operations in Tivoli and the largest transport operation, by cart and boat, that Rome had seen since the construction of the Colosseum.

If an economist were asked to devise an index of the usefulness of a building one simple statistic

to check might be the ratio of enclosed space to mass of stone in the structure. In the oval part of Bernini's piazza that ratio approaches zero, a world record, only matched by the Parthenon when its cella was blown out by a Venetian bomb in 1688. Obviously the colonnade was not built by economists.

Today the portico is three aisles wide, a vaulted central aisle where two carriages can pass, and narrower aisles on either side for pedestrians. It can be called a triple portico. But it was not always supposed to be this wide. In an early version of the project, aired in the summer of 1657, it was a single portico just a few meters wide. Virgilio Spada, the priest whom we met earlier at the Casa dei Filippini and who was now the main administrator for the piazza, objected that this would hardly offer sufficient protection to pedestrians, let alone coaches. So in the next project it was expanded to a double portico, and then in the spring of 1657, after much discussion and continued pressure from Spada, it was expanded to the triple portico that we see today.

It is a mistake to assume that the good administrator, Spada, had come to this design on simple financial grounds. A change of this magnitude had to have a classical precedent. Let us look for a moment at the classical sources for the triple portico. They are of course all textual, not archeological. Suetonius tells us that the vestibule of the Domus Aurea of Nero was of such a size that it held a colossal statue and a triple portico: "tanta laxitas, ut porticus triplices miliarias haberet," "of such a size that it had a triple portico a mile long." In the Renaissance Bramante interpreted this passage as meaning a portico three stories high and a thousand feet long. The sides of the Cortile del Belvedere are his recreation of that text, and when he built the three-storied loggia to the east of the Vatican Palace (the wing that now forms the west side of the Cortile di S. Damaso), antiquarians commonly interpreted the structure as another triple portico à la Domus Aurea.

However, in the course of the sixteenth century scholars began to worry about the word laxitas in Suetonius's text. In the Vitruvius commentary of Philander laxitas was not translated as size but as width, and so porticus duplices and porticus triplices were taken to mean porticoes that were double or triple in width. This interpretation was reinforced in 1628-30 when Lucas Holste, working on a projected edition of Geographi graeci minores, came across the text of an obscure Greek geographer called Dikaiarchos, who had been translated into Latin in 1589 and published again in 1600. Dikaiarchos, describing a portico in the town of Chalchis in Euboea, used the phrase "kai stoais trisi" for a market surrounded by triple porticoes. The simplest reading would be that the market was surround by porticoes on three sides. But Holste interpreted stoais trisi to mean three parallel porticoes joined together, that is, a triple portico in width. He concluded that it was from this magnificent structure that all Roman porticoes, including the porticus triplices of the Domus Aurea, derived. Nero's architects, in his reading, were not capricious but were really good Hellenists who brought the Chalcidian triple portico home to Rome.

Holste was consulted by Alexander VII for his advice on the piazza. In 1656 he drew up a memorandum, “*Dei Portici antichi e la loro diversità.*” Holste maintained that a double portico would be better than the single portico then under consideration. Bernini complied and designed a double portico. Then Spada intervened, championing the triple portico that Holste had found in Dikaiarchos. Bernini once again changed the design, now to the three aisled portico, which was begun in March 1659.

Thus it is possible to go today to the Piazza S. Pietro and observe standing practically side by side, in Bramante’s loggia and Bernini’s colonnade, different glosses of the porticus triplices of the texts describing Chalcis in Euboea and the Domus Aurea. The Renaissance interpreted it as a triple portico in the vertical sense, while the baroque reading favored a portico of triple width. Spada, the most acute administrative mind of seventeenth-century Rome, the inventor of brilliant financial instruments and the astute calculator of costs and benefits, had his finest moment when he was glossing an ancient text.

Pope Nicholas V, the man who first envisaged a new St. Peter’s, saw great buildings as props for the wavering faith of the masses:

La grandissima, somma autorità della Chiesa Romana, innanzitutto, può esser compresa soltanto da chi ne abbia appreso le origini e gli sviluppi attraverso lo studio delle lettere. Ma la massa della popolazione è ignara di cose letterarie e priva di qualsiasi cultura... ha bisogno tuttavia d’essere colpita da spettacoli grandiosi... Con la grandiosità degli edifici, di monumenti in qualche guisa perpetui, testimonianze che sembrano quasi opera dello stesso Dio, si può rafforzare e confermare la stessa convinzione popolare...

Alexander VII was the pope who presided over the decline of the papacy on the international scene, impotent now to influence the Realpolitik of the new nation states. He knew that his building projects would have more resonance than his diplomacy in the wider world. Under Alexander VII the architectural press flourished, and the brilliant prints of Giovanni Battista Falda (*Il Nuovo teatro delle fabbriche*) spread the fame of his architectural res gestae to the wider world. Pilgrims came for the Easter blessing, and visitors for the churches and antiquities. All left money in Rome and many took a copy of Falda back home. This was a pope who knew that building was Rome’s greatest export product.

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