

Galasso Alghisi, 1570

Delle Fortificazioni

di M. Galasso Alghisi da Carpi
 Architetto dell'eccellentissimo
 Signor Duca di Ferrara.
 Libri Tre. All'Invittissimo Imperatore
 Massimiliano secondo Cesare
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Pages 406
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Synthetic Index

Libro I. I discorsi delle fortezze - *Discourses on Fortresses*

Libro II. Del formare e comporre le fortezze in disegno per ordine geometrico d'alcuno sin qui non usato - *On forming and composing fortresses in design according to a geometric order hitherto unused*

Libro III. Della materia, e altre cose pertinenti per mandar la fabrica a perfetto e ottimo fine - *On the subject, and other matters relevant to bringing the factory to a perfect and excellent conclusion*

Link to resource consulted

↗ [Archive.org](#)
 (last consultation 15/12/2025)

↗ [E|rara](#)
 (last consultation 15/12/2025)

↗ [Gallica.bnf](#)
 (last consultation 15/12/2025)

Introduction to the volume

Author

Galasso Alghisi

Year

1570

Shortened bibliographic reference

Alghisi_Delle Fortificazioni

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Venezia
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Brief Publishing history ¹ [Annotation on pg. 04](#)

Delle fortificazioni di M. Galasso Alghisi da Carpi
Architetto del Duca di Ferrara. (1570).
Reprinted in Venice in 1575.

Scientific Analysis Data

Identified Units of Measurement

Ancient Roman geometric pace of 5 feet = 1.477 m
1 foot = 0.296 m

Sites Dissertation

Yes

Geometric Constructions

Yes

Construction Techniques and Materials

Yes

Second Flank Applications

No

Dissertation of Outworks

Complete tenaille system

Irregular Fortification
Geometric Construction

No

Earth-only Fortifications

No

Reference to other Treatises

References to the work of Maggi and Castriotto
(Libro I_Capp. X – XII)

References to existing or demolished fortifications

Mentioning the fortress cities of Siena, Perugia, Sanleo, Camerino, mountain fortresses that were considered the most impregnable during the 15th century, but, says Alghisi, Siena with its republic fell under the rule of the Medici, precisely because of its position in an extremely rugged terrain, it was unable to withstand a long siege. Vienna, Parma and Mirandola are also mentioned as flatland fortresses that were never besieged, followed by Venice as an example of fortresses surrounded by water. (Libro I_Proemio_pp. 10-12)

Additional information

Further notes on the topics covered

Invention of the tenailles system.

The bastioned system features:

- a curtain wall broken between two bastions (with orillons)
- a stronghold in the side of the bastion
- a cavalier (except for the smallest)

Detail of the elevation: the bastion is scarped, so as never to offer a surface perpendicular to the firing line of the cannons. In the front elevation of the bastion, the cavalier can be seen at the top.

Essential critical bibliography

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↗ [Treccani](#) (last consultation 15/12/2025)

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Additional information

Annotations

- 1 The *editio princeps* of the treatise *Delle fortificazioni* di M. Galasso Alghisi da Carpi Architetto del Duca di Ferrara was printed in Venezia in 1570 and dedicated to the emperor Massimiliano II (Promis, C., 1841, pp. 83,84). Promis believes that Alghisi may have finished writing the treatise as early as around 1560, referring to the dispute between himself and Giacomo Castriotto, whom Alghisi accused of copying his idea of the pincer front, presented at the Dieta of the fortification in Rome. The three books were reprinted in Venice in 1575, *“una versione men bella”* (Promis, op. cit., p. 83), currently unavailable.
- 2 Invention of the complete tenailles system - predating those of Landsberg (XVII sec.) and Montalembert (XVIII sec.) (Zerlenga, O., Cirafigi, A., 2012). Amelio Fara (1993) reports how the tenailles layout was defined by the great Italians of the 16th century and identifies Galasso Alghisi, Giovan Tommaso Scala and Aurelio de Pasino as the precursors who paved the way for Alessandro De Groote's tangential system, to which Francesco Tensini also claimed precedence, having communicated his ideas to him when they were both in the service of the Duke of Bavaria.
- 3 With Dal Groote, of Italian culture and language, who published his system in 1617, the German engagement with the tenaille front began. Systems based on a more or less developed tenaille layout were subsequently published by Wilhelm Dilich (1640), Georg Rimpler (1673–1678), Hans Christoph von Zader (1679), Ernst Friedrich von Borgsdorff (1682), Johann Franciscus Griendel von Aach (1683), and Daniel Suttinger (1687).
- 4 In 1683, Blondel proposed a system of fortification inspired by contemporary systems then developing in Germany along two main lines of tendency: one, following Daniel Speckle, sought to refine and improve the bastioned front; the other, representing the more avant-garde trend, experimented with new fortified layouts of the tenaille type.
- 5 Rimpler is generally recognised as the military engineer who created the most important 17th-century formulation of the tenailles layout.
- 6 After the defence of Candia, conquered by the Turks in 1669 and involving the leading European military engineers, Rimpler proposed his revolutionary fortification system, in which bastions were placed at the midpoint of the polygon's sides to achieve effective flanking and the advantage of the double tenaille. By eliminating the curtains, he effectively outlined a tenaille-type layout, making the urban enclosure suitable for defence against external attackers and internal threats.
- 7 Some drawings by Antonio da Sangallo the Younger and the fortified systems of Alghisi and de Pasino constitute the precedents for Rimpler's ideas.

