



«*Ser hechura de*»: engineering, loyalty and  
power networks in the Sixteenth and  
Seventeenth Centuries

Alicia Cámara Muñoz and Margarita Ana Vázquez Manassero (eds.)



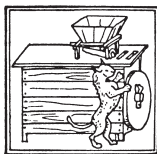




JUANELO TURRIANO LECTURES ON THE HISTORY OF ENGINEERING

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Sixteenth and Seventeenth  
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FUNDACIÓN JUANELO TURRIANO



**«SER HECHURA DE»: ENGINEERING, LOYALTY AND  
POWER NETWORKS IN THE SIXTEENTH  
AND SEVENTEENTH CENTURIES**

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*El dibujante ingeniero al servicio de la monarquía hispánica. Siglos XVI-XVIII:  
ciudad e ingeniería en el Mediterráneo*

[Draughtsman engineers serving the Spanish monarchy in the sixteenth to eighteenth centuries:  
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## FOREWORD

In the sixteenth and seventeenth centuries the engineering profession had an element of direct relation with power, a subject begging to be studied, as it constitutes a novel approach to a complex topic, that of the mobility of the engineers in the power networks of the Early Modern era and the necessity of ensuring their loyalty. This book is based on the expression so often used in the era of «*ser hechura de*» [being the creation of / the making of]. This often explains the professional careers of engineers associated with a governor or military leader, many of whom, in turn, had knowledge of martial engineering and the control of cities and frontiers. In this book outstanding specialists present different European case studies, making it possible to approach a comparative history in order to understand this profession before the rule of the academies standardised promotion and specialization.

This book is part of the results of the R&D+I project *El dibujante ingeniero al servicio de la monarquía hispánica. Siglos XVI-XVIII: ciudad e ingeniería en el Mediterráneo - DIMHCIM (AEI/FEDER/UE)* [Draughtsman engineers serving the Spanish monarchy in the sixteenth to eighteenth centuries: city and engineering in the Mediterranean - DIMHCIM (AEI/FEDER/UE)], - HAR2016-78098-P funded by the Spanish Ministry of Science, Innovation and Universities. This is the English version of the book previously published in the original languages.

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## Power and design. Feudal families and fortifications in Calabria between the Sixteenth and Seventeenth Centuries

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Translation: JULIET HAYDOCK

The presence of intact and ruined urban fortifications and castles in Calabria, presumably built between the 15th and 17th centuries, has raised many questions about the exact dates and attributions of the design and building work.

There are many examples, but the archival sources on sites active since the 1540s mainly concern viceregal building works in Crotona, Reggio, Tropea, Amantea and Cosenza. These underwent radical changes from the 1530s to upgrade their site defences. Matters regarding the building sites, designers and *capomastri* [master builders]<sup>1</sup> who directed them and oversaw the works have been reconstructed in these locations. Excavations for deep moats, wall building and everything to do with the building sites – material procurement, transport and the labourers' working time – are detailed in daily reports.

These building sites involved applying and trying out new forms and, more particularly, allowed the transmission of knowledge. Men of arms, military engineers and architects were brought in to take care of their design and subsequent construction. These people visited the building works, moved to the region and settled there when required to oversee the works. Execution was then entrusted to the *capomastri*, who diligently reported the progress of the building works to the court, even going as far as Naples if necessary.

Little was known, however, about the feudal fortifications, which were poorly documented. To overcome this problem, noble architecture and events can be cross-referenced to reconstruct the way designs were conceived and implemented in individual fiefdoms. I will refer to Cariati, Isola Capo Rizzuto, Palma-Carlopoli and Monasterace [FIG. 1]. Though not the only sites in Calabria with 16th century fortifications, they are important because, as I shall attempt to show, they came about as a result of links and contacts between noble lords and experts as well as direct know-how of the art of fortification by feudal lords<sup>2</sup>.

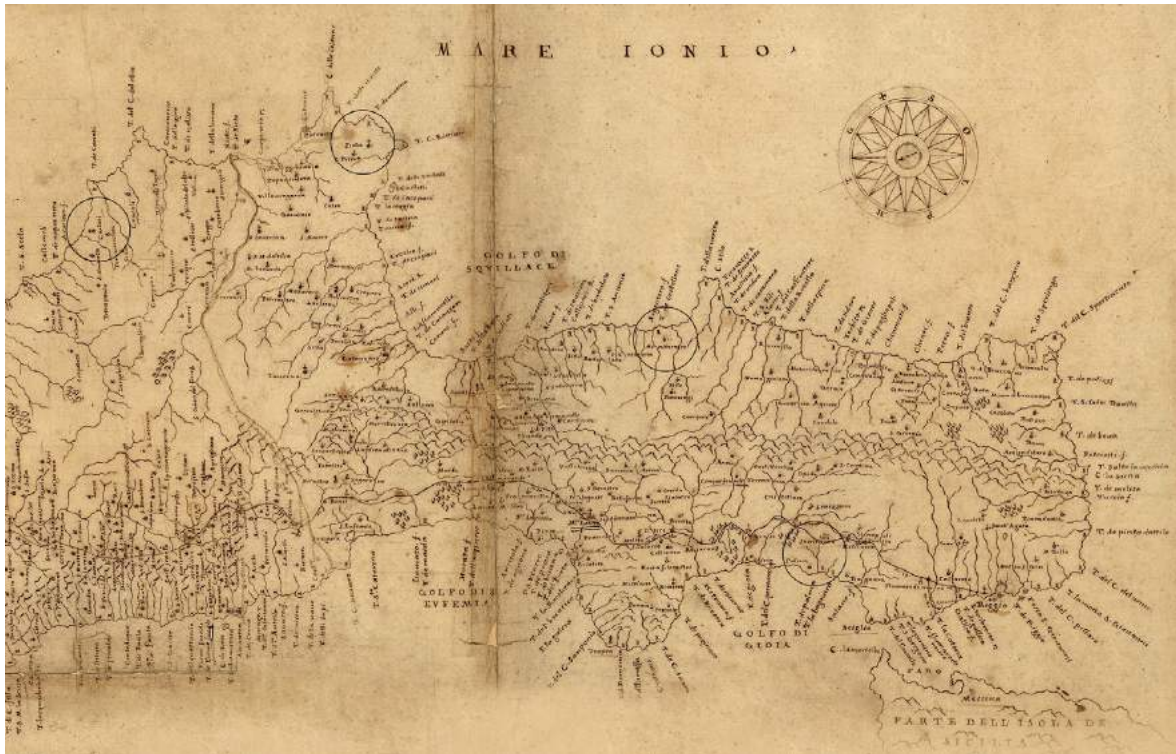


FIG. 1 Province of Calabria Citra and Province of Calabria Ultra, from the 16th-century drafting of the Stigliola-Cartaro Atlas (private collection). The fiefdoms of Cariati, Isola, Monasterace and Seminara are ringed (adapted by F. Martorano).

One collection in the Dipendenza della Sommaria in the Naples State Archive contains valuable information – and nothing else unfortunately – on the presence of Giacomo de Amato in Cariati: he went there on 13 May 1543 to check on the fortification works taking place «On 13 May. To Stefano Lioni of Naples, a resident of Crotone, for the rent of a horse used by Mr Giacomo de Amato to travel from Crotone to Cariati to see the design of that city for four days, 0.4»<sup>3</sup>. I believe this information is important because it provides a certain timeframe for works on the town wall as well as providing the name of the customer and a possible designer.

Who was Giacomo de Amato? The records reveal that he was the *capomastro* who definitely supported Gian Giacomo dell'Acaya in the Crotone building site from 1543. He also made a model of the castle and oversaw the building works on a daily basis<sup>4</sup>. In Crotone, reconstruction of the town wall and Castle was started from the end of the 1530s<sup>5</sup>, but the new layout of the fortification did not begin until November 1541, with Gian Giacomo dell'Acaya's arrival in Lecce. In 1545, dell'Acaya was also put in charge of the new castle of Reggio<sup>6</sup>.

The tenuous documentary evidence does not allow us to be certain of d'Amato's real role in Cariati: was he the designer or, as in Crotone, did he act as a supervisor and foreman, reporting to dell'Acaya, as the true architect of the design?

During that period, the Lord of Cariati was Ferrante Spinelli, son of Giovan Battista, Baron of Fuscaldo, Guardia and Paola, who was given the county free of charge by Ferdinand the Catholic in return for his loyalty. During his life, Giovan Battista Spinelli managed to expand the family's power by acquiring fiefdoms and increasing his noble ti-



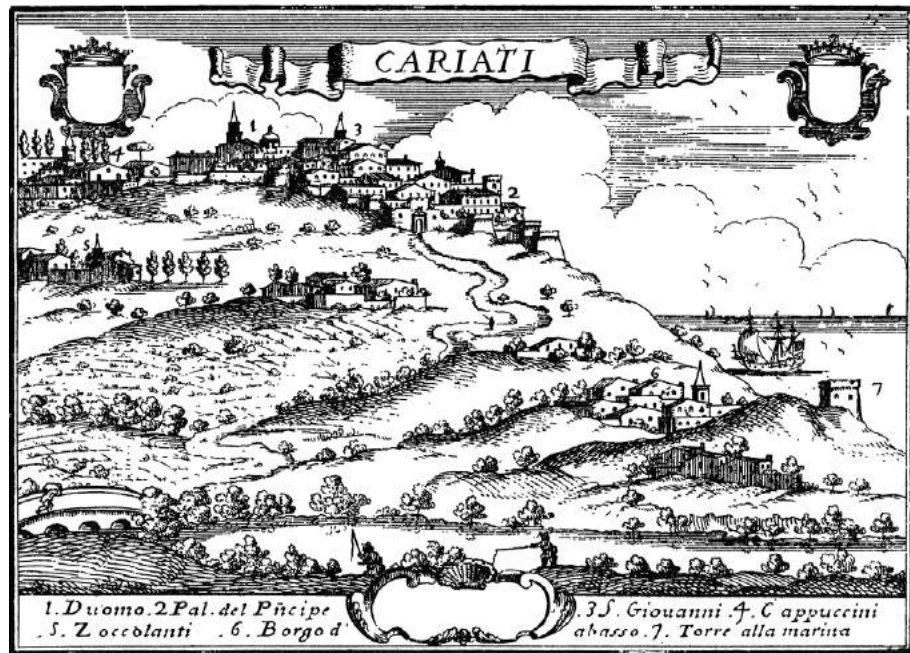


FIG. 2  
G. B. PACICHELLI,  
*Perspective view of the  
Kingdom of Naples,*  
1703. View of Cariati.

ties. From 1514 to 1516, he was governor of Verona, on 22 March 1517 he was appointed royal adviser for affairs of peace and war and general commissioner of the Kingdom of Naples. On 15 December 1521, he was made a member of the Kingdom of Naples Collateral Council<sup>7</sup>. On 26 October 1521, he acquired the fiefdom of Castrovillari<sup>8</sup>. Like his father, Ferrante was a faithful follower of Charles V and took part in the siege of Catanzaro against Lautrec<sup>9</sup>. This meant he was also a man of arms who knew about fortifications. He was also bound to the Viceroy Pedro de Toledo by ties of friendship and the support he offered the Viceroy in 1535 against barons who wished to remove him from his post<sup>10</sup>.

Cariati was fortified to defend itself against the relentless and endless Turkish attacks<sup>11</sup>, and the pre-existing walls were reinforced with scarps and equipped with jutting almond-shaped and pentagonal bastions and towers. The late 17th-century view of Pacichelli Abbey [FIG. 2] gives an idea of the fortified centre<sup>12</sup>, with the coast also defended by a viceregal tower<sup>13</sup>. A



FIG. 3 Cariati. Walls highlighted in red on the aerial photogrammetric survey (prepared by F. Martorano).



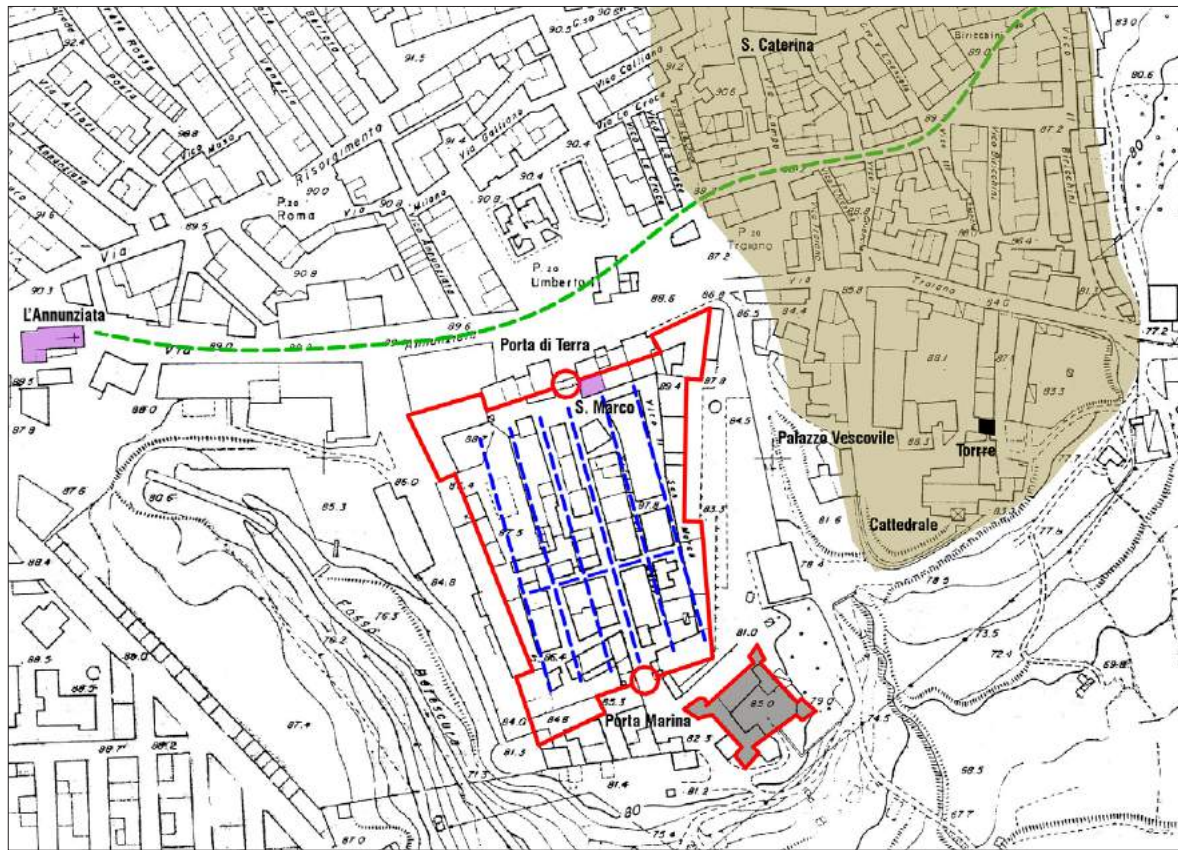


FIG. 4 Isola di Capo Rizzuto. Fortifications highlighted on the aerial photogrammetric survey. The town is on the right (prepared by F. Martorano).

present-day aerial photogrammetric survey shows the circuit of the walls in red, revealing that the 16th century encircling walls with their high base scarp are almost completely intact. Nowadays the moat has disappeared, as is usual [FIG. 3].

The present-day Isola Capo Rizzuto is located to the south of Crotona. *Turris Insule*, as it was known in the mid-16th century<sup>14</sup>, became a fiefdom of the Ricca in 1495<sup>15</sup>. It had always been a farming centre, supplying Crotona with products and goods<sup>16</sup>, but acquired a new form around the middle of the 16th century. The second feudal lord, Giovan Antonio, who inherited it in 1519 and first resided there, had a fortified citadel built in 1549. This was built next to the mediaeval centre, dominated by the cathedral and bishop's palace and defended by a tower, which is also reflected in the toponym<sup>17</sup>. The layout is simple, a square plan with bastions at the top and a corner, without bastions, defended by the castle. The encircling wall, now partially disappeared, the castle, the roads marking out long, rectangular blocks and the two ports of Terra and Marina are shown in red on a present-day aerial photogrammetric survey [FIG. 4]. Outside the walls, the church of Annunziata was built along the path connecting Isola to Crotona<sup>18</sup>. The citadel's construction date is certain, because it is mentioned in two epigraphs, one located under the *Terra* gate beneath the noble coat of arms and the second in the tomb of Giovan Antonio inside the church of S. Marco, built within the walls next to the gate<sup>19</sup>.

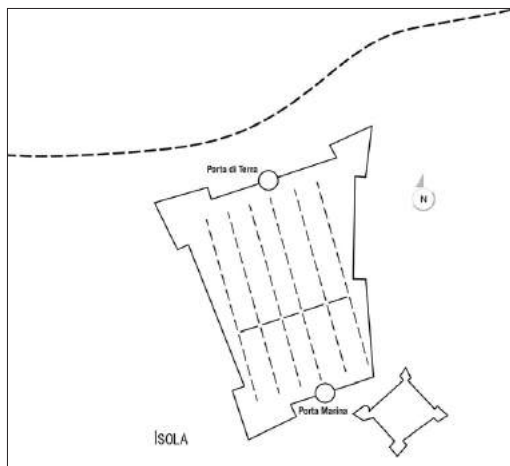


FIG. 5a-b Walled centres of Isola (Crotona) and Acaya (Lecce), showing fortifications (prepared by F. Martorano).

I compared this layout with other types in the past and would like to confirm the discrepancies that I found between the plan of Isola and that of Acaya<sup>20</sup> [FIG. 5a-b].

The latter, formerly Egine, was fortified by Gian Giacomo dell'Acaya, who renamed it after his own family once he had redesigned the existing building system based on rectangular blocks and cut it down to fit within a ring of walls topped by bastions, one of which was replaced by a castle. Acaya's work was completed in 1535<sup>21</sup>.

Isola, on the other hand, was established in 1549, during the period when the *condottiero* was busy in Crotona (1541-1552), and it seems quite possible that there was contact between Giovan Antonio Ricca and dell'Acaya, partly because the recently instated Baron of *Turris Insule* relied on the military experience of Spinelli and his powerful neighbours Caraffa, lords of Santa Severina and Le Castella<sup>22</sup>. In 1543, Gian Giacomo dell'Acaya had also assumed the office of General Commissioner of the Kingdom's fortifications and was therefore responsible for the security of Calabria. There may also have been contact through Giacomo d'Amato, as in Cariati, but in this case no documentary evidence has been preserved and it is merely a hypothesis.

From the Ionian coast, we move on to the Tyrrhenian coast in the County of Seminara, a Spinelli fiefdom from 1495. It was owned by Carlo, brother of Giovan Battista, first Count of Cariati<sup>23</sup>. Carlo Spinelli (1525?-1570?) was a famous *condottiero*. He supported the emperor in his Flanders and Picardy campaigns and certainly possessed a theoretical and practical knowledge of fortification needs and measures to be implemented to make urban fortifications efficient and fit for purpose<sup>24</sup>. His various positions included a partnership with Ferrante Carafa di San Lucido, who was responsible for the *Tribunale della fortificazione*. His likeness is known to us through three artefacts from different origins: two medals celebrating him as the «Duke of Seminara»<sup>25</sup>, and the surviving head of a monument erected in Seminara, capital of the fiefdom. The monument consisted of



FIG. 6a-b Medal celebrating foundation of Carlopoli, profile of Carlo Spinelli on the obverse, perspective view of town on the reverse. Paris, Bibliothèque nationale de France, Cabinet de Médailles.

a high base decorated with panels representing milestones in the history of the fiefdom, topped by a figure of the Duke<sup>26</sup>.

One of the two medals<sup>27</sup> [FIG. 6a-b] and a slab adorning the monument are particularly relevant to our subject, because they also reflect the fortification, town and land planning projects implemented by Spinelli. The medal, which bears a bust of the Duke on the back, shows a representation of a fortified town crowned by the words «Carlopolis fundatio» on the front. This wording and particularly the regular layout and type of fortifications depicted clearly show that the work was newly established. It is not dated<sup>28</sup>, and neither is the monument. It has been dated to no later than 1568, but the depictions and wording limit its coinage to the years after 1559, the date on which the sovereign bestowed the title of Duke on Carlisle<sup>29</sup>, and prior to 1566, when the city was described firstly as *oppidum* and then *Palma nunc Carlopolis* in two fragments of ecclesiastical documents<sup>30</sup>.

The small town depicted is rectangular and enclosed by a wall with bastions at the corners. The curtain walls and bastions are equipped with scarps, with a *redondone* [horizontal bead] emphasising changes in wall gradients. The walls are surrounded by a moat, which curves inwards at the bastions and changes course in front of the entrances, suggesting the presence of bridges. The greater importance of the accesses on the long side is indicated by a small tympanum-like bulge, which overhangs to confer a more imposing appearance. Canon holes are outlined in the scarp band and the scarp/wall ratio appears to be well balanced. I have produced a plan and elevation drawing of this finely detailed and thorough plan. This defines a rectangular plan layout with regular blocks, defended by walls equipped with scarps and bastions, surrounded by a moat. The two main roads are in a cross formation, with reference to the *cardus* (north-south oriented road) and *decumanus* (east-west-oriented road). They lead to four access gates, closed by drawbridges [FIG. 7].

Several examples of similar fortified towns could be used as a comparison. Examples include Villefranche-sur-Meuse (1545) and Mariembourg (1546) in the Low countries<sup>31</sup>, an area known to the Duke from his warrior past, but I believe that the most convincing comparison is Eliopoli or Terra del Sole, commissioned by Cosimo I as capital of the Florentine Romagna<sup>32</sup>. Cosimo Eliopoli intended it to control the border in the Montone Valley. It was designed by Baldassarre Lanci, a Siennese engineer in the service of the



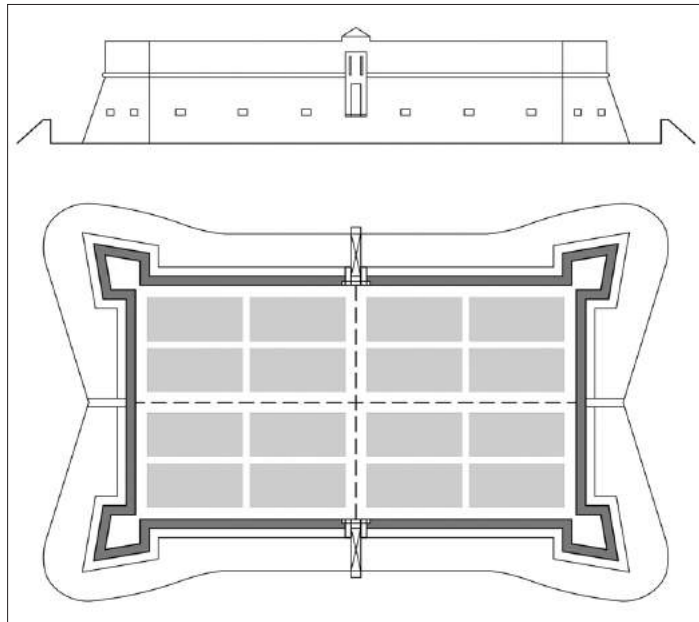


FIG. 7 Reconstruction of Carlopoli, plan and perspective view (prepared by F. Martorano).

Duke of Florence. Bernardo Buontalenti also contributed to the work when he returned from his stay in Spain. Building work on this compact fortified town built to a rectangular plan began in 1564, during the period of Carlopoli's foundation.

We will now examine the panel of the monument to Carlo Spinelli, which celebrates Charles V's entrance to Seminara in the autumn of 1535. This event took place when the fiefdom was ruled by his grandfather Carlo, first Count of Seminara<sup>33</sup> [FIG. 8]. The slab does not simply portray this stage of the Emperor's journey in Calabria but adds events that took place more than 30 years later, highlighting the feudal lord's role and work and the territory he ruled. The fiefdom of Seminara itself forms the backdrop to the compo-



FIG. 8 Carlo V entering Seminara, monument to Carlo Spinelli (detail). Seminara (R.C.), Palazzo Comunale.

sition. This is shown to its full territorial extent, delimited at the top by the Messina Straits and to the right by the city and port, which had always been the most important in the area and was engaged in trade<sup>34</sup>.

The local capital forms the centre of the composition with its turreted walls and castle accurately reproduced. A square-based tower at the top between the town and the Strait is referred to as the Spinelli tower in later documents<sup>35</sup>. The tower is absent in 16th and 17th-century records, which suggests it belonged to the fiefdom because the list contained only royal towers<sup>36</sup>. However, there is a reference to a single document recording the sale of the state-owned *Terra Petrimarije*<sup>37</sup> by the sovereign to Carlo Spinelli, to enable the latter to defend the coast from possible attack. This was an unusual concession, because the court retained responsibility for coastal defence, designing and building the network of towers itself<sup>38</sup>.

The panel also depicts the new town of Cardopoli that Carlo Spinelli intended to build. The feudal lord was very keen to have it built and I believe him to have been responsible for its conception. The clue to this lies in one telling detail, i.e. the depiction next to the town plan of Spinelli himself, who is looking at the plan almost as though he is directing operations. The plan is being intensely observed by a person seated below it and above a pre-existing town, which can be identified as Palma<sup>39</sup>. Evidence that Carlo had something to do with these enterprises comes in the form of the Civita di Chieti fortification, which was completed in just 40 days, when he took part in the Campagna di Roma war between the papal and French forces between 1556 and 1557<sup>40</sup>.

However, there is one difference between the town in the panel and the one on the medal. The former is square and the latter is rectangular. I believe that this not unimportant difference reveals that the panel is represented in an abstract way while the medal refers to the actual plan.

This conclusion is based on the actual construction. The post-unitary cadastral plan prior to the 1908 earthquake shows that much of Carlopoli was still intact in the late 19th century. The town wall circuit topped by bastions is still discernible and the entire layout can be reconstructed graphically because one bastion and extensive tracts of wall were still present, while smaller portions, clearly subsequent buildings, occupied the bastions to the north-east and south-west. The cruciform layout of the main roads was maintained while the internal structure had been adapted to form perfectly regular rectangular blocks<sup>41</sup>.

I will close this discussion by examining Monasterace, which became a Galeota fiefdom in 1486 and remained in the family's possession until the mid-17th century<sup>42</sup>. The mediaeval centre is surrounded by walls and surmounted by a square castle with bastions at the top, as can clearly be seen in an early 20th-century view [FIG. 9]. This architecturally significant presence can also be connected to work on the town fortifications, involving extending the town walls and building a new entrance gate to the centre<sup>43</sup>. The type of work dates the building to between the end of the 16th century and the first half of the 17th century although no records have come to light dating the start of the building work with certainty.

Mario Galeota, who was probably the most illustrious member of the house, was born between the end of the 15th century and the early 16th century, but then only vis-



FIG. 9 Monasterace. View of castle and town from the southeast, first half of twentieth-century. G. Coniglio Archive.

ited Calabria sporadically, because his studies, acquaintances and activities were mainly based in Naples, where he participated in cultural and political life. In 1538, at the behest of don Pedro de Toledo, he led 300 men in a campaign in Calabria. Only one other visit is documented for a brief period in the mid-16th century when he was sentenced to live in the Calabrian properties, which came into his possession in 1541 and remained his property until 1583<sup>44</sup>. He was the author of a treatise on fortifications that never proceeded beyond manuscript form and constituted the sum total of his humanistic studies and his knowledge of mathematics and military engineering<sup>45</sup>. I do not believe that he could have built the Monasterace Castle because he lived far away from the region and because he only claimed in his treatise to have built the fortification of Catanzaro in Calabria «as I did in Catanzaro»<sup>46</sup>, probably as a result of the campaign he led at the end of the 1530s.

The treatise is nevertheless an important planning reference because Volume I, after focusing on the instruments used for drawing and relief work, turns its attention to «*Del Fortificare*» [fortifying] and explains «the practical art of building», dwelling on topography, types of castle, whether state or private, and construction methods. Each option is set out with relevant reasoning. The thoughts expressed provide a practical knowledge of what must be done. For example, the various sections on *The condition that the drawing of the Fortress must have*, *What the drawing must be like*, the form it must take: *Whether the Fortress should be configured with many or few corners*, its size: *On measuring the length of the walls and On the proportion between one curtain wall and another*<sup>47</sup>.

Careful consideration was given to the *belguardi* [bastions] i.e. arguing whether or not the fortress should have any and criticising their excessive length: «Wherefore it is a big mistake not to observe a sense of proportion, because many believe that they increase the usefulness without realising they increase the risk»<sup>48</sup>. He also provides a definition of these «*belguardi*» with reference to «Structure or building, for example quadrangular», examining a study of the profile and the construction rationale<sup>49</sup>. His detailed description comes with a diagram alongside that serves to illustrate his description accurately<sup>50</sup>.



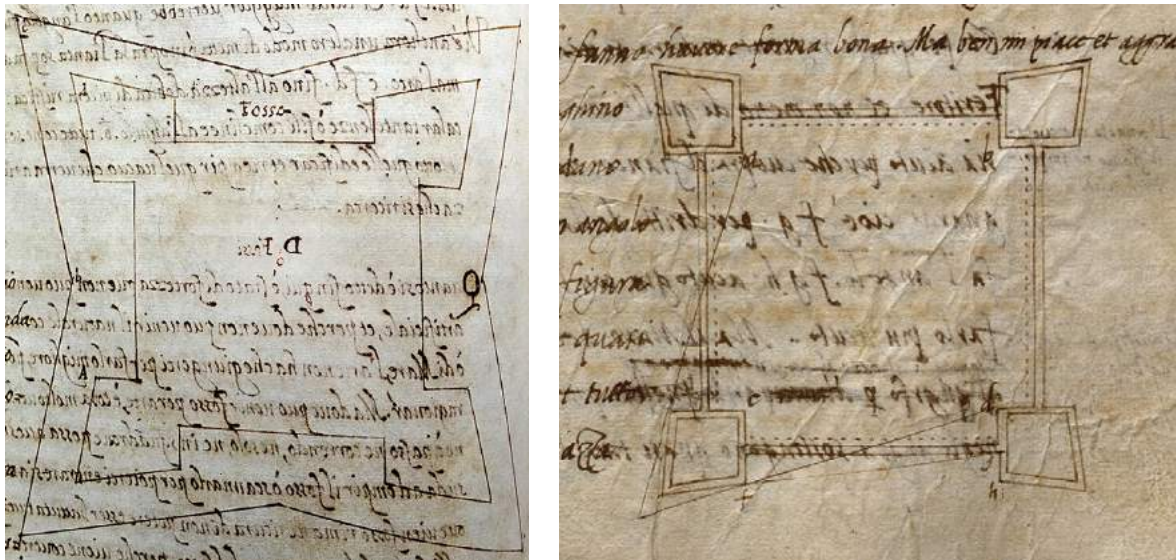


FIG. 10a-b M. GALEOTA, *Trattato*. Naples, Biblioteca Nazionale. Left, fortress with bastions, right *Belguardi quadrangoli di dentro* [belederes with four-sided interiors].

The few drawings clearly show that Galeota was neither an engineer or an architect, but reveal his preference for drawing a square plan with bastions. Galeota acknowledged that it was not perfect but pointed out the economy of the structure: «This is why I say that configurations with fewer corners are less expensive and need less protection because they have much fewer *Belguardi* and therein lies their usefulness ...». He also believed that this configuration was better suited to small areas: «the size of the area can be used as a rule because a square structure is better suited to a small area»<sup>51</sup>.

Two of the castle plans in the Treatise, one enclosed by moats relating to the section *De Fossi* [On Moats]<sup>52</sup> [FIG. 10a], another lacking a moat in *Della proporzione dell'una cortina all'altra* [On the proportion of one curtain wall to another] [FIG. 10b], can be specifically compared with Monasterace. In particular, the latter shows bastions incorporated in the curtain wall as well as in the constructed work<sup>53</sup>.

The castle [FIG. 11] also reflects other statements made in the Treatise, which mentions fortresses that fit the site naturally, defensive fortresses «that defend themselves»<sup>54</sup>, that do not have to be used for attack but as a shield<sup>55</sup>. In Monasterace, the site was not exploited or modified but the imposing bulk of the fortification lies in what was effectively a restricted area that ideally satisfied the principles of state-of-the-art military architecture, fit for the purpose of defending itself and its noble occupants.

While I believe there is an evident link with the Mario Galeota's Treatise, further investigation is necessary to establish the person who commissioned it. By 1652, three wings of the castle had already been built. Only the west side was missing, as is fully described in an inventory<sup>56</sup>. This therefore gives us the latest possible date, while I believe that the start of the construction can be dated to the end of the 16th century or the early 17th century, when the previous fortification was totally destroyed and work started on a new building better suited to the requirements of an updated fortified residence<sup>57</sup>.

We can perhaps get an idea of the volume of the previous castle from the depiction of Monasterace contained in *folio 70* of the Carratelli codex, where the town appears to

be surmounted by a castle shaped like a cylindrical tower. However, we do not know whether the representation in the Codex is simply a symbol or if there really was a tower that was subsequently demolished to make way for the construction of a square castle<sup>58</sup>.

I suggested that the Carratelli codex can be dated to the years after 1594-1597<sup>59</sup> and this is therefore the earliest possible date, a period that is perfectly consistent with the fortification's spatial stratification. During this timeframe, the feudal lord of Monasterace was Giuseppe Galeota, great-grandson of Mario, who owned the land from 1590 to 1637 and to whom Philip III granted the title of Prince of Monasterace in 1628<sup>60</sup>. I

believe that he commissioned and conceived the rebuilding of the castle, with reference to the work of his forebear Mario for the above reasons.

This discussion of the fortifications of the four Calabrian fiefdoms points to only one technical architect: Giacomo d'Amato, who oversaw the viceregal building work at Crotona during the 1540s and who is known to have been present in Cariati during restoration of the town walls. In the other cases, we have as yet no record of the name of the architects, who may only have been in charge of the execution. I believe that the designs may have been conceived by the feudal lords themselves, who sometimes consulted eminent people. This probably took place in the case of the citadel of Isola, where there was contact between Ricca and Acaya, but the other two individuals may have acted independently as they were well aware of the needs and arrangements to be adopted to defend the town centres.

I believe this to be unquestionably true in the case of the Spinellis, given their political and military history and direct experience of battle sites. A feudal lord also decided on the fortification of Monasterace. The building in this case involved not a citadel but an addition to the town walls and a castle, which reflects the application of the principles set out in the treatise in question. Lastly, I would like to stress that the designs and constructions are perfectly consistent with works carried out during the same period in other areas of the empire, where plans featuring square-shaped castles with bastions were widespread. This therefore confirms that the region's feudal lords placed it firmly on the map as far as cultural and scientific debates were concerned, through their contacts and the circulation of know-how and ideas.

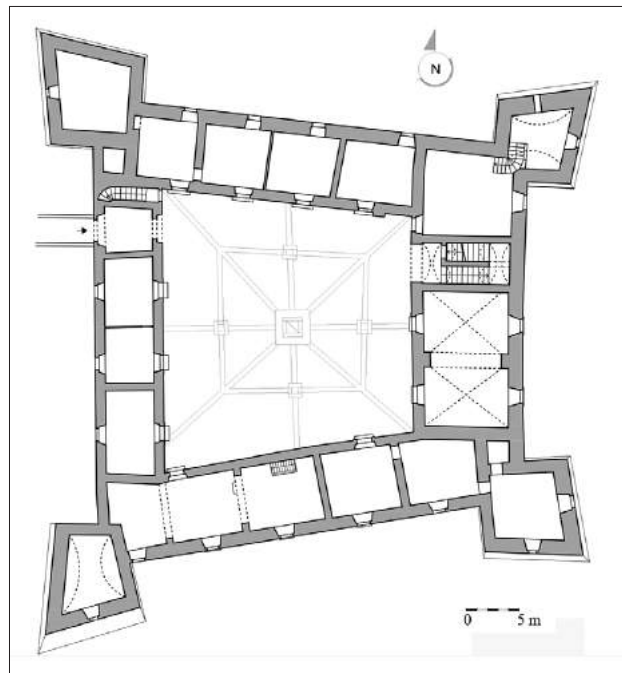


FIG. 11 Monasterace. Plan view of Castle, ground floor (relief by V. de Nittis).

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NOTES

1. Antonello da Trani, Giovanni Maria Buzzacarrino, Gian Giacomo dell'Acaya, Evangelista Menga, Ambrogio Attendolo, Benvenuto Tortelli, Gabrio Cerbellon or Serbelloni: see MARTORANO, 2002a, pp. 355-356, with previous bibliography.
2. The local capitals of the fiefdoms are highlighted on a map of Calabria that I put together based on two outstanding map databases, the «*Provincie di Calabria Citra e di Calabria ultra*» [Provinces of Calabria Citra and Calabria Ultra], in a 16th century publication of the Stigliola - Cartaro Atlas. I would like to thank Prof. Vladimiro Valerio for providing me with a digital copy of both maps. For his comments on the novel nature and the amount of data expressed in the maps, I refer to the essays of Prof. Valerio, in particular: VALERIO, 2015, pp. 125-157.
3. See Archivio di Stato di Napoli (hereafter ASN), Dipendenza della Sommara, n. 187/2, c. 204.
4. In 1543 *de la Caya* received a drawing of the state of the building works and in May and June D'Amato went to Naples to report back on work progress and receive instructions: ASN, Dipendenza della Sommara, n. 196/6, c. 165 r; MUSSARI, 2009, pp. 764, 774, note 49.
5. In 1538, work begun under the charge of *Joan Antonio Buzacharino*: MARTORANO, 2002a, pp. 364, 386, 402 notes 67, 137. See also MAFRICI, 2002, pp. 343, 351 note 59, MUSSARI, 2002, pp. 422, 448 notes 111-114; MUSSARI, 2009, pp. 765-766.
6. ASN, Dipendenza della Sommara, n. 198/3, c. 295 r; MARTORANO, 2002a, pp. 364, 402 note 69.
7. He received a reasonable remuneration for these commissions 1000 ducats per year as a royal councillor and an annuity of 2000 gold ducats from 1521: SANTORO, 2008, in particular pp. 24-41, 85-86. See also SICILIA, 2009, pp. 252-253.
8. PELLICANO CASTAGNA, 1996, p. 63; SANTORO, 2008, pp. 87-89.
9. Ferrante Spinelli was described as a «valiant *condottiero*» in CANDIDA GONZAGA, 1876, III, s.v., who also dwelt on his military exploits: p. 195; PELLICANO CASTAGNA, 1984, pp. 388-389; *Id.*, 1996, p. 63.
10. They were also linked by family ties: Ferrante's son, Giovanbattista II, third Count of Cariati, married Isabella di Toledo, while Pietro di Toledo entered into marriage with Donna Vincenza, another daughter of Ferrante: PELLICANO CASTAGNA, 1984, p. 389; SANTORO, 2008, p. 104.
11. VALENTE, 1973, pp. 154-156.
12. PACICHELLI, 1703, p. 18 and fig. 18.
13. The tower «of S. Pietro» is located 2 km from the centre of Cariati. It has a square plan with scarp: FAGLIA, 1984, I, p. 122; 5 Km, the tower of Fiumenicà, which was already active in 1569 and entrusted to the Spanish tower builder Miguel Mendoza: LIGUORI, 1991, p. 41; CATALDO, 2014, p. 273.
14. In the ninth century, named *Insula* or *ton Aeisulon*, since the diocese adopted the Greek language and forms of worship, it was under Santa Severina. The name of *Turris Insule* appeared in the records for the first time in the second half of the 14th century (1483): MAONE, VENTURA, 1981, pp. 31-34, 92, 103.
15. After a short period as a state at the end of the 15th century, the town of Isola was sold for 2000 ducats to Troilo Ricca. In 1489, Ricca was engaged «have pensiero» in building work on Castel Capuano in Naples: MAONE, VENTURA, 1981, p. 114. For the feudal history of Isola during the period in question: VALENTE, 1939, pp. 89-104; PELLICANO CASTAGNA, 1996, pp. 357-358; MARTORANO, 2009, pp. 227-228.
16. For example, Isola provided straw baskets for carrying materials to the Crotona fortification works during the first half of the 16th century: MARTORANO, 2002a, p. 363.
17. MARTORANO, 2009, pp. 228-229. The pre-existing settlement was not defended, as stated in f. 413 of the 1564 trial between the Bishop Mons. Caracciolo and the Duke of Nocera: «(Original text) *Quando vi era nova de Turchi li preti et gente dell'Isula salvavano la gente et robbe in la terra delle Castelle perché nella città dell'Isula non ci era mura*» [When the Turks invaded, the priests and people of Isola took the people to safety inside the castle because there was no wall around the town of Isola]: PESAVENTO, 1994, p. 10. In 1517, it was plundered by Barbarossa: VALENTE, 1973, p. 103.
18. For an analysis of the gate and dating of church of the Annunciation: SCAMARDI, 2002, s.v., p. 883.
19. The plaque on the Terra gate states: INSULAM URBEM PIRATA./ INCURSU DIRUTAM JOANNES/ ANTONI RICHA NEAPOLITA/ N. MOENIA PROPUGNACOLIS ET/ ARCE P. PRIO AERE MUNIVIT IN/ PERPETUUM SUAE VIRTUTIS/ MONUMENTUM ET POPULOR./ PRAESIDIUM - ANNO A VIRGI/ NEO PARTU - 1.5.4.9.: VALENTE, 1972, pp. 53-54. The second, in a monument to Giovan Antonio states: IO. ANTONIUS RICCA TROYLI A QUONDAM/ BEATRICIS CARACCHIOLE FILIUS. CIVITATIS/ INSULE BARO POST MULTAS TURCORUM/ INVASIONES, NE SUA CIVITAS FUNDITA/ DELETUR, HIC NOVA MOENIA ET PROPUGNACULA/ PROPRIO AERE HOC ANNO 1549 A FUNDAMENTIS EREXIT/ QUA QUIDEM BARONIS PERITIA, IN ANNO 1525, QUO/ TEMPORE GALLORUM FUROR HAS REGIONES ACCUPAVERAT/ PRAESIDIUM HAC PLAGA MARITIMA CONCREAVIT/ STRENUE HOSTILES INSULTATIONES SEDAVIT, OPPIDUMQUE/ CASTELLORUM MARIS QUOD AB IMPERIALI/ DITIONE PERTINACITER DESCIVERAT, PROPRIO/ MANTE AD EAMDEM REVOCAVIT POST OR/ OMNIUM INTEGRITATE HUNC LAPIDEM AC SACRAS/ AEDES VIVENDO SIBI CONSTRUXIT: *Id.*, 1972, p. 56. The church of s. Marco, under the judicial patronage of the Baron, is the only one inside the fortified town and was built by his son Cesare under the terms of a legacy left by his father Giovanni Antonio.
20. MARTORANO, 2002a, p. 393; *Id.*, 2009, p. 228.
21. As evidenced by an inscription on the entrance gate: BRUNETTI, 1991-92, p. 60; *Id.*, 2006, pp. 154-171. For a study of Acaya's layout and construction stages, see also D'ERCOLE, 1999, pp. 22-25.
22. Galeotto and Andrea II Carrafa della Stadera (1535-1564) were responsible for the 16th century walls and imposing bastions that give the castles at S. Severina and Le Castella their distinctive appearance: LOPETRONE, 1995, pp. 37-44; *Id.*, 1998, pp. 80-88; MARTORANO, 2002a, p. 379.



23. The Spinellis purchased the fiefdom of Seminara for 4000 ducats. Before the feudal succession of the Spinellis (Napoles), bloodline of the Princes of Cariati: PELLICANO CASTAGNA, 1978, pp. 139-142, 209.
24. Galasso argues that Carlo Spinelli was part of the ruling class that awarded substantial legal and financial privileges to the great estates during the second half of the 16th century: see GALASSO, 1980, p. 285. He also had ties with the most important families of the time, for example his friendship with the Farnese family led him to inform Ottavio Farnese in 1564 of the marriage of his son Scipione to Francesca Spinelli, heiress to Castrovillari, Cariati and Paola. In 1564, he held the office of land governor of Otranto and Bari: SANTORO, 2008, pp. 109-110.
25. Both medals bear a profile of Spinelli on the front, while on the back, one bears the motto NONDUM IN AUGE, in a crown of pearls, a human face surrounded by rays in the middle of a circumference enclosing a smaller circle with a point in the centre; the other shows a citadel and bears the wording CARLOPOLIS FUNDATIO. Published in ARMAND, 1887, III, p. 257. The coin collector SICILIANO, 1970, pp. 3-10, published an image of the metal with the motto NONDUM IN AUGE, and pointed out the similarity between the profile of the Duke depicted on the medal and the head of the statue on the monument to Carlo Spinelli erected in Seminara. Siciliano believes that the artist who minted the coin was inspired by the marble bust of the monument in Seminara when he reproduced the Duke's profile on the medal.
26. The first detailed description of the monument is given in DE SALVO, 1899, pp. 89-92. Recently, DE MARCO, 2010, pp. 282-287, interpreted the four panels as an illustrative work on historical events relating to the feudal lord. In chronological order: Battle on the Petrace (1503), Carlo V's triumphant entrance to Seminara (1535), Battle during the war of Campagna di Roma (1556-1557) (fragment), Episode of war, (fragment). De Salvo, on the other hand, believes that they depict episodes of feudal life. In particular, he believes that the first panel fragment shows the Spaniards winning back Seminara in 1495 and the second shows the surrender of d'Aubigny (1503). De Salvo firstly associated the statue positioned on the base decorated with figurative panels with Carlo Spinelli, contesting the attribution proposed to that date, i.e. to Consalvo of Cordoba. With regard to its architect, NEGRI ARNOLDI, 1997, p. 186, attributes the monument to Andrea Calamech, due to the narrative style of the reliefs, which are reminiscent of similar scenes from the monument to Don Juan of Austria in Messina (1572), while VALTIERI, 2002, pp. 234-236, suggested a Neapolitan provenance. DE MARCO, 2010, p. 280 agreed that they could be attributed to the workshop of Calamech but stressed that the quality of workmanship was not up to the standard of Calamech's Messina work, suggesting it could be dated to a few years earlier.
27. The medal was tracked down by Domenico Ferraro, who was the first to publish a photograph of it: FERRARO, 1988, pp. 83-85. All we know of it is its catalogue entry, by Armand.
28. I have found no trace of a date on the image of the medal, but Armand added the date 1564 alongside the town in the catalogue. The catalogue entry is shown below. I believe the date suggested by Armand is feasible due to the reasons given in the text: F. Dia 35 «CAROLUS. SPINELLUS. DUX. SEMINARIAE.» – 1562 R / «CARLOPOLIS FUNDATIO – 1564». Au droit: Buste à droite de Carlo Spinelli, tête nue, barbu, cuirassé, avec petite fraise. «Au revers: vue cavalière d'une ville fortifiée».
29. Philip II used his privileges to grant Carlo II Spinelli the title of Duke of Seminara on 28 April 1559. The date of acquisition of the ducal title was given as 1557, ARMAND, 1887, p. 257, followed by SICILIANO, 1970, p. 5.
30. 17.01.1566. *Francisco de Vellis, clerico Romano, qui cessit simplici beneficio in parochiali ecclesia oppidi de Palma, Militen dioc., eidem, per ob. Francisci Ferri, de mense augusti praeteriti ex. Ro.Cu.def., collato et de quo providetur nunc Io. Antonio de La Casa, clerico eiusdem seu alterius dioc., reservatur pensio. Dat. ut s. «Rationi congruit».*  
26.05.1567. *Die XXVI Maii 1567, d.nus paulus Tacconus, de terra Briatici, pbr Militen. dioc., cui nuper de parochiali ecclesia S. Nicolai de palmi, nunc carlopolis, Militen. dioc., vac. per ob. quondam Scipionis de Regio de terra Seminaria, aplca auctoritate provisum fuit, presens consensus assignationi pensionis annue 20 duc. monete regni neapolis super fructibus dicte parochialis D. Sebastiano de Leone, archipresbytero Militen, iuxta formam supplicationis desuper signate sub dat. Rome, apud S. petrum, XI cal. Maii, an. 2°:* RUSSO, 1978, IV, p. 391 n°21512., p. 417 n°21768.
31. BRAGARD, 1994, p. 148. Mariembourg is mentioned in Volume I, chapter XI *Risolution del sopradetto (Ragioni perché si debbano far più Terre forti che Rocche)* [Resolution of the aforementioned (Reasons why more strongholds should be built than fortresses), of the Galeota Treatise as a newly built stronghold. On the Treatise *infra* note no 45; citation on p. 233.
32. Even though the work was small (450 x 325 m), building work continued until 1580: MORINI, 1957, pp. 327-330; MARCONI, *et al.*, 1978, p. 278. See also GUIDONI MARINO, 1983, pp. 93-96.
33. On Carlo V's journey: DE SALVO, 1899, pp. 138-140; BORRETTI, 1939; ZANGARI, 1940; VALENTE, 1973, pp. 122-133; ANTINORI, 2002, pp. 19-28.
34. The slab (l. 100 cm approx h. 0.95 cm approx) is carved in bas-relief and there is no inscription beneath: MARTORANO, 2009, pp. 233-234.
35. The tower above Seminara actually existed. It was damaged in the 1783 earthquake and defined as «diruta» [derelict] in the plan, F. 30, of *Atlante Geografico del Regno di Napoli* by Giovanni Antonio Rizzi Zannone, which was published in Naples between 1788 and 1822. It was identified as Torre Spinelli [Spinelli Tower] in the 1835 map signed by the engineer Benedetto Lopez Suarez, who drew up the plan in his capacity as expert commissioned to indicate the roads linking the centres of the district of Bagnara and Palmi and the associated distances: Archivio di Stato di Reggio Calabria, Inv. 5 Intendenza - Affari Comunali, b. 104, fasc. 5259, *Sull'aggregazione del comune di Melicuccà al novello circondario di Bagnara* [On connecting the municipality of Melicuccà to the new district of Bagnara]
36. The lists are mainly drawn up based on documentation of the viceregal provisions and projects implemented: CISTERNINO, 1978, pp. 89-143; FAGLIA, 1984. Lastly, CATALDO, 2014, pp. 192-290; MARTORANO, 2015, pp. 90-99; VALERIO, 2015, p. 158.
37. Archivio della Corona di Aragona, *Privilegi*, Volume 3, folios 154-163, document cited in SANTORO, 2008, p. 39.
38. The coastal fortification plan for Calabria *ultra* in the recently published Romano Carratelli Codex confirms the viceregal *modus operandi*: MAFRICI, 2015, pp. 43-66; MARTORANO, 2015, pp. 67-102.
39. Carlopoli was built over the pre-existing town of Palma. For a study of the urban history of Palmi until the early 20th century, see MARTORANO, 2002b, pp. 229-276.

40. On the military campaigns of Carlo Spinelli: RUSCELLI, 1584, pp. 110-114; CANDIDA GONZAGA, 1876, III, s.v., pp. 195-196; DE MARCO, 2010, p. 285.
41. Unfortunately, modern demolition work in 1921 destroyed the ramparts at the Chiesa del Soccorso, while the southern curtain wall was cut at the end of the 1990s to create a through route. The remains of two bastions can still be seen: at the base of the wall of the Villa Comunale at the corner between Via Rosselli and V Pizi, and in the Irrera Gordon, formerly the monastery allotment.
42. Silvestro Galeota bought the fiefdom for 3500 ducats, when Monasterace joined his other holdings of Casaterra and Bagliva near Aversa. The family died out with Eleonora Galeota (1590-post 1641), second Princess of Monasterace, who died without heirs. After its return to the royal treasury, it was donated in 1654 by Philip IV to Carlo della Gatta, a Neapolitan nobleman and renowned soldier in his day: CANDIDA GONZAGA, 1876, III, s.v., pp. 100-109; PELLICANO CASTAGNA, 1999, pp. 195-196.
43. For an analysis of the fortification and town in the context of contemporary fortifications in Calabria: MARTORANO, 2016, pp. 177-203.
44. His enforced stay in Calabria probably took place between 1552 and 1555, when he was arrested and taken to Rome. For his biography, see PASTORE, 1988, pp. 420-423.
45. It is conserved in two manuscript copies at the Biblioteca Nazionale di Napoli. Codex XII D 14, handwritten, the final part of which is damaged, and XII D 21. There is no exact correspondence between the pages with regard to the identity of the text. It is generally dated between 1546-1560, HERNANDO SÁNCHEZ, 1994, p. 410 narrowed the dates down to 1555 and 1557. The existence of the Galeota codex was reported by VOLPICELLA, 1877, pp. 135-194. See also DI RESTA, 1988, pp. 54-60, MARTORANO, 2002a, pp. 388-389. Transcription of a handwritten copy XII D 14 of the Galeota Treatise, preceded by a comment with the reproduction of some of the diagrams contained in the work, in BRUNETTI, 2006, pp. 75-93, 229-294.
46. Codex XII D 14, chapter XIII: *Decisione del dubio delle Fortezze naturali et artificiali* [Choice between natural and artificial fortresses]: «(Original text)... *hora vedendo un balzo o rupe accostare alla cima di quelle il muro, perché tutta la Rupe gli serve per muro naturale, il che suole servire spesso ad allargare la piazza, et mancar di guardia quando vien così fatto come io già feci a Catanzaro ...*» [or if you notice that a slope or a cliff is near the top of the walls, the whole cliff can serve as a natural wall and you can widen the area and avoid posting guards when it is arranged in this way, as I did in Catanzaro ...]. MARTORANO, 2002a, pp. 356, 388-389; BRUNETTI, 2006, p. 253.
47. Transcription in BRUNETTI, 2006, pp. 252-256.
48. *Perché si tratti questa materia così comune per via di scientia et di methodo, Ivi* [Why this common subject should be addressed using science and method, *ibid.*], p. 255.
49. *Che condizione debba avere il disegno della Fortezza* [what must be the condition of the fortress design]: «(Original text) *Avendosi da far la Machina o edificio, per esempio quadrangolo chiaro è che la linea ha la quale fa gomito con la linea al in a giamai vederà l'un l'altra perché l'una si nasconde dall'altra, però è stato necessario questo rimedio che prima che la linea dia la volta in a per nascondersi si spezzi e si seghi a traverso con un'altra linea sporta in fora, come è df che la seghi a traverso con un'altra linea sporta in fora, come è df che la seghi a traverso in d. .... Et perché è necessario di chiudere il recinto....*» [For example, if you have to design the structure of a building with a square plan, it is obvious that the line forming an elbow and the line at point a will be concealed from one other and will never be mutually visible. A solution had to be found, namely that before the line turns inward and becomes hidden, it is broken by another line that runs to the outside and another line to the outside that breaks at point d. ... This is why the walls must be closed]. «(Original text) *Questa giunta di quattro linee spezzate che nascono in quel modo ne i gomiti o angoli precurrenti è stata chiamata Belguardo credo o passivamente perché tutto esso è ben guardato, o attivamente perché guarda il tutto bene, oltre che dallo Angolo li ha bellissima vista, e riguarda tutti e due i lati. Ecco come la difesa nasce dall'intersecazione delle linee perché l'una veda l'altra e nulla ne resti nascosta, et si sape anchora con che ragione sia formato il belvedere, et che cosa sia ...*» [This union of four broken lines that start from the pre-existing corners has been called a Belguardo I believe this is a passive description because it is clearly visible and also an active one because it gives a good view of everything, from the corner you get a fine view that sweeps along both sides. The defensive function arises from the intersection of the lines, meaning that one sees the other and no part remains hidden. So you can understand why the Belvedere exists and what it is...]: *Ibid.*, p. 254.
50. *How the design should be*: «*Et acciò che ogni cortina venga guardata per traverso et gli angoli non coprano il nemico, in ciascun angolo si disegni un belguardo che pigli et abbracci i due lati della figura che fanno l'angolo. Et belguardi chiamo quelle figure angolari sporte in fora ne cantonali della Fortezza ...*» [To make sure that each curtain wall is viewed from the side and the corners do not obstruct the view of the enemy, a belguardo is created in each corner that covers the two sides of the figure forming the corner. I call the angular form extending outward from the corners of the fortress a *belguardi*] *Ibid.*, p. 255, where the drawing present in the Treatise is not shown alongside the text.
51. *If the Fortress should be configured with many or few corners*: *Ibid.*, p. 256. This type of plan nevertheless appears to be the most widely adopted in Calabria from the mid-16th century judging from the surviving ruins.
52. The plan was published for the first time in in DI RESTA, 1988, p. 55 fig.1, but without any reference to the written text. It is included in the section *De Fossi*, p. 66 v Codex XII D 14 = p. 73 v of Codex XII D 21 (the markings are modern).
53. On the proportion of one in relation to the other: «(Original text) *Et anchor che per mostrar di tirar le linee dritte, et per poter darci la Simmetria tra loro; non solo io m'habbia immaginato ma disegnato la figura quadrangolare compita ne i suoi cantoni e lasciargli dentro i Belguardi et finito tutto il recinto del quadro pur advertiscasi che si è fatto perché con più facilità si possano sopra quelli formare et commensurare i Belguardi; ma non già perché mi piacciono di lasciarceli come molti fanno nella fabbrica; perché oltre di esser cosa soverchia restringono anchora la piazza del belvedere, né gli fanno avere forma bona. Ma ben mi piace et aggrada che i muri di fianchi si allunghino verso dentro .... Et di più stendendosi a quel modo verso dentro, dona adito che da i corridori che sono da dietro i muri vi si possa entrare per dritto et condurci l'artiglieria senza dar volta, che è grandissima comodità .....*» [and also to show how to draw straight lines and ensure they are symmetrical, I not only imagined, but drew a square

plan with corners and left them inside the belvedere, finishing off the entire enclosure of the square. I did it so that I could shape and fit the belvederes with greater ease; not because I like to leave them as many build them, i.e. as a redundant structure that further reduces the belvedere area and means they are not well-shaped. I prefer the side walls to extend inwards .... when they extend inwards, you can also be certain of entering from the corridors behind the walls standing upright and carrying artillery without having to bend, which is extremely useful: p. 58 r of XII D 14 = p. 65 v of Codex XII D 21 (the markings are modern).

54. BRUNETTI, 2006, chapter XIII p. 233; chapter XV p. 234, *Decisione del dubbio delle Fortezze naturali et artificiali* p. 253.
55. *Ibid.*, chapter VII p. 231.
56. The drawing up of the inventory was not linked to the feudal succession but to a need to establish the assets present in the castle. All this came about following a court case involving the town's governor, who resided in the castle and escaped, leaving it unattended: NAYMO, 2016, pp. 115-116.
57. The castle in Monasterace was completely rebuilt. Traces of pre-existing structures appeared during the restoration work in progress. I would like to thank the architect Vincenzo de Nittis, works manager, for information, pending publication of the relief drawings and stratigraphy for more detailed comments.
58. Castles with towers present in Rossano, Tropea and S. Marco Argentano, the latter is the only surviving example: MARTORANO, 2016, pp. 191-192.
59. MARTORANO, 2015, pp. 87-88.
60. PELLICANO CASTAGNA, 1999, pp. 195-196; MARTORANO, 2016, p. 203.



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In this book, the collection Juanelo Turriano Lectures on the History of Engineering is publishing part of the results of a project in which the Fundación Juanelo Turriano has been the concerned entity: the R&D+I project *El dibujante ingeniero al servicio de la monarquía hispánica. Siglos XVI-XVIII: ciudad e ingeniería en el Mediterráneo - DIMHCIM (AEI/FEDER/UE)* [Draughtsman engineers serving the Spanish monarchy in the sixteenth to eighteenth centuries: city and engineering in the Mediterranean - DIMHCIM (AEI/FEDER/UE)], - HAR2016-78098-P funded by the Spanish Ministry of Science, Innovation and Universities.

The book is organised around three main axes for reflection: Nobility and engineering, Creations of and Between power and knowledge, which present the chapters in which Spanish, French and Italian specialists study the relations that existed between the engineers and power in the sixteenth and seventeenth centuries.

The guiding theme is the expression «ser hechura de», which we find defined in *Tesoro de la lengua castellana o española* [Treasury of the Castilian or Spanish Language] by Sebastián de Covarrubias in 1611: *Hechura: para dar a entender que un señor ha valido a cualquier persona, y le ha puesto en estado y honor, decimos ser este tal hechura suya* [Creation/Making: to signify that a nobleman has sponsored somebody, and given him status and honour, we say that this person is his creation or of his making].

The possibility of collecting in one book case studies that involve a large part of Europe, allows a comparison of how the necessary loyalties were ensured, the engineer's dependency regarding the networks of power, the shared knowledge, or the role of the nobility, all of which represents a new approach to the history of engineering in the Early Modern Era.



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