

Fortified architecture in the name of the octagonal cross. Echo and criticism of the Cottonera bastioned line in Malta

Original

Fortified architecture in the name of the octagonal cross. Echo and criticism of the Cottonera bastioned line in Malta / Burgassi, Valentina. - STAMPA. - 13:(2023), pp. 69-75. (International Conference on Fortifications of the Mediterranean Coast FortMed Pisa Pisa, 23, 24 and 25 March 2023) [10.12871/978883339794810].

Availability:

This version is available at: 11583/2977812 since: 2023-04-06T19:29:34Z

Publisher:

Pisa University Press

Published

DOI:10.12871/978883339794810

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13 DEFENSIVE ARCHITECTURE OF THE MEDITERRANEAN

Marco Giorgio BEVILACQUA, Denise ULIVIERI (Eds.)



DEFENSIVE ARCHITECTURE OF THE MEDITERRANEAN
Vol. XIII

PROCEEDINGS of the International Conference on Fortifications of the Mediterranean Coast
FORTMED 2023

DEFENSIVE ARCHITECTURE OF THE MEDITERRANEAN
Vol. XIII

Editors
Marco Giorgio Bevilacqua, Denise Olivieri
Università di Pisa

PISA
UNIVERSITY
PRESS

 edUPV
Universidad Politécnica de Valencia

International conference on fortifications of the Mediterranean coast FORTMED 2023, 6. <2023 ; Pisa>
Defensive architecture of the Mediterranean, vol. XIII-XV : proceedings of the International conference on fortifications of the Mediterranean coast FORTMED 2023 : Pisa, 23, 24 and 25 March 2023 / editors Marco Giorgio Bevilacqua, Denise Ulivieri. - 3 volumi. - Pisa : Pisa university press, 2023.

Contiene:

[Vol. 1]: Defensive architecture of the Mediterranean, vol. XIII / editors Marco Giorgio Bevilacqua, Denise Ulivieri

[Vol. 2]: Defensive architecture of the Mediterranean, vol. XIV / editors Marco Giorgio Bevilacqua, Denise Ulivieri

[Vol. 3]: Defensive architecture of the Mediterranean, vol. XV / editors Marco Giorgio Bevilacqua, Denise Ulivieri

725.18091638 (23.)

I. Bevilacqua, Marco Giorgio II. Ulivieri, Denise I. Architettura militare - Fortificazioni - Mar Mediterraneo - Coste - Congressi

CIP a cura del Sistema bibliotecario dell'Università di Pisa

UPI

UNIVERSITY
PRESS ITALIANE

Membro Coordinamento
University Press Italiane

Series *Defensive Architecture of the Mediterranean*

General editor: Pablo Rodriguez-Navarro

The papers published in this volume have been peer-reviewed by the Scientific Committee of FORTMED2023_Pisa

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© cover picture: Giammarco Montalbano, Piergiuseppe Rechichi

© papers: the authors

© publishers: Pisa University Press (CIDIC), edUPV (Universitat Politècnica de València)

Published with the contribution of the University of Pisa

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Pisa University Press

Polo editoriale - Centro per l'innovazione e la diffusione della cultura

Università di Pisa

Piazza Torricelli 4 · 56126 Pisa

P. IVA 00286820501 · Codice Fiscale 80003670504

Tel. +39 050 2212056 · Fax +39 050 2212945

E-mail press@unipi.it · PEC cidic@pec.unipi.it

www.pisauniversitypress.it

ISBN 978-88-3339-794-8 (three-volume collection)

ISBN 978-88-3339-795-5 (vol. 13 and electronic version)

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ISBN: 978-84-1396-125-5 (three-volume collection)

ISBN: 978-84-1396-129-3 (electronic version)

ISBN: 978-84-1396-126-2 (vol. 13)

PROCEEDINGS of the International Conference on Fortifications of the Mediterranean Coast FORTMED 2023

Pisa, 23, 24 and 25 March 2023

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Fortified architecture in the name of the octagonal cross. Echo and criticism of the Cottonera bastioned line in Malta

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Abstract

This paper sheds new light on the fortified Cottonera line in Malta, a masterpiece of the Piedmontese military engineer Antonio Maurizio Valperga. In 1669, the Grand Master of the Order of Malta required Valperga's expertise in Valletta to modernise the coastal fortresses of the island. However, Valperga's project was considered not feasible and too extensive by contemporary military engineers, such as Gaspare Beretta. This contribution retraces the reasons for this criticism by analysing some drawings and Beretta's report sent to Malta. Despite the criticism, Valperga's work was highly influential. The Cottonera project was included in Carlos de Grunenbergh's *Teatro Geografico* (1686), Vincenzo Coronelli's engraving *Città e Fortezza di Malta* (c.1692) as well as in Nicolas de Fer's print *Plan des Vieilles et Nouvelles Fortification[s] de Malthe* (1694) and many other iconographic sources. This paper is part of a broader investigation about Maltese civil and military architecture of the Order of Saint John of Jerusalem carried out by the author over several years.

Keywords: Cottonera, Antonio Maurizio Valperga, military engineers, Gaspare Beretta.

1. Antonio Maurizio Valperga and Cottonera line

The military engineer Antonio Maurizio Valperga (Melano, 2015) succeeded Carlo di Castellamonte in the ducal building sites. He was also the author of civil and military works at the behest of the Savoy family, Cardinal Mazzarino and the King of France, Louis XIV (Cojannot, 2003). Valperga wrote numerous treatises on military architecture (Burgassi, 2022). In 1649 he wrote his first publication on military architecture intitled *A brief discussion of the advantage and disadvantage of the two strongholds of Piombino and the Island of Elba*. Later, in 1653, he dedicated his new treatise (Fig. 1) *Military exercise for the benefit of the new soldier* to Charles Emmanuel II, duke of Savoy (1). The first treatise he wrote *Notes addressed to the new soldier* was dedicated to Maurice of Savoy and it was published in 1655. Here he discussed practical geometry and military projects (2). In his last manuscript entitled *The Royal fortification defended by Count Antonio Maurizio Valperga Baron of San Marsanotto, First Engineer of the*

Royal Highness of Savoy, published in 1678, he went on to technical treatises on the art of defence and the building of fortified walls. Valperga took part in the international debate on the art of fortress. In particular, in his treatise he wanted to defend himself from the criticism he had received for building the Cottonera line committed by Nicolas Cotoner, the Grand Master of the Order of Malta, in 1670 (Burgassi, 2021).

Valperga was commissioned to modernise the fortresses in Malta by the Grand Master of the Order, because the Ottoman Empire was preparing a new attack (Marconi, 2011). However, his project was considered impractical and too ambitious by the military engineers of his time (Molteni, 2014). It was included in all the cartographic sources of the time (Bartolini Salimbeni, 1997). Thanks to his work, Valletta, the capital of the Order of Malta, assumed a symbolic value, that of bulwark of Christianity (Brogini, 2006; Buttigieg, 2014).

The huge project of fortified walls had been strongly criticised, but had impressed the minds of princes, dukes, and emperors of the various European states (Hughes, 1956). Valperga was in charge of surveying the fortresses and proposing improvements, especially for the obsolete bastion line, the Floriana Line, the work of the architect Pietro Paolo Floriani from Macerata, and the Firenzuola line for Santa Margherita hill (Spiteri, 2017). The project that had the greatest impact on the Maltese territory was the Cottonera rampart line at St Margherita hill, to the south-west of the capital, which was designed to defend the towns of Vittoriosa and Senglea (Fig. 2).

2. Cottonera rampart line

The Cottonera line was formed by a 5-kilometre bastion line on an elliptical path, with eight bastions and two semi-bastions, and two secondary wings (Fig. 3). These were projected at the Corradino hills to the west and at San Salvatore to the east, connecting with Fort Ricasoli. The Cottonera line was approved in its final version on 2nd April 1670. The line, like the entire masterplan, was developed



Fig. 2- General masterplan by Antonio Maurizio Valperga (BL, ADD. MS. 63590 A, no. 127). New fortifications within the built context of Porto Grande and Marsamuscetto Bay (red lines for new additions) (graphic elaboration by I. Maniscalco)

on the proportions of the Dutch engineering school. The costs of its realisation amounted to eight thousand *scudi* per month. The funds from the Common Treasure were not sufficient for the building of the work. The Order raised the funds through *responsiones*, i.e. taxes from the Order's commanderies throughout Europe (Burgassi & Vanesio, 2018). In addition, Grand Master Cotoner donated 1,200 *scudi* annually and imposed a new tax on the Maltese citizens. The Order also decided to sell a wooded lot on French soil on 25th May 1671 with a revenue of 300,000 *livres tournois*.

Due to lack of funds, the ditch, the eight ravelins, the covered road, the rampart and the two side wings were never built (Burgassi, Maniscalco & Volpiano, 2021). The rampart wall, similar to Ricasoli and Galdiana, was built of blocks of local stone, the Maltese *globigerina* limestone, a traditional building material that is porous, malleable and easily damaged. The blocks were separated by beds of lime mortar, produced on the building site with a system of tanks and canals for the hydration exothermic process.

In his drawings, Valperga included the existing Fort of Santa Margherita into the plans for a *maison de plaisance*. The palace was to be the residence of Gran Master Cotoner and it was composed of vast Italian-style gardens. Carlos de Grunenbergh was commissioned by the Viceroy of Sicily to visit the fortresses in 1681. The military engineer was of Flemish origin and worked in Spain; he was also the author of the *Geographical Theatre*



Fig. 1- Military Exercise (Antonio Maurizio Valperga, 1653)

in which views of fortified cities, including Malta, were reported. In the same year, he arrived on the island and wrote a first report, on 14th March 1681, in which he severely criticised Valperga's work. In the text, Grunenberg attacked the unworkability of the project and proposed adjustments, such as changing the height of the *faussebraye* and the half-bastions. This was followed by a later visit, and he produced another report, dated 26th February 1687, in which he insisted on the need to complete the Floriana fortified line following his suggestions.

Médéric Blondel (Busuttill, 2018), a military engineer resident in Malta and brother of the more renowned Nicolas-François, was also asked for his opinion and was later also commissioned to complete the Cottonera building site. In his *Dévis Général des Fortifications de Malte*, dated 1681, he outlined the advantages of the fortified line, but also its many weaknesses. These included the inadequate design in relation to the orography of the site, the defects of the Dutch-style system adopted by Valperga, with ditches poorly flanked

and excessively small bastions. He also criticised the significant difference in elevation that was created between the Corradino and Cottonera lines facing Fort Ricasoli. However, as director of the site, he helped to improve the scarps, the ditch elevations and the ramparts.

3. The criticism of Gaspare Beretta

Beretta's report is one of the first to criticise Valperga's project. In 1646, Beretta (Roncai, 1990; Dameri & Pozzati, 2018) had been sent to Malta together with the field master (*maestro di campo*) Giovanni Pallavicino with the task of surveying the fortifications against possible enemy attacks. The first report by Beretta, dated 4th December 1670, was noted in the analytic index of *Fondo della Biblioteca Trivulziana* (Viganò, 2002). Beretta addressed the Grand Master, expressing his gratitude for having sent him the drawing from Malta so that he could provide his opinion on the fortifications. The drawing referred to by the engineer had been sent to him to receive suggestions to improve the

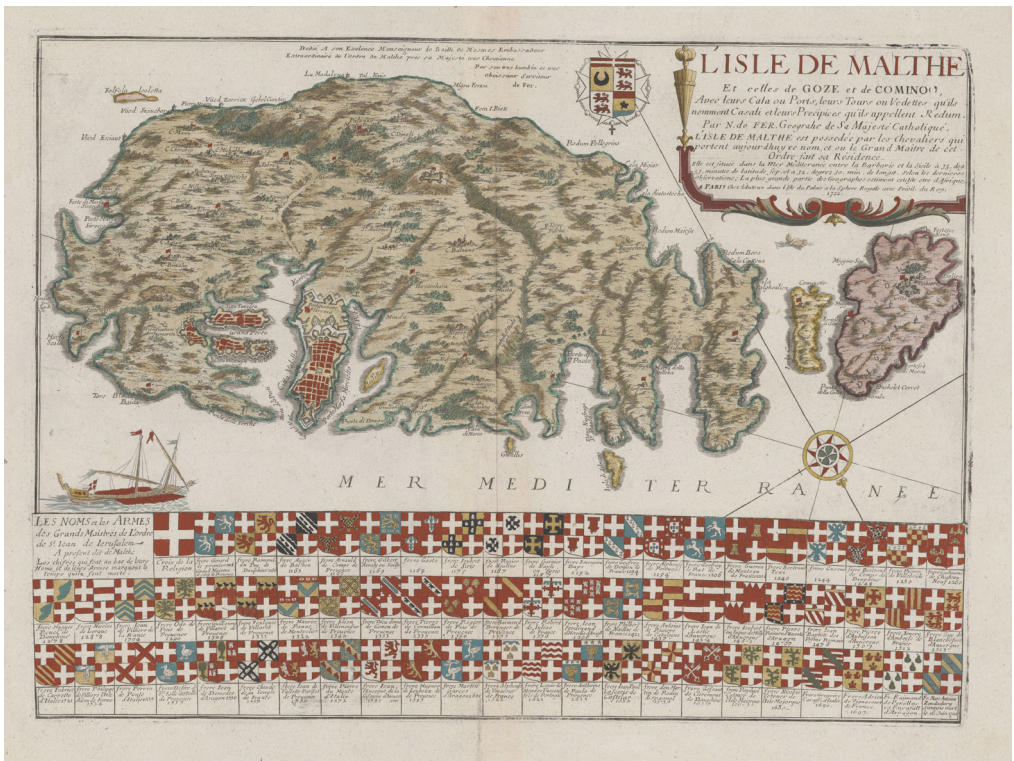


Fig. 3 - L'isle de Malthe et celles de Goze et de Comino by Nicolas de Fer [1722] (Courtesy of Stanford Libraries, G6790.F4.1740.M4, David Rumsey Map Center)

project, as was the practice at the time. The plan of the fortifications *Description of Malta* 1670 (4) is developed over four sheets and is drawn in watercolour pen, in green, yellow, ochre, and blue. The unit of measurement used is the Maltese cane (Fig. 4). The drawing has no signature and has so far never been attributed, but it is possible to assume that the author is Médéric Blondel, a resident military engineer of the Order, based on the drawings and indications by Antonio Maurizio Valperga.

The map appears to be the model from which the drawing found by Menchetti (Menchetti, 2013) in the British Library in London (5), was later executed, entitled *Plan général de Malte* and dated 1671 (Fig. 5). In the title of the map of the *Fondo Belgioioso* (Biblioteca Trivulziana) there is an inscription: “it is all yellow, it is the work redrawn”. This annotation suggests that the plan of *Fondo Belgioioso* was the first to be made, then subsequently improved and redesigned with colours ranging from gold, red, ochre and green, as the London map shows (Fig. 6). The measurement unit used for the drawing is in Maltese canes, which from documents we know

was habitually used by Médéric Blondel (6). Blondel was resident engineer of the Order from 1659 to 1698. Generally, he used the measurement unit in Maltese canes, while Valperga drew in *trabucchi* for Piedmontese projects and in *toises* for Parisian works.

The plan kept in *Fondo Belgioioso* is probably a copy of the map drawn by Valperga. This assumption is supported by the presence in the map of the elements present in the London map, including the *maison de plaisance* (the palace) dedicated to Cotoner, the fort on Marsamuscetto island and the bastion lines at Corradino and San Salvatore hills. It seems that Beretta drew his own observations based on the considerations contained in the London map. Beretta was also the first to send reports within less than a month of Valperga’s departure from Malta (16th November 1670). In his first report, Beretta listed the failings encountered in Valperga’s plan. Among these were «the excessively short curtain walls, which should not be less than about 100 geometric feet». Beretta also criticised the Dutch-style method adopted for the project and suggested that the Frenchman Georges Fournier’s indications in his

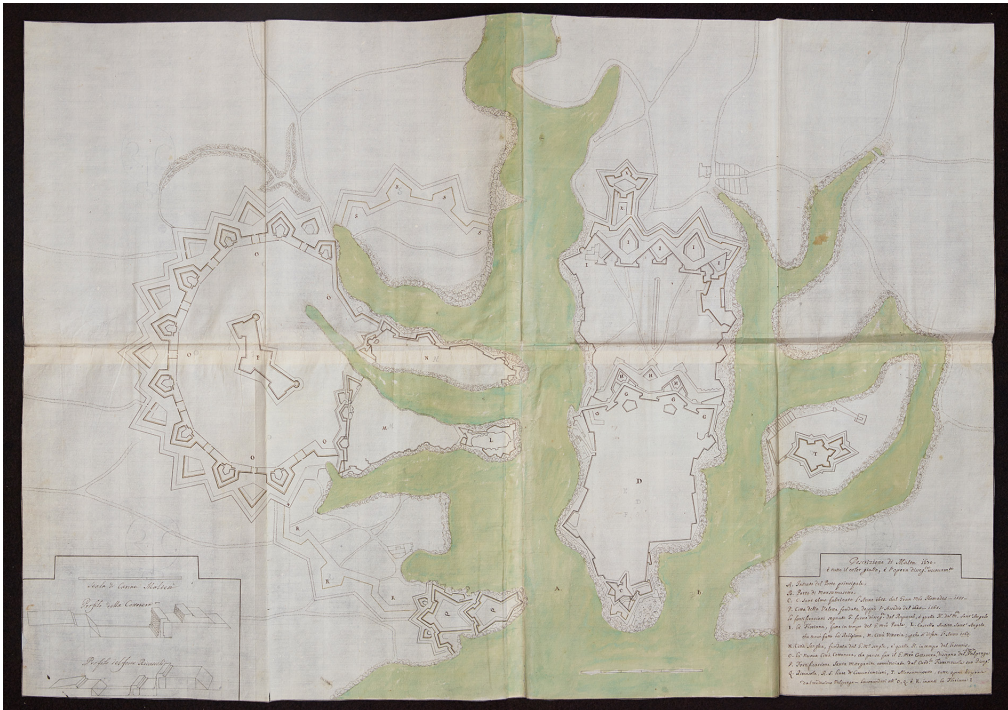


Fig. 4- Descrizione di Malta [1670], Anonymuou (Médéric Blondel?) (Biblioteca Trivulziana (BT) Fondo Belgioioso, cart. 262, c. 102)

Traité des fortifications, ou Architecture militaire (1648) should be preferred instead. Another weakness caused by the adoption of the Dutch model was the excessively short curtain wall, easily vulnerable “because it would not allow the construction of its ravelin”. Beretta supported his argument with a practical example by drawing the two methods of attacking a bastion. Moreover, his method had proved successful, as he had conquered 15 strongholds and defended seven during his career. Beretta expressed his desire, therefore, that Valperga “would make use of [his] suggestion for the benefit of all Christendom”.

In the pen-and-ink drawing attached to the report, the preliminary pencil sketch is still visible. It shows the differences between the problematic profile of the fortress conceived by Valperga in comparison with Beretta’s corrected fortress (7). It is possible to assume that the drawing was a representation of Fort Ricasoli, also considered critically by Beretta as it did not occupy all the land on which it stood. Moreover, the fort was less

defended from the land front than the sea front. Despite the criticism, Beretta gave Valperga the merit of the strategic choice of the position of Fort Ricasoli, which was located on the promontory of Punta Sottile.

Among Beretta’s further criticisms against Valperga was the absence of a covered road. Beretta suggested that one should be built on the model of the road he designed in 1669 for the citadel of Besançon during his inspection of the defences in the French region. Beretta again was critical of Valperga’s decision to leave the harbour uncovered, which could easily fall prey to Turkish invasions. Moreover, Valperga’s Cottonera project was too big and could be attacked from several fronts. Lastly, Beretta emphasised the need for perfect familiarity with the area, since “irregularities are always better for those who defend them, than for those who attack” (Fig. 7).

The second report dated 1st April 1671 (8) contained the statement on fortifications presented to the Grand Master. The report summarised,



Fig. 5- Cottonera fortified line by Antonio Maurizio Valperga [1670] (BL, ADD. MS. 63590 B, no. 127) (London, National Library)



Fig. 6- Masterplan by Antonio Maurizio Valperga [1670]. Detail (London, National Gallery)

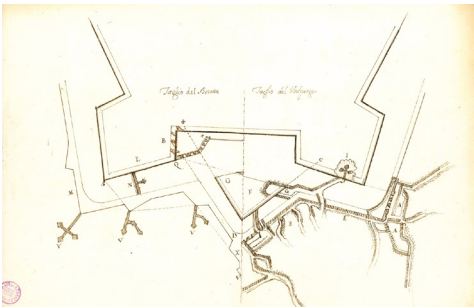


Fig. 7- Gaspare Beretta [1670], *Pianta che illustra le differenze tra il Taglio del Beretta e il Taglio del Valperga* (Biblioteca Trivulziana (BT) Fondo Belgioioso, cart. 262, c. 118)

point by point, the choices made by Valperga in his project, to which the corresponding motions submitted by Beretta were added. In the report, Beretta repeated what he had already stated in his report of 4th December 1670, stressing once again the excessive extent of the Cottonera line. Beretta also added criticism of the crescents, which were “too favourable to the Turk”. Compared to his previous report, Beretta introduced further

considerations regarding Fort Ricasoli. The shape of the fort was inadequate for the project because Valperga had built it according to the Dutch model. The fort was unsuitable for the huge site and consequently difficult to defend. Overall, Beretta considered Valperga’s plan impractical and inappropriate for the Maltese soil, which was not very flat and sparsely irrigated by canals. With these considerations, Beretta instead recommended adopting the theories proposed by the Frenchman Vauban in the field of defence and which he implemented in his plans thanks to his experience acquired on the battlefield.

4. Conclusions

Despite the criticism, Valperga’s great project enjoyed a great resonance that continued after his time. The Cottonera fortified line was represented in Carlos de Grunenbergh’s *Teatro Geografico* (1686), as well in Vincenzo Coronelli’s engraving *Città e Fortezza di Malta* (c.1692). The great military engineer Nicolas de Fer dedicated an entire map to Cottonera in the *Plan des Vieilles et Nouvelles Fortification[s] de Malthe* (1694), and subsequently many other military engineers represented Valperga’s masterpiece.

Notes

- (1) A copy of the treatise is kept in the Royal Library of Turin (BRT), L23/54.
- (2) A copy is preserved in Application School Library, Turin (BSA), inv. 16.43.21A3.
- (3) Royal Library of Turin (BNUT), q. I. 64-65.
- (4) Biblioteca Trivulziana (BT) Fondo Belgioioso, cart. 262, c. 102.
- (5) British Library (BL), ADD.MS. 63590 A, no. 127.
- (6) AOM 232, c. 67r and AOM 262, c. 81v.
- (7) Biblioteca Trivulziana (BT) Fondo Belgioioso, cart. 262, c. 118.
- (8) Biblioteca Trivulziana (BT) Fondo Belgioioso, cart. 262, cc. 119r-125v.

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Volume pubblicato nel mese di marzo 2023

