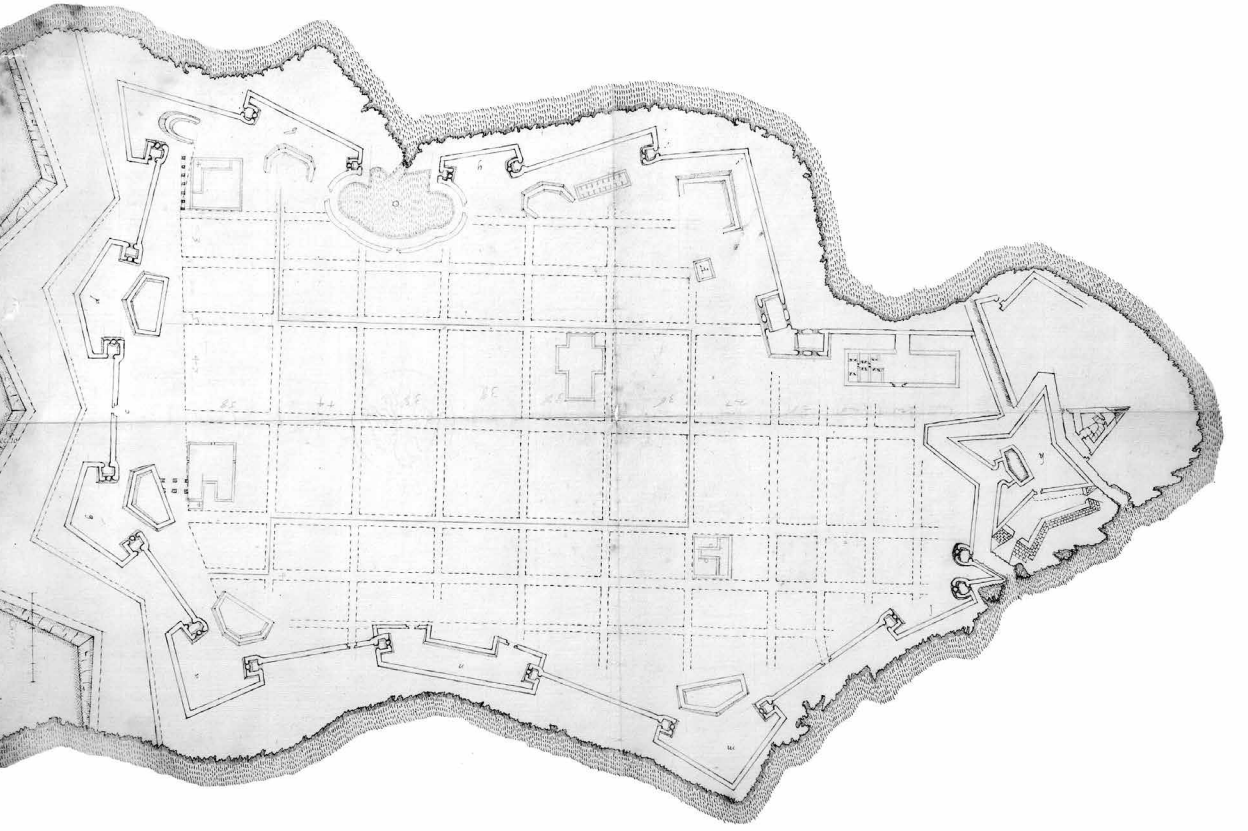
a cura di
PIETRO MATRACCHI

Laparelli 500

Francesco Laparelli (1521-1570)
Architetto militare

Atti del Convegno internazionale
Cortona, 1-2 ottobre 2021



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UNIVERSITÀ DEGLI STUDI FIRENZE
DIDA DIPARTIMENTO DI ARCHITETTURA

Accademia Etrusca di Cortona

Il volume riporta gli atti del Convegno internazionale "Laparelli 500. Francesco Laparelli (1521-1570). Architetto militare" e l'esito di un progetto di ricerca condotto dal Dipartimento di Architettura dell'Università degli Studi di Firenze con l'Accademia Etrusca di Cortona.
La pubblicazione è stata oggetto di una procedura di accettazione e valutazione qualitativa basata sul giudizio tra pari affidata dal Comitato Scientifico del Dipartimento DIDA con il sistema di *blind review*.
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La pubblicazione del volume è stata resa possibile grazie al contributo dell'Accademia Etrusca di Cortona.

in copertina

Francesco Laparelli, *Planimetria "C" della nuova città La Valletta*, Accademia Etrusca di Cortona.

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didacommunicationlab
Dipartimento di Architettura
Università degli Studi di Firenze

Impaginazione
Greta Angiovini

didapress
Dipartimento di Architettura
Università degli Studi di Firenze
via della Mattonaia, 8 Firenze 50121

ISBN 978-88-3338-227-2

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SOMMARIO

FRANCESCO LAPARELLI: THE FORTIFICATION OF CORTONA AND HIS ENTRY INTO THE MEDICI ENTOURAGE

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Detail of bastion close to the Girifalco fortress.

The construction of the Girifalco Fortress, which started in around 1526-29 (Gnerucci et al., 2009, pp. 93-95, 97), can be considered the premise for works that led to a profound re-thinking of the entire perimeter of the city walls in the following decades, with the addition of widespread fortified protections to improve the defence of Cortona.

In the initial phase, work on the fortress consisted of the reuse of pre-existing elements, the keep and a section of the walls: a closed courtyard was created by adding two connecting walls between the town wall and the keep (fig. 1).

In correspondence with this new structure, the construction of the bastions of Sant'Egidio and San Giusto began close to the external side of the walls, thereby creating a single fortified system (Matracchi, 2019, pp. 161-167).

In order to understand the program of works followed in the construction of the Girifalco fortress, a drawing by Giovan Battista Belluzzi is of great interest. It was part of an extensive documentation of fortresses prepared following a commission from Cosimo I on 29 December 1550 (Lamberini, 2007, p. 125). The Cortona fortress is represented in two different colours: the bastions of Sant'Egidio and San Giusto in red and the two remaining bastions of Santa Margherita and Santa Maria Nuova in yellow (Lamberini, 2007, Tab. 57).

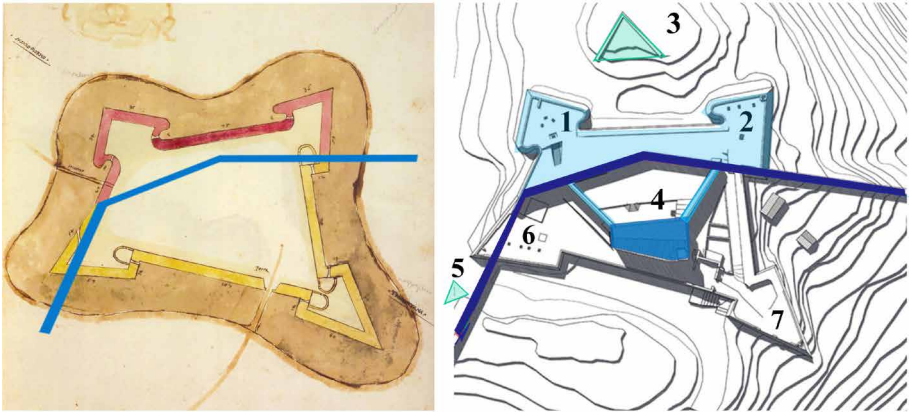


Fig. 1
(left) Giovan Battista Belluzzi, Cortona Fortress (from Lamberini, 2007), showing the position of the medieval walls (blue); (right) the plan of the fortress shows the first core with the courtyard (light blue) (4) and the bastions of Sant'Egidio (1) and San Giusto (2); the ravelin was added later (3); the construction of a bastion was started and then abandoned (5) and the bastions of Santa Maria Nuova (6) and Santa Margherita (7) were built (basic drawing Idone, 2008).

Fig. 2
Ravelin on the outside of the Girifalco Fortezza (see Fig. 1, number 3).

Fig. 3
Photo from the 1960s of the Girifalco Fortress, when the hill was still unwooded (from Gnerucci 2009).

opposite page
Fig. 4
Masonry traces of a bastion which was abandoned during construction, on the external side of the walls, at a short distance from the Santa Maria Nuova bastion (see Fig. 1, number 5).

If we superimpose the corresponding layout of the medieval walls on this drawing, we can see that the two colours highlight the existing bastions on the external side of the walls, those of Sant'Egidio and San Giusto, and those to be added on the opposite side (fig. 1).

However, in 1556 the external bastions were still being completed as on 21 September the military engineer Gabrio Serbelloni[1] informed Cosimo I that it was necessary to complete the parts beyond the vaults and some sections of the masonry (Gnerucci et al., 2009, pp. 97-98); while with regard to the ravelin placed in front of the bastions, which Belluzzi had not failed to highlight in his drawing due to the military relevance of this orographic detail, the only work that had been completed was the drafting of the design: "Al pontone di dreto dal castello non se li è per ancho facto altro salvo che se disegnato […]"[2]. In a subsequent letter dated 9 October, Serbelloni announced Cosimo I's decision to begin the construction of the two bastions positioned within the medieval city walls[3], which Belluzzi had indicated in yellow in his drawing, and therefore still to be built. Roughly at the same time, on 9 October (Gnerucci et al., 2009, p. 98), construction began on the ravelin placed on the raised area on the external side of the fortress (fig. 2).

It should be said that the fortress, with the adjacent sections of the walls, is now surrounded by a dense wooded area. However, an aerial image of Cortona from 1954 (fig. 3) shows the complete absence of vegetation, a condition that was more pertinent to the period in which the fortress was built due to the primary need for visibility and control of the adjacent areas. The ravelin in front of the fortress can easily be recognised in this image. On the western slope side, just outside the walls, the small relic of a bastion can be seen which attests to a rethink during the construction of the bastion of Santa Maria Nuova, initially placed in a more forward position, downhill of the existing one (figs. 1 and 4).

[1] On Serbelloni, among others, see Marconi, Fiore, 1978, pp. 188-283; Iacobone, 2005, 229-251; Freschi, 2005, pp. 139-142, 145-147.
[2] Idone, 2008, p. 108, Archivio di Stato di Firenze (ASF), Medici del Principato, 455, c. 299; document partially transcribed in Romby, 2005.
[3] Idone, 2008, p. 110, ASF, Mediceo del Principato, 455, c. 541.

The Medici modernization of the urban walls and the involvement of Francesco Laparelli

Gabrio Serbelloni and Bernardo Puccini, sometimes referred to as 'Puzino' in the letters[4], played an important role in the reorganization of the Medici defence systems. In the extensive correspondence with Cosimo I regarding the initiatives in Cortona, similar activities in Lucignano are mentioned[5]. Serbelloni was also involved in works on the fortifications of Arezzo, Portoferraio and Sansepolcro (Lamberini, 2007, pp. 73, 176; Marconi, Fiore, 1978, pp. 188-283).

A letter from Serbelloni to Cosimo I (16 August 1556) provides important information on the role of Francesco Laparelli:

> Avendo e m[esse]r Bernardo et io instruito bene di lop[er]a si hara a cominzare m[esse]r Fran[cesc]o Laparelo gientilomo di questa citta molto inteligie[n]te e affectionato servitore di V[ostra] Ecc[ellenz]a Ill[ustrissi]ma il quale in sua absentia et mia, sap[r]a metere a effecto questa op[er]a co[n] diligentia
> (Gnerucci et al., 2009, p. 97; Venuti, 1761, p. 4; Vella Bonavita, 2011).

It was therefore Gabrio Serbelloni and Bernardo Puccini who introduced Francesco Laparelli to the fortification work in Cortona, making use of his collaboration to continue the work they themselves had started and at least proposed.

Again with regard to Laparelli, an interesting passage from the *Memoria di quello saria daffar ala città di Cortona*, undated but attributable to Serbelloni[6], concerns the work that would have been necessary in Cortona:

> La qual pianta è facta da uno gientilomo di questa città qual è molto inteligiente e bon servitor di Vostra Eccellenza Illustrissima, sarà molto apposito sopra questi lavori che harà più amore ale cose di Vostra Eccellenza Illustrissima che ala città.

It seems entirely reasonable to assume that the gentleman who produced the plan was Laparelli himself and that this document should be considered prior to Serbelloni's letter mentioned above, by which time Laparelli was known to Cosimo I. These documents lead us to some observations concerning two drawings by Francesco Laparelli for the fortified system in Cortona published by Paolo Marconi (1970, fig. 1).

These are plans, on different scales, of the part closest to the top of the hill overlooking Cortona (fig. 5).

[4] Idone, 2008, pp. 95, 106, ASF, Mediceo del Principato, 454, cc. 752r, 1025r; on Puccini see Lamberini 1990; Lamberini, 2007, pp. 309-313.
[5] Idone 2008, pp. 95, 106-107, ASF, Mediceo del Principato, 454, cc. 752 r, 1018r.
[6] Gnerucci et al., 2009, p. 97; Romby, 2007; Idone, 2008, p. 94, ASF, Mediceo del Principato, 2134, cc. 270-271.

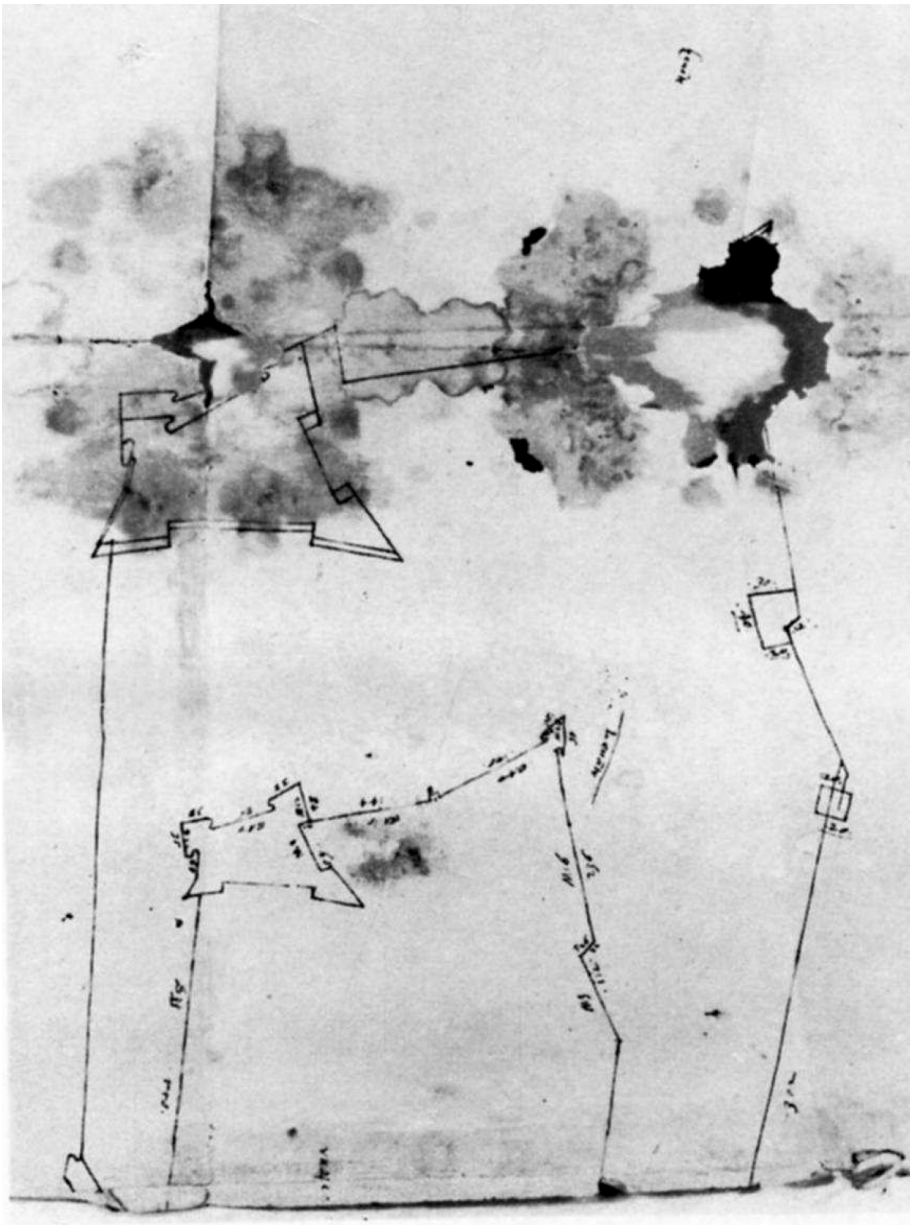


Fig. 5
Francesco Laparelli, drawing of the Girifalco fort (from Marconi 1970).

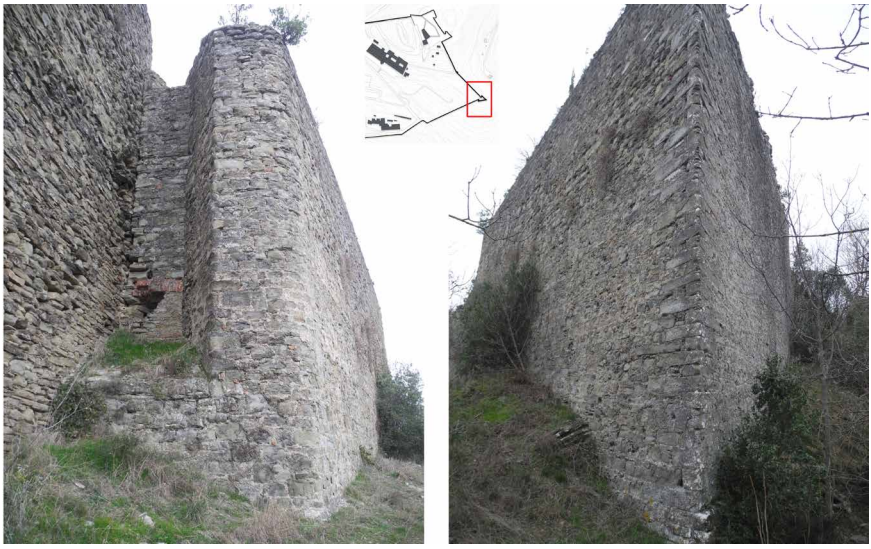


Fig. 6
Bastion to the south-east of the Girifalco fortress.

Fig. 7
Stretch of the walls between the Girifalco fortress and the bastion at the south-east corner of the area pertaining to the Santa Margherita sanctuary, with the intermediate medieval tower.

Fig. 8
Remains of a sentry box on the medieval walls.

The smaller drawing shows some measurements of sections of the fortress walls, some parts of the urban walls and the eastern bastion, which is wedged into the corner formed by the city walls. The bastion is delimited by orillons (the one further downhill is not fully circular), whose bends house posts for firing artillery close to the walls (fig. 6). It is considered contemporary with the comparable bastions of Sant'Egidio and San Giusto, belonging to the first phase of construction of the fortress. In the stretch of wall between the bastion to the east and the fortress a tower belonging to the medieval wall perimeter still survives today, but it is barely perceptible (fig. 7); on the external side it is hidden by dense uncultivated trees and climbing plants, while on the opposite side it is within the area belonging to the sanctuary of Santa Margherita. This is the last particularly valuable testimony of a system of towers which, according to the depiction of Cortona painted by Luca Signorelli in the *Madonna col Bambino e Santi protettori della città di Cortona* (Henry, 2023, p. 166), must have dotted the medieval city walls. In addition to the towers there were sentry boxes on the walls, evidence of which remains in the section that descends from the bastion of Santa Maria Nuova (fig. 8).
These elements were likely connected by a walkway at the top of the walls.

opposite page
Fig. 9
Cut off walls and retaining wall created on the inner side, close to the former Santucce monastery.

Returning to Francesco Laparelli's drawing, the larger one shows the repositioning of the Girifalco fortress, most likely following more accurate measurements. Furthermore, in the stretch of the city wall to the east, where two corners are created, small polygons are indicated with some measurements of the sides. One corresponds to the south-east corner of the area pertaining to the current sanctuary of Santa Margherita, where today the last stretch of Gino Severini's Via Crucis begins before reaching the square of this church; the other corresponds to an area slightly further downhill which was smaller and roughly square.

Considering that Laparelli seems to have played an active role since 1556, the areas he showed in the drawing with a generic dimensioned perimeter seem to be those potentially intended for work that would have extended the fortification of the walls. While the more defined drawings of the Girifalco fortress and the bastion further downhill to the south-east (fig. 6) are to be considered surveys of structures that existed or were partly under construction.

In any case, also following Laparelli's involvement, at least for a certain period, Serbelloni's presence is confirmed in the key role of the person who updated Cosimo I on the progress of the works, also offering reflections on the initiatives to be undertaken. Among the aspects Serbelloni touched upon, there is no shortage of unflattering comments about the work of Giovanni Camerini, who was involved in completing the works on the fortress and accused of disregarding what had already been established with Cosimo I (Gnerucci et al, 2009, p. 98).

The city's fortification program and works

Important information can be drawn from the intense exchange between Serbelloni and Cosimo I between 1556 and 1557 concerning some key points of the modernization of Cortona's city walls.

A first general look at the program of work to be undertaken can be drawn from the aforementioned *Memoria*, which, as seen, is thought to date prior to 16 August 1556.

The document starts with a negative assessment of the defence capabilities of the long stretches of walls in the highest part, close to the fortress. The reasons for the vulnerability were identified as the fact that the walls rise from the same height on the internal and external sides, exposing them to artillery fire that could have knocked them down to the foundations. Moreover, this curtain wall, as it was higher than the ground levels even on the internal side, would have prevented the enemies from being struck by artillery.

The proposal put forward was to transform the inner side of the walls into a retaining wall

through two main interventions. The first consisted of creating an external ditch, and in this regard the attention paid to the specific knowledge of the places is interesting as it was observed that there was little earth to excavate and soon they would come upon the "sasso ma non molto duro", making it rather easy to take apart. Furthermore, it was thought that once the rock had been excavated it would have been possible to create a useful counterscarp for greater wall height on the external side. This would have allowed the top part of the wall to be dismantled, using the resulting material to create a retaining wall on the inner side of the walls themselves. So the curtain wall would have been more efficient at resisting artillery strikes and, at the same time, visibility towards the outside would have improved.

This intent, if implemented, would have had a strong impact on the sections of the wall further uphill, less close to the urban centre. Later, however, the contemplated works were scaled back. Work was carried out on a section of the walls on the eastern side, perhaps considered more vulnerable as the adjacent external terrain was not so steep. This was the area at the height of the former Santucce monastery (Tafi, 2012, p. 334), now home to the University of Georgia, where a clear reduction can be seen in the height of the walls, which were transformed into a retaining wall, up to approximately the former Porta Berarda (Fig. 9). It is

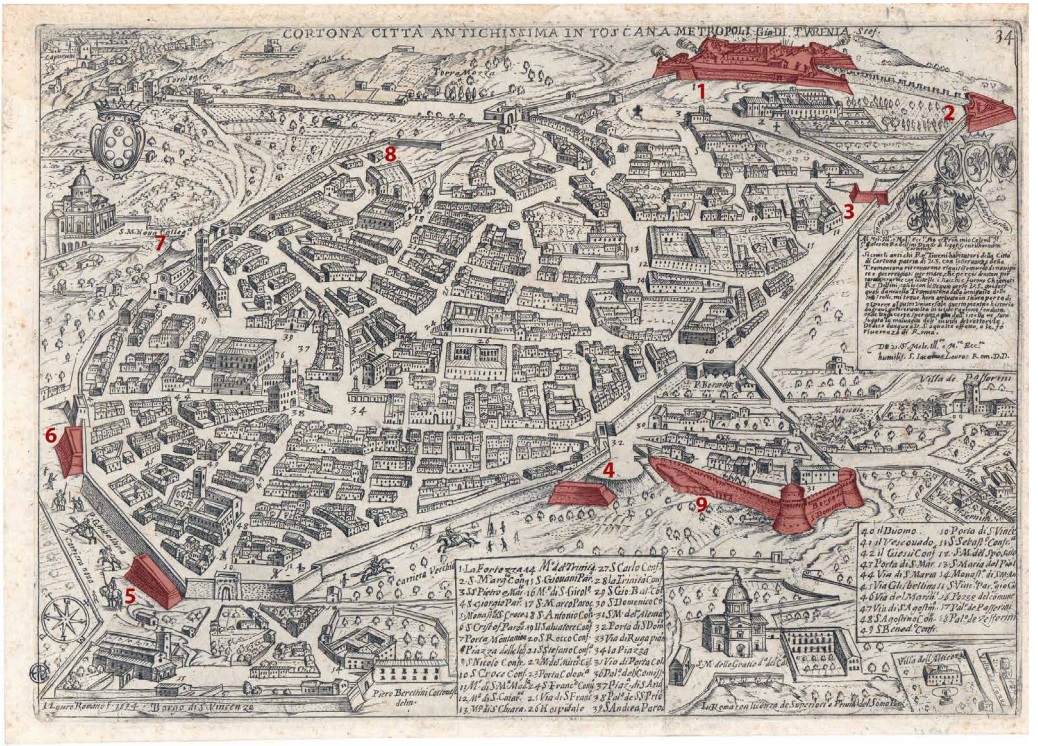


Fig. 10
Pietro Berrettini, map of Cortona (1634); the following are highlighted (red): Girifalco fortress (1), south-east bastion (2), bastion in the place of the dismantled Porta San Giorgio (3), the bastion of the Charcoal Pile (4) close to the San Domenico gate, the San Vincenzo bastion (5), the bastion adjacent to the Santa Maria Gate (6), the probable charcoal pile in front of the Colonia Gate (7), area of the place of arm between the Colonia Gate and the Montanina Gate (8), fortification of San Domenico neighbourhood (9).

the stretch where today the first stations of Gino Severini's *Via Crucis* follow one another; in any case, excavations of the external ditch were abandoned.

On the same side of the city walls, where Francesco Laparelli's drawing indicates two perimeters with dimensions, two works were planned. The first at the height of the church of San Giorgio, dismantled in 1661 (Tafi, 2012, pp. 277-278), but indicated in Pietro Berrettini's map of Cortona (1634)[7]; the 'a cavaliere' position indicated for the bastion of San Giorgio corresponds to the part of the layout of the walls where, within a short distance, two approximate right angles are formed (fig. 10).

[7] Biblioteca di Cortona e dell'Accademia Etrusca (BCAE), ms 425, *Cortona, Città antichissima in Toscana, metropoli già di Turrenia*, c. 2r.

Fig. 11
San Giorgio bastion placed transversely to the walls to protect the internal (left) and external (right) sides with the small rectangular windows in the southern walls.

Fig. 12
San Giorgio bastion, space of the arquebusiers and detail of a flue for smoke to escape.

This fortified structure, which was under construction in July 1557[8], consisted of two small galleries with posts for arquebusiers, who kept the internal and external sides of the walls under fire. In the short stretch between the two corners the bastion abuts the urban walls, which are strengthened with a scarped wall abutting the outer side; the corner ashlars of the original wall are partially visible in the lower part of the corner (fig. 11).
In this section the windows were created by breaking through the wall, as evidenced by clear traces visible in the basement room above them. A flue was created in the space in front of each small window so that the smoke produced by firearms could escape (fig. 12).

[8] Idone, 2008, pp. 113-114, ASF, Mediceo del Principato, 463, c. 79.

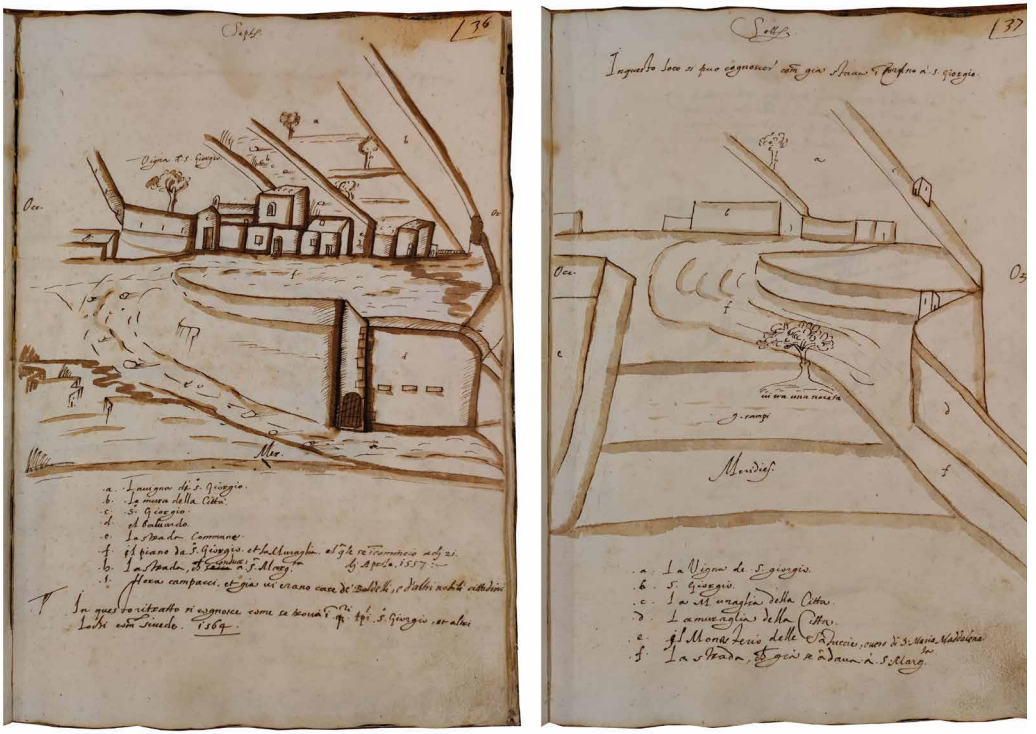


Fig. 13
Tommaso Braccioli, BCAE ms. 512, drawings of the area of San Giorgio Gate.

Some schematic drawings by Tommaso Braccioli (Cataldi et al., 1987, p. 290, figs. 5, 6; Tafi, 2012, p. 278)[9] , mostly contemporary with the bastion of San Giorgio, show the church of San Giorgio, a section of the city walls, and the new bulwark with small rectangular windows (fig. 13); the flat area which 'incominciò adi 21 di aprile 1557', identifiable as the place of arms obtained by filling in over the rooms of the bastion itself, is also indicated. In one drawing, Braccioli shows Porta San Giorgio close to the bastion. Nowadays the bastion is accessed from a small door on the external side of the walls; in one jamb of this opening we can see the addition of the sixteenth-century scarped wall to pre-existing masonry, which extends for the entire thickness of the city wall. This last small portion of the wall could have belonged to a jamb of Porta San Giorgio, the

[9] BCAE, Tommaso Braccioli, ms. 512, *Vedute* 17 di *Cortona intorno* al 1560, cc. 36, 37.

Fig. 14
Stone corbels on the wall testifying to the existence of a sentry box close to the former Santucce monastery.

remaining parts of which were completely erased during works on the bastion. In any case it must have been a small secondary door, or a postern.

In the stretch of wall that follows, in correspondence with the church of the former Santucce monastery, a sentry box was built on the lowered walls, of which some internal and external stone corbels that formed its base still survive (fig. 14).

The Borgo San Domenico gate area is described in the *Memoria* as very exposed to the slope outside the walls that stand above it ("offesa e discoperta per l'altezza del monte"). Here it was decided to use the spaces of two charcoal piles to extend the curtain wall of the bulwark towards the valley, which would have thereby dominated a very steep slope (fig. 10). A similar proposal was put forward for the charcoal pile located uphill from Porta Santa Maria ("la porta che vene a Fiorenza").

The description of the modernization works on the walls continues by focusing on the San Vincenzo Gate (now Sant'Agostino Gate) and Santa Maria Gate. The construction of a half bulwark was planned next to each gate so that each one could protect the walls between them, namely "difendese la cortina di l['']altro". It was recommended that the bulwarks be low in height, at the foot of the city walls; between the two bastions, a ditch would have increased the height of the walls (fig. 10). But on this side, due to the limited space available outside the walls, it was doubtful whether it would be possible to build even half a bulwark near Porta Santa Maria.

Of the walled section between Santa Maria Gate and Porta Colonia, the layout fragmented into several sides that prevent visibility from one bastion to the other, planned close to these gates, is emphasised. It was therefore suggested that this part should be defended with an additional bastion, smaller than the others due to the limited space left by the escarpment, but to be raised almost to the top of the walls in order to protect the adjacent sides of the cathedral and the Chiesa del Gesù. The sides of these buildings raised directly on the walls were considered to be particularly vulnerable to artillery strikes.

The dimensions of 40x50 "braccia" were indicated for the half bulwarks, warning that in some cases the depth had been reduced in relation to the contexts ("streteza de sitti") and that only that of Porta Sant'Agostino had the necessary width.

In the *Memoria* a comment was also reserved for the neighbourhoods of San Domenico and San Vincenzo. The first was judged to be well defended, but it was suggested that it be equipped with a scarped wall and a ditch on the edge of the perimeter. However, its abandonment was not ruled out and in this case it would have been necessary to dismantle the church of San Domenico as it was too imposing and close to the city walls ("muri dila terra"). The fate of Borgo San Vincenzo seems to have been sealed. It was immediately necessary to demolish some houses ("quatro casuze"), where the bastion would have been built near the gate; but, in the neighbourhood, it was suggested to prevent both further buildings and the restoration of existing ones, "che con questo in poco tempo andrà in niente".

In the *Memoria*, there was no shortage of accounts of the operational scenarios relating to the neighbourhoods, eloquently highlighting the vast extent of the demolitions involved in such cases by the modernization of the defence systems. The people of Cortona held Laparelli himself responsible for the extensive demolition work carried out there[10]. However, Serbelloni and Puccini actively participated in these choices. In a letter dated 26

[10] Cf. Roger Vella Bonavita in this volume.

August[11], they reiterated the need to demolish 'Borgo San Domenico' and the convent itself, deferring to the decision of Cosimo I. In any case, they deemed the dismantling of the houses near the charcoal pile inevitable; the houses to the left of the neighbourhood road on leaving the city would have survived. A few days later, upon Cosimo I's request for more details about 'Borgo San Domenico', Bernardo Puccini sent a memorandum with a plan, reiterating the same concepts, namely that this part of the city would become vulnerable if the slope above were to finish in "mano ai nimici"[12]. There is also a reference to the many poor people who lived in the neighbourhood and the fact that the demolition of their homes was not to be considered of the utmost urgency.

Some interesting aspects of the construction site emerge from the correspondence. Serbelloni complained about the difficulty of finding safe ground to support the bastions due to a characteristic rock that the people of Cortona called "bisciaglio, molto rovinoso e pendente"[13]; even today the term 'bisciaio' is commonly used to indicate a sandstone that has generally thin layers alternating with highly fractured levels (Trecci, Monaco, 2011, pp. 20-56). Wishing to avoid leaning on this rock arranged on inclined levels, it was decided to cut it; this work was necessary to build the bastion of San Vincenzo[14]. The dismantling of the urban walls to reduce their height proved to be highly demanding as the remarkable quality of the medieval wall structure in the area of the fortress required "tre piconieri [… che] con gran faticha fano poco lavoro"[15].

The phenomenon of demolitions linked to the construction of fortifications, which left the poorest population without homes, had a strong negative impact in numerous cities where new fortification work was carried out (Lamberini, 2007, pp. 57, 59, 70, 81-82).

Some of the key fortification interventions, described in the *Memoria*, are recalled by Gabrio Serbelloni in his subsequent correspondence with Cosimo I.

In a letter dated 16 August 1556, Serbelloni affirmed the plan of work in the *Memoria* stating its essential elements: the three half-bulwarks, the arrangement of the charcoal piles, and the creation of external ditches and embankments inside the walls. These works were considered the "principale sustantia della diffesa" of Cortona. While the intermediate protections on the sections of walls between Santa Maria Gate and Porta Colonia and the one near the Santucce monastery were considered less essential[16], with the latter likely reduced to a simple sentry

[11] Idone, 2008, pp. 101-102, ASF, Mediceo del Principato, 454, c. 972.
[12] Idone, 2008, pp. 106-107, ASF, Mediceo del Principato, 454, 1018r.
[13] Idone, 2008, p. 108, ASF, Mediceo del Principato, 454, c. 218.
[14] See note 3.
[15] Idone, 2008, pp. 108-109, ASF, Mediceo del Principato, 455, c. 299.
[16] Idone, 2008, pp. 97-98, ASF, Mediceo del Principato, 454, c. 753.

Fig. 15
Stone corbels of a sentry box in the area of the bastion between the Porta Colonia and the Porta Montanina.

box. Work had been underway on the bulwark of San Vincenzo since August 1556[17]; these activities were still attested in the following months of October and November, when Cosimo I was informed that the construction of the bastion of Santa Maria was imminent[18]. In July 1557, the latter was built to a height of four braccia and, at the end of the month, it was expected to reach the level of the "cordone"[19], the horizontal molding at the top of the scarped wall, where the parapet started and corresponding to the plan for the positioning of the artillery.

In a letter dated July 1557[20], Serbelloni attested to work to construct a "cavalere" (cavalier) between Porta Colonia and Porta Montanina of which there was no evidence until now (fig. 10). This bastion was probably placed in the corner of the most outwardly extending wall, from which the two gates are visible. In fact, traces of this intervention can be seen in this area. One consists of the substantial backfilling on the inner side of the walls, until reaching the top.

This structure must have been achieved by also reducing the height of the walls. Furthermore,

[17] Idone, 2008, p. 101, ASF, Mediceo del Principato, 455, c. 13 (in the ASF inventory the document is dated 1 September 1556).
[18] See note 3; Idone, 2008, pp. 111-112, ASF, Mediceo del Principato, 456, c. 381.
[19] See note 7.
[20] *Ibidem.*

Fig. 16
South side of the town walls; excerpt of the elevation showing the Sant'Agostino Gate (1) and the entrance gate (2) at the bastion of San Vincenzo which no longer exists.

at the level of the "cavalere" floor, there are traces of a sentry box, positioned right on a corner of the walls, evidenced by three stone corbels resting on a horizontal cornice (fig. 15).

Two drawings by Tommaso Braccioli can also be traced back to these works, which testify to backfilling from April 1557 between the church of the confraternity of San Salvatore, later dismantled (Tafi, 2012, p. 311), and the urban walls (Cataldi et al. 1987, p. 290, figs. 3, 4). One of these drawings, in the San Salvatore area close to the walls, contains the following note: "El piano d[e]lla spianata et [s]i cominciossi adi 21 di aprile 1557".

In this same area, where the walls form a bend, a straight scarped wall was built against the walls themselves. In this case it was an addition subsequent to the sixteenth-century modernization of the walls, aimed at creating a road, the outermost part of which fully overlaps the walls.

An important iconographic source on the modernization of the walls is the aforementioned map of Cortona by Pietro Berrettini, better known as Pietro da Cortona, which shows fortifications that were later lost, such as the bastion of San Vincenzo, next to Porta Sant 'Agostino (fig. 10). The bastion of San Vincenzo is reported in the Leopoldian land register (1824)[21].

It was located close to Porta Sant'Agostino, in the place now characterized by prominent rock outcrops, the 'bisciaio' referred to in Serbelloni's letter. A surviving trace that still today testifies to its existence is a rusticated door, whose current structure appears to be a characteristic niche created in the walls (fig. 16).

The door led behind the walls, where over time a building was added and the street level gradually became higher. In fact, if we place the section of the walls with the rusticated door

[21] See: https://www502.regione.toscana.it/castoreapp/1_viewer-report-others.jsp?id=126A301I, (03/24).

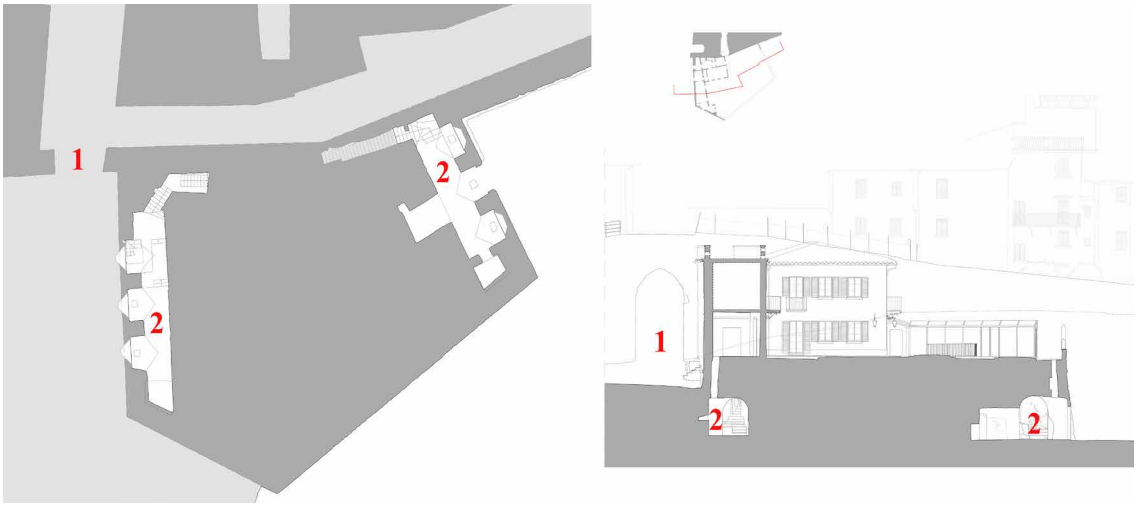


Fig. 17
Plan and section of the Santa Maria bastion, indicating the homonymous entrance gate to the city (1) and the underground spaces with loopholes (2) (basic drawing D'Andraia 2023).

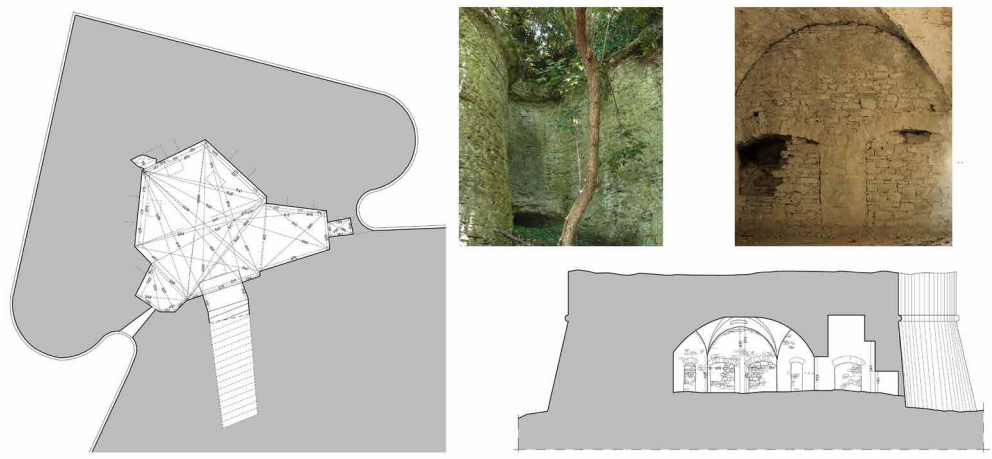
opposite page
Fig. 18
Girifalco Fortress, Sant'Egidio bastion, the plan and section show the huge wall masses largely made up of earth (Idone, 2008).

in relation to the current road levels behind it, we observe that the latter rise significantly above the door.

The bastion of Santa Maria has survived with much of the original structure, thanks to the building that was erected there[22]. It has a clearly recognizable external scarped wall, concluded by a continuous semicircular cornice; vertical masonry that went beyond the original place of arms, now transformed into a garden, continues for a short stretch. The almost intact basement level has rooms with openings that allowed the southern side of the wall perimeter and the access to Santa Maria Gate to be monitored and defended with firearms (fig. 17). These posts, three on each side, were covered by a barrel vault, which was inserted into a further larger longitudinal barrel vault; the smoke generated by the detonation of the firearms escaped through flues which, above the firing posts, rose up to the place of arms above. The last offshoot of these rooms, on the downhill side, has higher vaulted roofs, which almost touch the upper floor. Stairs, located close to the city walls, connected both rooms to the place of arms above, from which all the surrounding areas were dominated from Santa Maria Gate to Sant'Agostino Gate. The top of the bastion is connected to the city via a passageway created through the walls, in an area close to present-day via Roma.

In the basement area towards the southern side of the walls, when the bastion had lost its

[22] I would like to thank Julia Festervan for allowing a laser scanner survey of the Santa Maria bastion to be conducted, making its study possible for the first time.



military function, the central window was then transformed into a door to access the basement directly from the outside.

In the room on the opposite side, the windows are now well below the street level. The position of the one closest to Santa Maria Gate is around 4.00 m lower than the road. From this it can be deduced that the construction of the bastion led to the regularisation of the surrounding ground levels, significantly lowering those near Porta Santa Maria. After the construction of the bastion, the latter no longer provided easy access to the city.

Between the two side rooms of the basement is a large area most likely filled with earth, forming the main volume of the bastion (fig. 17). The sections highlight that even the basement rooms are necessarily covered by a considerable layer of earth, of at least 2.30 m.

The solution of the bastion with small interior spaces, placed next to large areas filled with earth, has a precedent in Cortona in the works recently carried out in the Girifalco fortress. In the Sant'Egidio bastion it can be seen that the approximately hexagonal space of the casemate is included in a perimeter mainly filled with earth (fig. 18). In this case too the interior space had ventilation flues and there is a considerable layer of earth above the vault. Here, the volume completely filled with earth was arranged on a large perimeter band of the bastion, where the artillery movement manoeuvers were probably concentrated.

This first overview of the sixteenth-century fortification system of Cortona, to be further explored also in specific studies of some bastions that were almost unknown until today, shows the systematic nature and breadth of the work program implemented.

The Girifalco fortress itself, characterized by four bastions which mark the salient and emblematic aspect of the defence of Cortona, becomes more complete in its meaning when placed in the context of the works that studded the entire medieval city walls, pursuing the intent of guarding and defending every stretch of them. These choices were closely linked to the study of the specific conditions of the orography of the hillsides and the unique layout of the walls, which form more or less accentuated angles. In a letter sent to Cosimo I on 25 August 1556, Serbelloni gave a precise date for the start of these works: "Heri si cominciò a dare principio a l'opera per la fortificazione di questa città […]"[23].

The extremely heavy economic commitment of similar modernization work to the defence system meant that it was done gradually and without renouncing the reuse of pre-existing constructions. Nor did the construction of the Girifalco fortress, as seen, escape this intent. These works, which created a quadrilateral structure with bastioned corners, spanned the second quarter of the 16th century and continued until around 1556-1557, when they were mostly completed[24] and the fortification of the entire city began.

To tackle such an ambitious objective, considering the extent of the entire wall perimeter, two different approaches were taken. One consisted of building bastions in the most important areas, or those deemed most vulnerable. The alternative, less expensive solution was based on reusing the pre-existing walls, with a need for manpower that was essentially limited to demolition workers, known as 'guastatori': the height of the walls was reduced, which were then used to create retaining walls on the inner side up to the top of the same cut off walls[25]. This was an economical way to make the walls more resistant to strikes from heavier firearms and to obtain areas, if necessary, to be used as places of arms where artillery pieces could be kept. In such cases, sentry boxes were built on the edge of the walls, traces of which remain; while the intention to add ditches on the outer side does not appear to have been carried out.

The first bastion to the south-east of the fortress is to be considered, as seen, due to its shoulder with orillons, as a work linked to the construction of the bastions of Sant'Egidio and San Giusto. In fact, in Berrettini's plan the only stretch of wall between these parts has merlons (fig. 10): this would suggest the existence of a walkway on the walls connecting these bastions.

The remaining bastions, attributable to the period in which Laparelli intervened, as of 1556, have a rectangular or polygonal plan and at least four were built.

[23] See note 16.
[24] In 1568 it was hoped that the fortress would be equipped with a drawbridge and 'watch towers'; Idone, 2008, p. 117, ASF, Medici del Principato, 2134, cc. 357-360.
[25] For the manpower employed in the construction of the new fortifications, see Ferretti (2005, pp. 85-90).

Continuing from the east side of the walls, the first one we come upon is that of San Giorgio; followed by two bastions which were later dismantled, one near the former gate of San Domenico, still documented in 1799 by a drawing by Ubertino Boni of the area in front of Porta San Domenico where the bulwark is indicated (Cataldi et al., 1987, p. 291 fig. 12); the other was adjacent to San Vincenzo Gate (today Sant'Agostino). The southernmost side of the walls was guarded by the latter and by the bastion of Santa Maria, partly transformed into a residence. There is no trace of a further bastion, similar to that of San Domenico, planned between Santa Maria Gate, and Porta Colonia. In this section of the walls, only the trace of a sentry box remains.

However, the construction of retaining walls on the edge of the walls is evident. One is located where the wall layout creates a bend between Porta Colonia and Porta Montanina (fig. 10, n. 8), an area now crossed by roads (between Via delle Fontanelle and Via del Salvatore). A larger retaining wall was created between the disused Porta Berarda and the bastion of San Giorgio.

There are few references to project drawings in the documents; reference is made to plans which in some cases seem mainly aimed at clarifying the progress of the works to Cosimo I. The widespread nature and concurrence of the interventions, the operational details of each context which sometimes also dictated the sizes of the bastions, are all conditions of the operational situation which made direct presence at the construction site more relevant than ever and in this Francesco Laparelli may have played a crucial role in countless design choices that were then constructed.

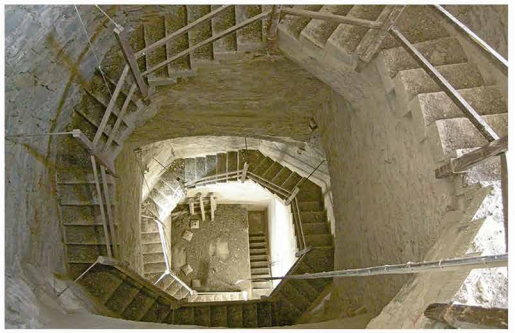
This experience must have consolidated relationships with Serbelloni and paved the way for Francesco Laparelli to obtain other prestigious assignments in Rome, up to the Valletta project (Vella Bonavita, 2011)[26]. In conjunction with this last assignment, he was again able to contribute to a project in Cortona, the reconstruction of the bell tower of the cathedral of Santa Maria Assunta.

The bell tower of Cortona cathedral

The story of the reconstruction of the bell tower of Cortona cathedral has already been retraced by relating the available indirect sources - memoirs, archive documents and iconographies - to the direct ones, gathering information from the analysis and interpretation of the wall structure (Matracchi, 2009, pp. 74-91).

Reconstruction work on the bell tower is documented in the years 1563-1565. The

[26] See, Nicoletta Marconi and Conrad Thake in this same volume.



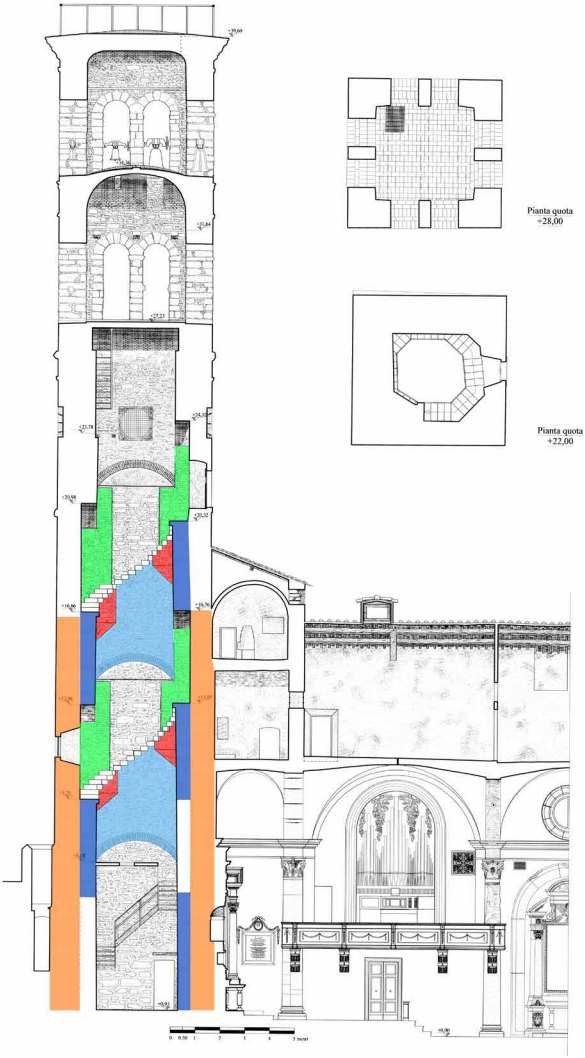


Fig. 19

Cortona, cathedral bell tower; (left) masonry staircase leading to the belfry and detail of a triangular masonry corbel; (right) section of the cathedral bell tower; in order to create a continuous masonry staircase on the entire perimeter, in the reused section of the bell tower (orange) corner pillars were added (green), which support arches with wall (blue) and corner masonry corbels (red).
At the base of the bell tower, the structure of the staircase was changed during the restoration in 1938.

intervention attributable to Francesco Laparelli consisted of the skilful reuse of part of the pre-existing bell tower, which survived to a height of approximately 15.00 m. It was then raised and given a new belfry, until it reached a height of over 34.00 m. A further belfry was added later.

Despite the operating limits posed by the choice to raise the surviving part of the pre-existing bell tower, a particularly ambitious construction device was set up, which allowed a continuous masonry staircase to be built, following the perimeter of an irregular octagon which creates the effect of a spiral staircase in the internal open chamber (fig. 19).

This was achieved by adding internal structures to the pre-existing square bell tower. On each of the sides masonry was placed at increasing heights passing from one wall to the other, in order to accommodate the rising staircase. The masonry was supported by arches which, in turn, rested on triangular pillars built in the corners. Furthermore, masonry corbels were added at the corners. This enabled the staircase to cross the diagonal sides and then continue on the masonry supported by arches. Above the level of the pre-existing bell tower, this complex device was created in a single phase, together with the perimeter walls.

References

Cataldi G. et al. 1987, *Cortona Struttura e storia*, Editrice grafica l'Etruria, Cortona.

Ferretti E. 2005, *Centro e periferia. L'organizzazione dei cantieri della difesa nella Toscana di Cosimo I*, in G.C. Romby (a cura di), *I cantieri della difesa nello stato mediceo del Cinquecento*, Edifir, Firenze.

Freschi P. 2005, *Lavori alla muraglia della città. Le fortezze aretine in età moderna*, in G.C. Romby (a cura di), *I cantieri della difesa nello stato mediceo del Cinquecento*, Edifir, Firenze.

Frescucci B. 1966, *La Fortezza di Cortona*, Bonazzi, Sondrio.

Gialluca B. 2009, *La fortuna di Francesco Laparelli a Cortona*, in E. Mirri (a cura di), *Francesco Laparelli. Architetto cortonese a Malta*, Tiphys Edizioni, Cortona.

Gnerucci A., Idone M.T., Marzo D. 2009, *Interventi laparelliani nella fortezza di Girifalco*, in E. Mirri (a cura di), *Francesco Laparelli. Architetto cortonese a Malta*, Tiphys Edizioni, Cortona.

Henry T. 2023, *Catalogo delle opere*, in T. Henry (a cura di), *Signorelli 500. Maestro Luca da Cortona, pittore di luce e poesia*, Skira, Milano.

Iacobone D. 2005, *Città e fortificazioni della costa pugliese: un itinerario militare di Gabrio Serbelloni (1566)*, in A. Marino (a cura di) *L'architettura degli ingegneri. Fortificazioni in Italia tra '500 e '600*, Gangemi, Roma.

Idone M.T. 2008, *Il sistema bastionato esterno alle mura della fortezza del Girifalco a Cortona. Storia e progetto*, Tesi di laurea magistrale in progettazione dell'architettura, Relatore: G. Pirazzoli, Correlatori: A. Belluzzi, P. Matracchi, a.a. 2007-2008, Facoltà di Architettura, Università degli Studi di Firenze.

Lamberini D. 1990, *Il principe difeso: vita e opere di Bernardo Puccini*, Giuntina, Firenze.

Lamberini D. 2007, *Il Sanmarino: Giovan Battista Belluzzi architetto militare e trattatista del Cinquecento*, T. I, *La vita e le opere*, Leo S. Olschki Editore, Firenze.

Lauro G. 1981, *Dell'origine della città di Cortona in Toscana e sue antichità*, Arnaldo Forni Editore, Bologna, (ristampa).

Marconi P., Fiore F.P. 1978, *I castelli. Architettura e difesa del territorio tra Medioevo e Rinascimento*, Istituto Geografico de Agostini, Novara.

Marconi P. 1970, *Visita e progetti di miglior difesa in varie fortezze ed altri luoghi dello Stato Pontificio*, Calosci, Cortona.

Matracchi P. 2019, *La fortezza del Girifalco: tecniche costruttive e caratteri di un'architettura*, in B.G. Marino (a cura di) *Across the Stones. Immagini, paesaggi e memoria. La conoscenza interdisciplinare per la conservazione e la valorizzazione della Fortezza del Girifalco*, Editori Paparo, Roma.

Matracchi P. 2009, *Il campanile laparelliano del duomo di Cortona. Contesto, architettura, restauri*, in E. Mirri (a cura di), *Francesco Laparelli architetto cortonese a Malta*, Tiphys edizioni, Cortona.

Romby G.C. 2005, *Dentro la Fortezza. "Artiglierie, monitioni, vettovaglie e soldati" nelle fortezze di Cosimo I dei Medici*, in A. Marino (a cura di), *L'architettura degli ingegneri. Fortificazioni in Italia tra '500 e '600*, Gangemi, Roma.

Romby G.C. 2007, *Il principe e i primi costruttori di fortezze*, in G.C. Romby (a cura di), *Architetti e ingegneri militari nel Granducato di Toscana. Formazione, professione, carriera*, Edifir, Firenze.

Tafi A. 2012, *Immagine di Cortona. Guida storico-artistica della città e dintorni*, Calosci, Cortona.

Trecci T., Monaco P. 2011, *Le ichnocenosi delle successioni sedimentarie Eocenico-Mioceniche affioranti tra il Lago Trasimeno e l'Alpe di Poti (Appennino Settentrionale)*, "Annali dell'Università degli Studi di Ferrara, Museologia Scientifica e Naturalistica», Vol. 7.

Vella Bonavita R. 2011, *A gentleman of Cortona. The life and achievements of Capitano Francesco Laparelli da Cortona (1521-1570)*, vol. texts, PHD, University of Malta.

Venuti F. 1761, *Vita del Capitano Francesco Laparelli da Cortona*, Fantechi, Livorno (rist. 1979, Calosci, Cortona).

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2024