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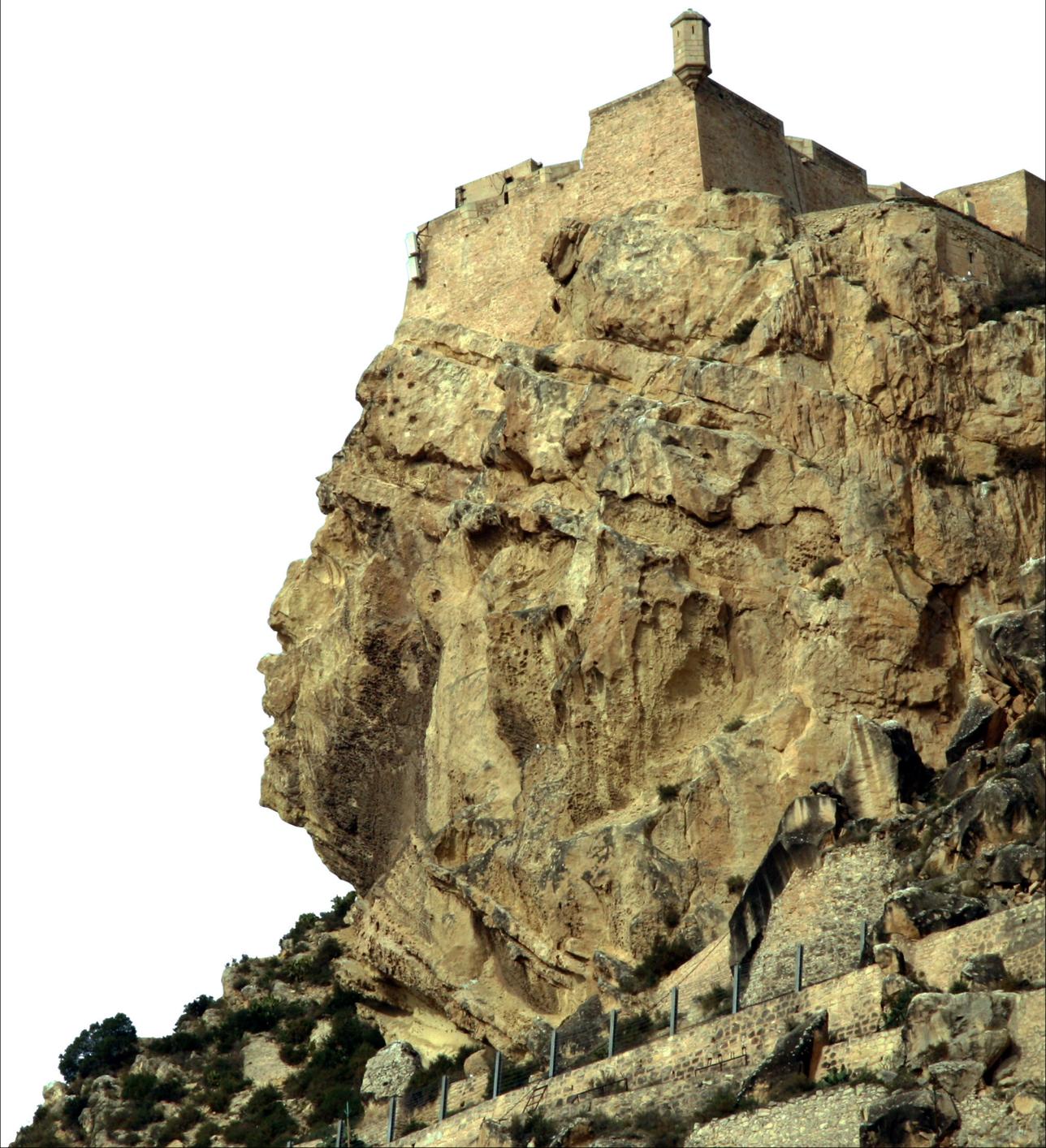
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# 5 DEFENSIVE ARCHITECTURE OF THE MEDITERRANEAN

XV to XVIII Centuries

Víctor ECHARRI IRIBARREN (Ed.)



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## City Gates. Proportional criteria and shape models for the design of Baroque gates in Turin

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### Abstract

Baroque Turin was the subject of three expansions, which involved the transformation of the city walls and the construction of new bastions and gates to access the city.

The gate named Porta Nuova was designed by Carlo di Castellamonte and built in 1620; the Porta di Po since 1674, with the contributions of Amedeo di Castellamonte, designer of the guard-house, and Guarino Guarini, designer of the façade towards the river.

Both gates were demolished in the early 19th century during the French occupation.

There are numerous archival and iconographic documents representing them, testifying to the design phases and variants over time and, in the case of Porta di Po, the foundation remains, discovered in the late Ninety during the works in the area.

Through graphical analyses and digital modeling will be proposed reconstructions, highlighted proportional criteria and set up comparisons with the different historical images.

**Keywords:** Baroque city gates, Turin fortifications, graphical analysis, digital modeling.

### 1. Introduction

During the 17th century in Turin, the first two expansions, planned as stages of city-fortress implementation, were completed (Comoli, 1998).

The first one (1619), towards south, was realized during the reign of Carlo Emanuele I, under the supervision of Carlo di Castellamonte, along the axis of Contrada Nuova, starting from Piazza Castello and ending in Porta Nuova.

The second one (1673) developed eastward in the direction of Po on the project of Amedeo di Castellamonte, during the reign of Carlo Emanuele II. It had as axis Contrada di Po and connected Piazza Castello to Porta di Po (fig. 1).

Baroque gates assumed functional values, related to the defense of the city and the collection of taxes, and symbolic meaning of triumphal access.

The baroque gates were characterized by the aulic façade facing outward, the guard-house, filter of entrance to the city, and the drawbridge, connected to a ravelin, which allowed to pass the moat around the walls. The typologically standardized guard-house was a two or three-storey artefact, symmetrical with respect to the passage axis. It formed a closed court with the gate, or it was a compact block, crossed by a corridor.

Re observes that "among the monuments of the Savoy Capital, the disappeared gates are certainly less documented and less studied, despite their intrinsic architectural significance, as evidenced in the plates of *Theatrum Sabaudiae...* and their decisive presence concluding the urban perspectives of Contrada Nuova and Contrada di Po" (Re, Subbrizio, 1998, pp. 189-190) (fig. 2).

In addition to the research of Re and Subbrizio, which carried out an archaeological excavation in 1997, during the works of refurbishment of the pavement of Piazza Vittorio Veneto, discovering a portion of the vestiges of Porta di Po (Re, Subbrizio, 1998), there are, related to the same gate, the documentary research of Cuneo (Cuneo, 2003) and, related to both Baroque gates, the reconstructions by maquettes of their hypothetical morphologies for an exhibition,

following a documentary research, made by Gritella (Gritella, 2013).

As will be seen, the textual and iconographic sources do not offer, especially from a metric point of view, decisive indications for defining the shape of the realized buildings, while philological reconstruction of the designs can be made and compared with descriptions and views to identify later transformations.



Fig. 1- Map of baroque Turin: the city-fortress. (*Theatrum Sabaudiae*, 2000, Tav. I, 8).

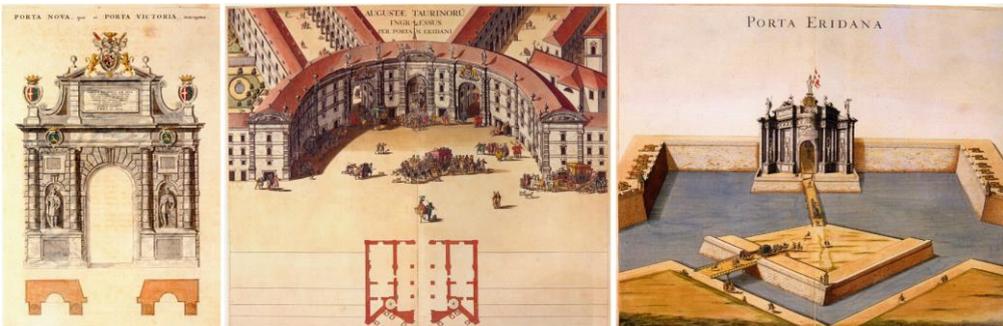


Fig. 2- Baroque gates in Turin. From left: Porta Nuova, plan of Porta di Po, perspective view of Porta di Po. (*Theatrum Sabaudiae*, 2000, Tavv. I, 23,24,25).

## 2. Porta Nuova: mannerist proportions and relationships with civil architecture

Porta Nuova was built in place of Porta Marmorea, "much more beautiful... aligned on the new walls to the south. It was called Porta Vittoria, because Carlo Emanuele I wanted his son Vittorio Amedeo, then prince of Piedmont, to make his ceremonious entry to the City through it among throngs of cheering people, on his return to the city after marrying Cristina of France" (*Theatrum Sabaudiae*, 2000, p. 266). Built between 1620 and 1622, on the design by Carlo di Castellamonte, it was demolished in 1801. The two-storey guard-house was a compact square-shaped volume crossed by the central passage.

Testimonies about the shape of this gate come from the textual description and the engraving in the *Theatrum Sabaudiae*, Tav. I, 23, on the drawing by Borghonio (1673-74), in which the gate is represented in plan and one-point perspective linked by projective correlation.

The gate is also represented in the frontispieces of the military engineering writings by Carlo Morello (1656) and his son Michel Angelo, written a few years later. The use of the image of Porta Nuova, as a frontispiece, highlights its value in the architectural culture of the time, but

led to some modifications: in both drawings, the pedestal is placed on a sort of predella and, in Carlo's drawing, the arch, was represented as architraved.

Michel Angelo's drawing, which Peyrot believes as executed for the *Theatrum* between 1663 and 1664 and lost in the fire of Blaeu workshop in Amsterdam (Peyrot, 2000, p.41), following the discovery by Viglino Davico and Bonardi Tomesani of the *Raccolta di "disegni militari*, could be considered the preparatory one for the engraving (Viglino Davico, Bonardi Tomesani, 2001).

It is a representation of the façade in orthographic projection. The graphical analysis, carried out by the author of this paper comparing the *Theatrum* plate with Michel Angelo Morello's frontispiece, highlights that, excluding the predella, the proportions between the two gates drawn are actually comparable. However, the two documents have not metric references: it is therefore only possible to verify the proportional relationships (fig. 3). The Ionic order complies 9 canonical modules for the height of the column and 2.25 for that of the entablature, while the pedestal is higher by measuring 3.5 modules instead of the usual 2.7 (Chitham, 1985).

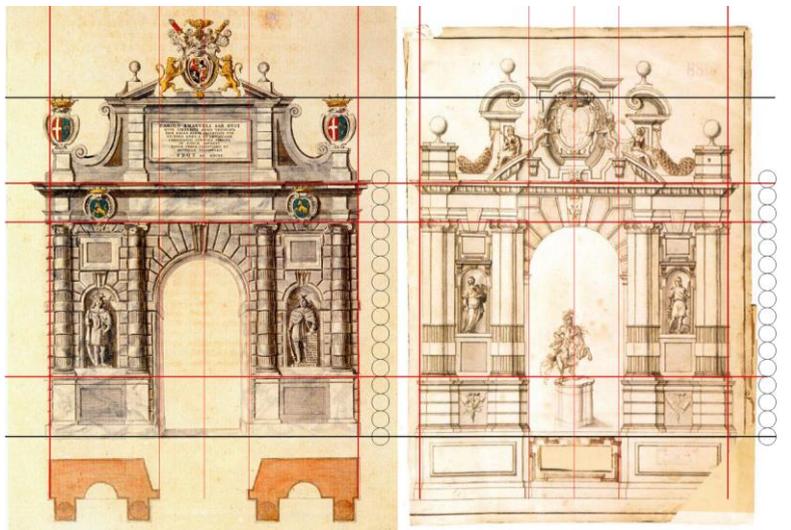


Fig. 3- Comparison between drawings of Porta Nuova. Graphical analysis by Roberta Spallone. (left: *Theatrum Sabaudiae*, 2000, Tav. I, 23; right: Viglino Davico, Bonardi Tomesani, 2001, Tav. 1).

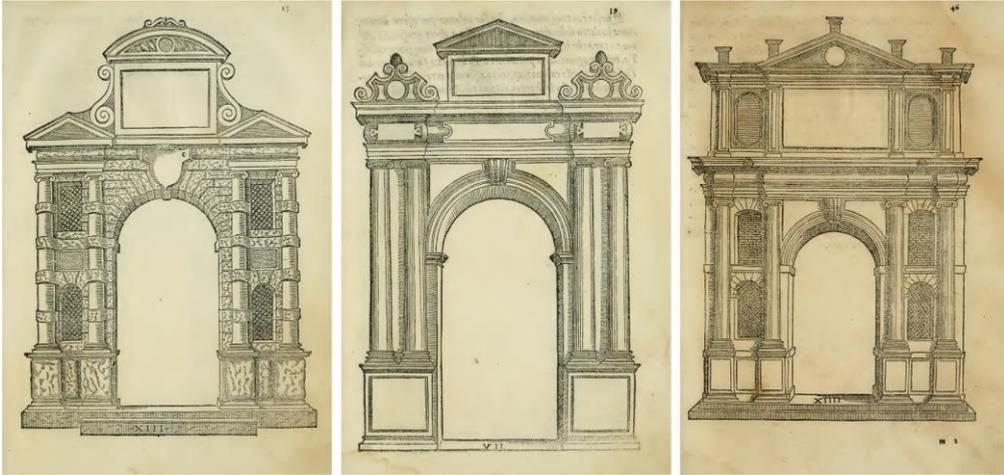


Fig. 4- 'Rustic' and 'Delicate' Doors of Ionic order. (Serlio, 1566, Tavv. 15, 39, 46).

Observance of the proportional ratios of the Ionic order, defined by the 16th century treatises, and the similarities that can be observed with the 'Rustic' and 'Delicate' Doors, present in the *Libro straordinario* by Sebastiano Serlio (1566) (fig. 4), refer the Porta Nuova to the ambit of Mannerist architecture, as Gritella also notes (Gritella, 2013, p. 149).

The shape model present in the drawing of the gate reflects in the field of civil architecture: the corner door of Palazzo Trucchi di Levaldigi (1673-77), by Amedeo di Castellamonte, located in the area of the southern expansion of the city, resumes its stylistic features (fig. 5).



Fig. 5- Main door of Palazzo Trucchi di Levaldigi.

It consisted of a guard-house, built between 1674 and 1680, under the guidance of Amedeo of Castellamonte, and a monumental façade, towards the Po, designed by Guarino Guarini, who supervised the realization from 1675 to 1680 (Cuneo, 2003). It was demolished in 1813.

Following the excavations of 1997, Re noted that the planimetric layout of the foundations of the guard-house "was closely connected to the drawing of the Guarinian façade, ... [leading] to think that it was not a simple adornment of a typologically predefined building, but it was the decisive element, and so the whole monument was somewhat inspired by the architect's idea, even within precise ambits of functional and spatial organization " (Re, Subbrizio, 1998, p. 198).

### 3. Porta di Po: the transgression from canon in a baroque *exemplum*

Porta di Po, or Porta Eridana, "eastern gate, turned towards the Po, almost a frontal entrance to the City and the most used of them all" (*Theatrum Sabaudiae*, 2000, p. 258), ended Contrada di Po, disposing obliquely with respect to it, as can be seen in fig. 1.

As Re observes, "although the orientation of the gate primarily depended from the position of the fortifications, it is almost aligned to the urban street pattern, and thus to those transversal streets that intersect obliquely Contrada di Po" (Re, Subbrizio, 1998, p. 193).

The façade of the gate was described by the French painter Charles-Nicolas Cochin who, during his journey in Italy, enjoyed the rounded corner angle and the thin Doric order made by alternated grooved blocks. On the other hand, he criticized the arrangement of metopes and triglyphs along the mistiline frieze and the reduced span of the passage (Cochin, 1758, p. 80).

The measurements taken during the excavations and the following hypotheses about the proportions in plan (Re, Subbrizio, 1998, Tav. LXXX), referring to the metric system of time, using trabucchi and piedi liprandi (1 trabucco  $\approx$  3.0825 mt, 1 trabucco = 6 piedi liprandi) allowed to make metrically stable and comparable the various representations of the gate. In particular, Re and Subbrizio define the measure of the façade as 9 trabucchi.

The perspective restitution and graphical analysis including the reading of the proportion of architectural order made by the author highlighted the dimensional variations between the functional elements of the gate (fig. 5). Guarini represents the elevation by a one-point perspective, in a plate of the *Disegni* (Guarini, 1686). Guarini's design consists of a monumental gate with an arch, characterized by a mixtilinear façade, with curves and salient, that reminds the movement of the main door of Palazzo Carignano (1679). The Doric columns appear particularly thin, given the height of 10 modules, unusual for that order. On the other hand, pedestal and entablature, correspond to the canonical proportions of the 'Doric First', with a height of 1/4 of the column (fig. 5C). To emphasize the movement and the verticalism of the façade Guarini drew three pyramidal pinnacles, one central and two lateral. The inscription shows that Guarinian drawing preexists the death of Carlo Emanuele II happened on 12 June 1675 (Re, 1998, p. 191). An additional element for a dating is provided by a document of 22 July 1674, which mentions the choice by Carlo Emanuele II of Guarini's design with the modification of the columns to be made into multiple pieces (Cuneo, 2003, p. 339).

The subsequent images, drawn by Tommaso Borgonio and dated 1674, come from the *Theatrum Sabaudiae*. The plate I, 24 represents the plan of the gate and the bird-eye perspective view of the exedra designed by Amedeo di Castellamonte; the plate I, 25, the elevation of the gate drawn in a perspective view. The plan is consistent with Guarini's elevation in the *Disegni* and with the findings of the archaeological excavation.

In the perspective view of the *Theatrum*, the gate height is reduced (of about 1 trabucco and 1 piede liprando, about 3.6 meters) comparing to the Guarinian design. It is due to the height of 9 modules attributed to the Doric order and the reduction of the pediment height (fig. 5D). However, the reduction of the heights is frequent in the *Theatrum* plates. Moreover, from the stylistic point of view, the columns become fluted.

A series of 18th century views portray the built gate, which differs from the original design.

In particular, in the view by Ignazio Massone, dated 1737, it is noted that, with respect to the Guarinian design, the gate preserves the general proportions, unless the reduced height of the arch, and a further lateral salient appears, resulting in growth of the width. Moreover, the facade is made heavier by the ashlar columns that increase their diameter (fig. 5A). However, ashlar columns are in the main door of Palazzo Carignano (fig. 5B). Meek observing that this feature recalls that of Sansovino's gates in Verona, states that, however, it is not known whether these changes are due to Guarini (Meek, 1988, p. 143).

The differences between design and building highlighted by the pictorial views are probably also the result of "a tormented realization" (Re, 1998, p. 195) recorded in the dispute that Guarini took with the city in 1679 with respect to the payment of his fee (Cuneo, 2003, pp. 340-341).

The uncertainties about the shape effectively built and the role of Guarini in its definitive realization emerge also in the cited researches.

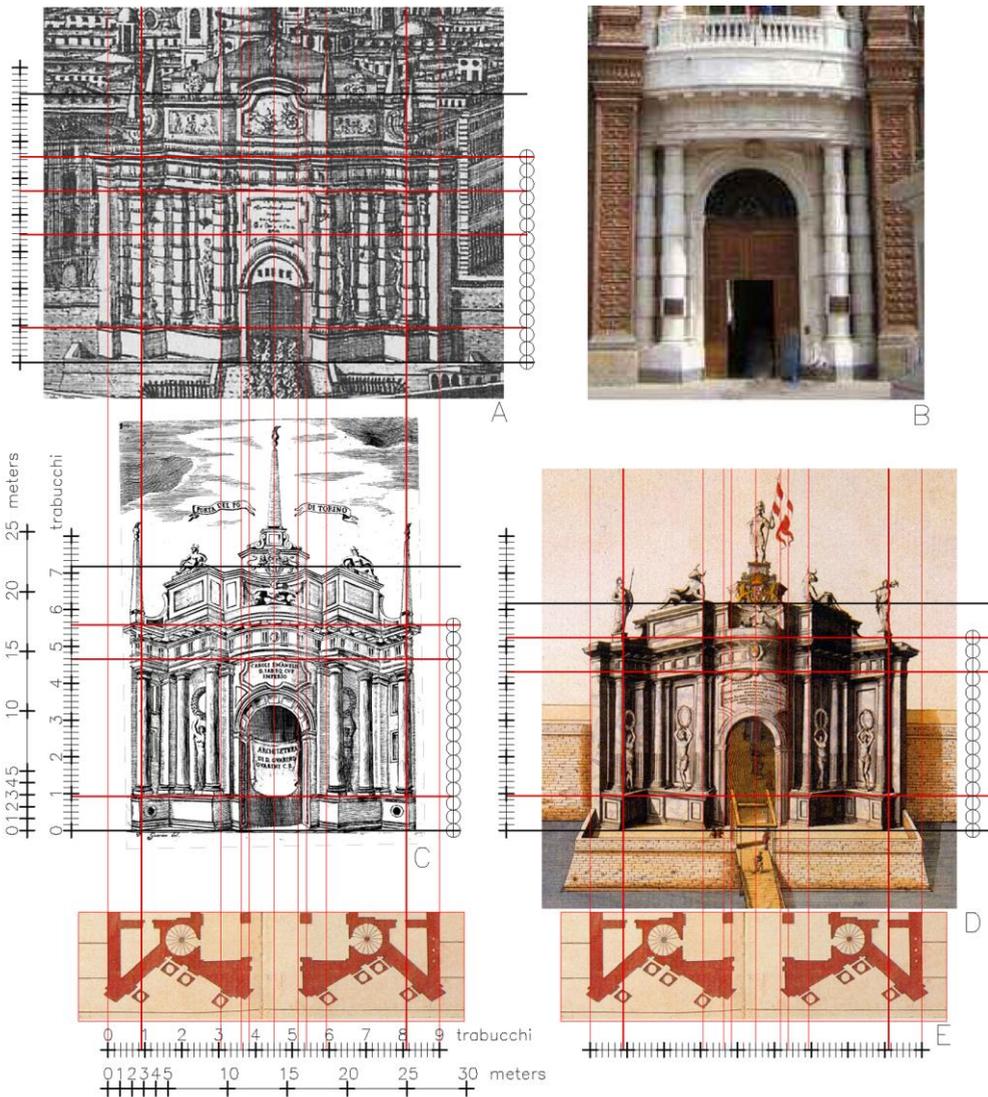


Fig. 5- Comparison between drawings and views of Porta di Po. View of Palazzo Carignano. Graphical analysis by Roberta Spallone. (5A: Massone, 1737; 5B: main door of Palazzo Carignano; 5C: Guarini, 1686; 5D: detail from *Theatrum Sabaudiae*, 2000, Tav. I, 25; 5E: detail from *Theatrum Sabaudiae*, 2000, Tav. I, 24).

For this reason it is interesting to go back to the primal idea which, from the comparison between historical iconographies, seems to live more clearly in the realized building than it seems.

Thus, a three-dimensional digital reconstruction of the Guarinian design in the *Disegni* was

carried out by deconstructing the functional elements of the order that compose the monumental arch (fig. 6) and the perceptual effect was visualized by setting a perspective at man-eye height (fig. 7).

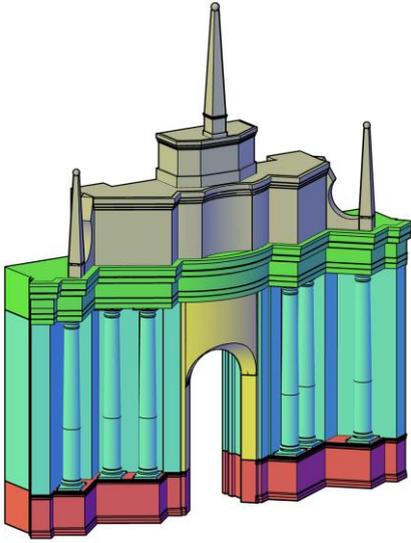


Fig. 6- Three-dimensional digital model of Porta di Po, from the design by Guarini published in the *Dissegni*. Deconstruction of functional elements of the gate: pedestal in red, column in cyan, entablature in green, arch in yellow, pediment in gray. Reconstructive digital model by Roberta Spallone.

#### 4. Conclusion

Disappeared baroque gates offer numerous reasons of interest to scholars, because of the links that interlace with the wall system, the guard-houses, and the additional external works and because of the morphological relationships with civil architecture. Graphical analysis and digital reconstructive modeling could actively contribute to discover the images of lost architectures, in many respects even mysterious.

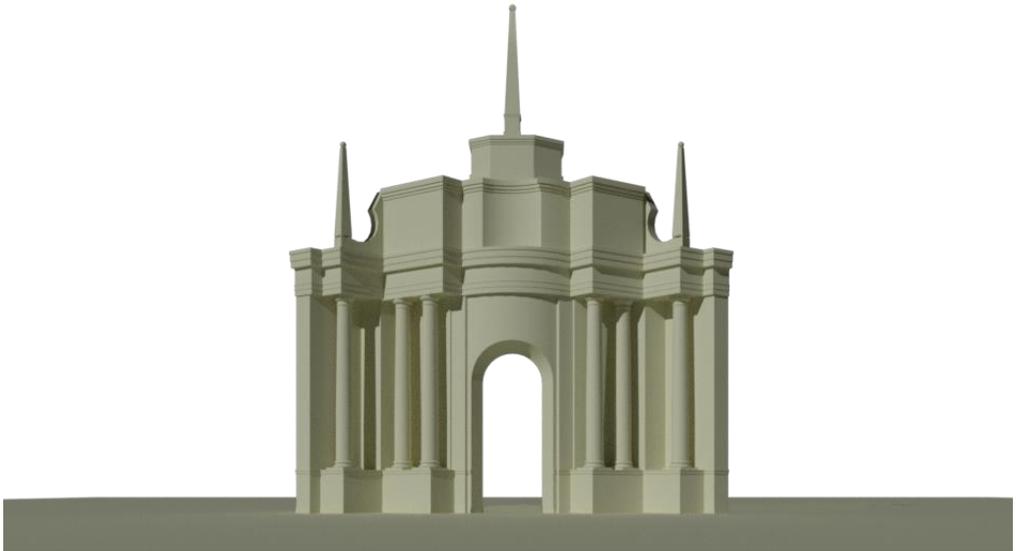


Fig. 7- Three-dimensional digital model of Porta di Po, from the design by Guarini published in the *Dissegni*. Rendering of the perspective view at human-eye height. Reconstructive digital model by Roberta Spallone.

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