These changes, together with a consideration of the closely related role of artists and artistic values, are briefly outlined by Hale in an essay, which is the published version of the eighth Walter Neurath Memorial Lecture.

The author describes his aim as one of rekindling interest in a neglected aspect of Renaissance artistic activity, for artists had a great deal to do with the changes in military engineering practice occasioned by the events described. At least at the onset of the Renaissance, says the author, no specialized experience was required, only skill in disegno. Whatever technical information that was necessary could be gleaned from the popular treatises (whose contents were devoted either wholly or in part to questions of fortification) by Vitruvius or Alberti, or from Christine de Pisan’s Le Livre des faits d’armes et de chevalerie, which was probably the most widely read military handbook of the 15th century. Among designers of fortifications and applicants for construction contracts, one finds Brunelleschi and Bramante, the Sangallo family and, of course, Michelangelo and Leonardo.

Early in the 16th century military construction needs exceeded the available civil architects and moreover, campaigning experience and sophisticated mathematical talents were becoming prerequisites for designers. Consequently, military specialists replaced artists skilled in disegno, but they lacked military service or connections. Apart from showing how artists came to be involved in and then excluded from fortification projects, Hale suggests that by considering an artist’s military-related designs or work, some insight may be gained into the character of his principally artistic works.

Earlier, purely artistic aspects of fortifications contained ornamental details or fanciful gates, such as the one drawn by Serlio, which is included in the book, but the introduction of high-velocity missiles with greater concussive power led to their suppression. Later, artistic qualities found their expression, observed the author, in the geometry of the trace or plan. Owing to the scale of some of these plans, however, they would not be appreciated until the appearance of the airplane and the helicopter.

The author discusses these developments and points to some recent commentaries that seek to explain the appearance of Renaissance fortifications from the standpoints of anthropomorphology, symbolism, and urban design. Included also are numerous well-reproduced photographs and drawings spaced appropriately throughout the text with notes at the end. Thus, given the deliberately limited format and scope, the author has achieved his purpose of providing a re-introduction to a relatively neglected subject, but leaves the solution of the question explicit in the title to future investigators.

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Leo Steinberg, Borromini’s San Carlo Alle Quattro Fontane. A Study in Multiple Form and Architectural Symbolism (Outstanding Dissertations in the Fine Arts), New York and London: Garland Publishing, 1977, xxi+473 pp., 203 illus. $27.50.

Here at last is Steinberg’s thesis. Written in the late 1950s but left unpublished, it has cropped up in a handful of references in the growing Borromini literature, but has never received the attention it deserved as the first in-depth study of a major baroque building, one that overturned the accepted history of a famous design and set out into an uncharted wood of architectural symbolism. Later the author went on to other things, achieving fame in Renaissance iconography and the interpretation of contemporary art, but it appears that Borromini taught him the value of a critical method, particularly an insistence on the multiple meanings of a work of art, that has borne fruit ever since. In publishing the thesis Garland Press has allowed the author to revise and retypethe text and to add dozens of new photographs, including all the major drawings from the Albertina; one expects these amenities from a normal publisher but they are not hallmarks of this particular series. In a witty preface Steinberg looks back on the 18-year-old manuscript, and while he apologizes for its length and its "relentlessly argumentative prose," he reaffirms his confidence in its basic premise: that a work of architecture can be polymorphous and symbolic, and that to interpret that symbolism is neither a luxury nor an unconscionable risk but the historian’s basic task.

Interpretation must rest on a scaffolding of facts, and these Steinberg provides in abundance. There are a great many precisions on the altarpieces and decorative sculpture, on the long and drawn-out history of the façade, and on subsequent alterations (in fact deformations) to the building. The important document of 1650–1652 by Fra Juan di S. Bonaventura, a relatione that recounts the history of the order and of the commission, was transcribed by Pollak with many errors and omissions; Steinberg rectifies some of these, and gives the long and interesting passage in which a visit to the church is likened to the beatific vision. There are classic discoveries about Borromini’s sources. Steinberg shows how the vault pattern of the cupola derives from the mosaics of S. Costanza via a woodcut in Serlio, and in an appendix he gives an idea of how astonishingly common this pattern was in the barrel vaults and coffered ceilings of the Renaissance. Another appendix traces the capital with inverted volutes from antiquity to the ‘400; Steinberg’s sensible conclusion is that Borromini, far from being a capricious eccentric in using the motif, was “an artist with the largest awareness of the total vocabulary of possible forms.” There are very perceptive observations that link the basic imagery of S. Carlo closely with St. Peter’s, not only in large


Like civil and ecclesiastical building, military architecture underwent profound changes in form and vocabulary during the Italian Renaissance. These changes were necessitated not by the revival of classical values, but by the development of gunpowder, iron shot, and limbered guns, which permitted the rapid deployment and massing of artillery. The high walls and square faces of earlier castles and redoubts were no longer adequate to withstand the flatter trajectories and higher velocities of the new weapons and so were replaced in importance by the bastion, which offered a much reduced target to cannoners and which provided cross and enfilading fire to the defenders.
features like the pendentives and cross piers, but in a number of small and brilliantly observed details like Steinberg’s Fig. 186, which shows Borromini borrowing directly from the façade of his great exemplar. There is also the first analysis of the beautiful underground chapel on the east side of the crypt, which Steinberg connects with a document of 1666 in which the monks grant Borromini permission “to build a chapel and altar and to make his tomb” in the lower church. (My guess, on the other hand, is that Borromini was thinking not of this small chapel but of the high altar in the crypt, which is redesigned on Albertina 180, Steinberg’s Fig. 127.) Interpretation must also rest on a close analysis of the drawings, and here Steinberg has cleared a good deal of ground, although his treatment does not seem to me to be definitive. When he started work, the Albertina collection was difficult of access, and yet by sleuthing around in the Hertziana archives and in forgotten publications he made two major breakthroughs. The first was that the group of drawings commonly accepted as early plans was not by Borromini and not for S. Carlo. Steinberg thinks of these drawings as vaguely “Marennesi—1620s”; I see them as projects by Borromini’s nephew Bernardo of about 1659–1667; in any case, once, as Steinberg puts it, the imposters have been driven from the field, an enormous amount of accumulated misinterpretation can be scrapped. The second breakthrough was the rediscovery and analysis of the authentic early plans for the church, in particular Albertina 171 (Steinberg’s Fig. 38), a smudged and dirty drawing which must surely be one of the most important and difficult documents in the whole history of Italian architecture. One senses that the scholar who unravels all of its mysteries will do so at some cost to his eyesight. Steinberg makes a start by diagramming what he sees as successive phases of the design, from a Michelangelotique quatrefoil at the start to the various compromises and adjustments of the final plan. He has some very sensible observations on geometry, which enters the design at a relatively late stage, one might say as the armature around which the plan is fixed rather than the generic code out of which it grows. Steinberg also examines briefly the other major plans and throws in a few new 18th-century drawings of the finished church and cloister. All this represents progress.

However, a number of points in the way Steinberg deals with drawings make me uneasy. There should have been a more precise definition of what constitutes the architect’s shop, not merely for reasons of connoisseurship, but for the purpose of determining where a drawing comes in the sequence of designs. Perhaps it does not matter much that drawings by the assistant Francesco Righi (Fig. 87) or by the inconstant hand of Bernardo the nephew (overdrawing on Fig. 48 and Figs. 138, 164) are not recognized when they occur, but important and problematic autograph sketches (Figs. 45, 88) are dismissed without real analysis as products of the shop. Often Borromini copies one plan from another and in so doing leaves clues to the exact sequence of the drawings; a close study of the originals will have to be undertaken to see if such clues exist. Not every drawing that differs from the actual building is an early project; Borromini tended to continue the process of revision even after his buildings were finished, and there are drawings for the Oratory and S. Ivo which at first glance look like early projects but which in fact relate to a publication enterprise of the architect’s late career. I suspect that two of the plans for S. Carlo, Albertina 168 and 173 (Figs. H and J), may belong to this category. If so then the whole question of the façade will have to be rethought: Steinberg’s arguments for an early date for the façade, formerly considered Borromini’s last design, rest on assumptions about the sequence of the drawings which are far from proven; Albertina 187 (Fig. 44) seems, contra Steinberg, to be a perfectly valid early sketch; and Albertina 186 (Fig. 45), far from being contemptible, shows the key principle of the expanding façade which is also at work at the Oratory. Finally, it is often the case that the heavy reworking of a Borromini drawing is connected to a crisis in patronage; this happens at the Oratory, and one wonders if Albertina 171 might not be an analogous case, that is, an older plan resurrected and reworked during the crisis of 1658, when the monks rejected Borromini’s over-elaborate design and Francesco Barberini (tempted by the bribe of a Barberini Chapel?) had to step in and persuade them to accept a church costing five times the amount they wanted to spend. In the end it may turn out that on many of these counts Steinberg was largely right; but the case is hardly closed and I suspect that his positions will take some buffeting.

The main contribution of the book lies in Steinberg’s interpretation of S. Carlo as a symbol of the Trinity. How did he come upon this idea, and how does it work? In writing a fortuna critica of the church Steinberg realized that 12 serious scholars had interpreted the plan in 12 different ways, most of them by positing a single primary shape which was then distorted as the design progressed. Steinberg’s conclusion was that all of these men were at least partly correct, each single interpretation being a simple facet of a complex truth, namely that the plan of S. Carlo is made up of three geometrical figures all present simultaneously: the cross, the octagon, and the oval (or circle). The cross comes from the suggestion of a Renaissance church with four equal arms, represented by the illusionistic coffers of the four apses; the octagon comes from the suggestion of the crossing of St. Peter’s; the oval comes from the compression of all of these forms into a shape that resembles a single temple in a circle like Vignola’s S. Anna dei Palafrenieri. The elevations and the decorative detail go to reinforce the three forms fused in the plan: the columns can allegedly be read in three ways; the wall mass behind them is divided into three horizontal levels; each crossing pier has three niches; each pendentive has three stucco angels; the cupola is given a coffering pattern made up of crosses, octagons, and circles (disregarding for a moment the many hexagons); and many of the smaller decorative forms, with some squeezing and stretching, show the same three figures. In the last chapter Steinberg tries to show how each of these three shapes is a symbol of the Church, and how, fused in “simultaneous triformity,” they achieve a “consubstantiality…conceived as the Trinity’s symbol.” Not all of Steinberg’s arguments are equally cogent, and the language, which tends to be drawn from the theology of transubstantiation, may put some readers off, but the main Trinitarian idea is clear enough, and 18 years later Steinberg endorses it as “a proposition no one would now contest, to wit, that the bravest baroque architect made his first building structurally contrapuntal in the service of a symbol.” Well, it is a proposition I would like to contest. Not the idea that S. Carlo contains Trinitarian ornament: it is loaded with it, from the piers to the lantern to the unexecuted sketches inscribed “tre et uno assieme,” and no one has unearthed more triloby in the design than Steinberg, who has an extraordinarily keen eye for details of this sort. What I object to is more fundamental. First, I think that this kind of architecture is perceived more in terms of concrete images than of abstract mental processes: the ordinary visitor to S. Carlo would have seen a St. Peter’s abbreviated, to use Steinberg’s fine phrase; the more informed spectator would have seen a range of allusions from Vignola and Raphael to the late antique architecture of Tivoli and Milan; the critic who was really au courant would have detected a subtle strain of competition with Cortona’s S. Luca e Martina. But in all cases the basic image is that of a four-armed church; I am not able to see fundamental Trinitarian symbolism, such as one does find later in the Sindicale in Turin, ingrained in the plan.

Second, it may be helpful to set up a clearer model of how the iconography of architecture works. An analogy I find helpful is the system of Euler’s diagrams used by logicians, which are sets of overlapping circles with some areas shared in common and some areas not. In a commission like S. Carlo one circle might stand for the architect, another for the ordinary unshod monk, another for someone like Padre Giovanni della Annunciata, procurator of the house and driving force behind the commission, a man with one foot in the world of Spanish asceticism and another in the splendor of the Barberini court. All shared a common culture and there were obvious areas of overlap. But there were also issues on which they were worlds apart, and the preoccupations of the architect, his need to make a statement to the profession and to take a stance
toward the great Renaissance models, were not necessarily the same as those of the monks who passed their time contemplating the divine and devising incantations to keep lightning off their cupolas. In the dynamics of a commission the area of overlap between these circles tended to grow artificially large at the point when the architect was about to be selected, and then to shrink as the design progressed, sometimes disappearing altogether when the architect attempted to justify or publish his early work in late career. For Steinberg, all these circles are one timeless static circle, and evidence from any quarter and any date is taken as a valid indication of the workings of the architect's mind.

Third, one cannot entirely neglect the economic and social dimensions of patronage. Steinberg is interested in a symbolism which emerged after elaborate formal analysis; what counts for him is the fact that the order was dedicated to the Trinity; he dismisses finances with the remark that the church was built with assistance from the Marchese di Castel Rodriguez. But how much assistance, what attracted it, and what was exacted in return? In fact the church was built on debt financing; Cardinal Barberini dodged the Trinitarians while at the same time pouring money into SS. Luca e Martina; the shadowy Castel Rodriguez was generous with promises but tight with actual gifts. Borromini astutely realized that the architecture would have to lure its own patronage in a way that no austere structure could ever do. Hence the basic lavishness of S. Carlo, not so much a richness of materials, obviously, but in inventiveness and wealth of allusion to alicial models; and hence also the element of bafflement, betrayal of ideals, and conflict that repeatedly surfaces in Borromini's relationship with his monastic patrons. To the already complex Euler's diagram of the commission we must add a number of invisible circles representing the potential patrons for whom the church was largely designed but who for the most part failed to appear.

In a sense it comes down to two different Borrominis. Steinberg's Borromini is a man committed to complex conceits and multiple meanings: "in an age much given to the traffic of emblems and allegory... (he) outdid most contemporaries in the role he assigned to symbolic action." His is an architecture for the learned: its iconography resides in a complex process by which plans are dismantled into abstract components in the spectator's mind; its symbolic ornament is meant to be deciphered on the pages of emblem books. In contrast, I feel that there exists a quite different Borromini, a man less immersed with theology and more concerned with the workings of patronage and the psychology of perception. His images are concrete and his architecture intensely allusive. He is a watershed figure who consciously sidesteps the generation of Fontana and Marder to draw, in a way that is at once retrospective and radical, on the great traditions of antiquity and the 16th-century Renaissance. He is deeply concerned with questions of scale and status; his early buildings are designed as lures for an aristocratic patronage that never really comes; his career is built on the fluidity of a society that, in a great thaw following the Counter Reformation, holds architecture to be the means and the expression of social rise. The "iconological" Borromini was indeed a brilliant construct, and Steinberg's creation is still more impressive than some of the paler versions of the same thing that haunt the literature of the past two decades. But even if it opens our eyes to many facets of the buildings it has never revealed the whole Borromini, and I wonder whether pursuing it further might even start to be.