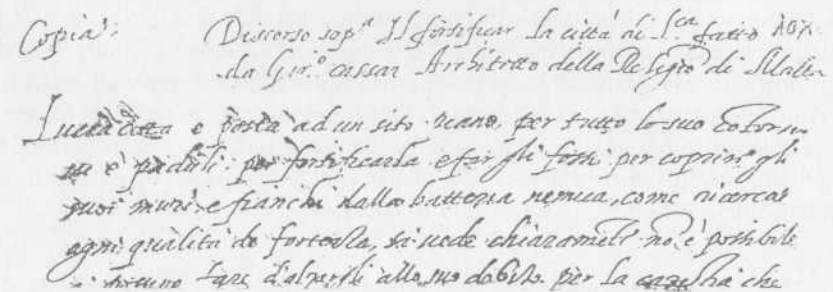


IN SEARCH OF GIROLAMO CASSAR
AN UNPUBLISHED MANUSCRIPT AT THE
STATE ARCHIVES OF LUCCA

Michael Ellul

This paper is an analysis of a document which I consider to have significant relevance to the study of Maltese architectural history, and which I was able to discover through intuition born of years of research and the almost infinite potentials of modern technology. The document, a copy of an original manuscript by the eminent architect and military engineer Girolamo Cassar (c.1520-1592), forms part of the holdings of the *Archivio di Stato di Lucca* along with other chronicles of military architecture describing the marvellous lines of fortifications that encircle this historical town of Tuscany.¹

It is divided in two sections, and bears as its main title *Discorso sopra il fortificar la città di Lucca fatto da Girolamo Cassar Architetto della Religione di Malta*.² (Fig. 1). The second section is titled *Difetti del baluardo e cortine di Sta*



Copia: Discorso sopra il fortificar la città di Lucca fatto l'anno 1571
da Gio: Cassar Architetto della Religione di Malta.

Lucca città e posta ad un sito buono per tutto lo suo contorno
e' parata: per fortificarla e far gli forti per coprirli gli
suoi muri e fianchi dalla bastonia nemica, come ricerca
ogni qualità de fortifica, si vede chiaro non e' possibile
in un tempo d'altrimenti alla sua debita per la quale ha che

Fig. 1. Title page of Cassar's *Discorso*.

(Courtesy of Archivio di Stato, Lucca)

Maria detti dal medesimo Girolamo Cassar Architetto Maltese.³ It forms part of a collection of manuscripts, classified under the general heading *Ragionamenti Sopra*

1. Archivio di Stato, Lucca, (ASL), Ms. n.22, *Fortificazioni: Ragionamenti Sopra La Difesa Della Città*, ff.108v-110r.
2. Ibid., f.108v. For a full transcription of Cassar's manuscript see Appendix II.
3. Ibid., f.110v.

la Difesa della Città ed Altri Scritti in Proposito, which brings together in a bound volume writings by contemporary military engineers and architects Marc Antonio Colonna,⁴ Pietro Vagnarelli da Urbino,⁵ Girolamo Cassar and Vincenzo Civitali.⁶ They were put together over a number of years and are by different hands, and record the construction, restoration, maintenance and administration of the fortifications of Lucca between the sixteenth and nineteenth centuries.

The present location of the *original* Cassar manuscript is not known: the document under review, which is marked as *Copia* in the same hand, consists of three folios, each 32.0 cm by 21.5 cm. The papers have no watermark, but the entire batch of which the Cassar document forms part has been dated to the latter half of the sixteenth century.

The National Archive of Lucca also holds an extensive collection of drawings that document a wide-ranging anthology of topographical surveys carried out between 1580 and 1583 for the purpose of tracing a detailed map of the fortifications. Apart from providing information on the city's cartographic and defence projects, these drawings provide first hand documentation of the work of a 16th century topographer, as well as the measurement methodology of the time. An important map of the walls of Lucca, was drawn by the military engineer Alessandro Resta in 1567,⁷ and was probably seen and consulted by Cassar during his sojourn there in 1569.

Lucca and its fortifications

The Tuscan city of Lucca is one of the few cities in Italy that has preserved its encircling walls almost intact. In past centuries, the demographic growth of the urban centres and traffic requirements led to the knocking down, partially or totally, of fortified walls all over Europe that were considered to constitute an obstacle to urban development. Lucca escaped this trend, and thus one of the most important examples of 16th century military architecture was saved. Its walls are, in fact, one of the most valuable testimonies of a small City State menaced by outside forces, and testify to the efforts of its citizens to guarantee its freedom.⁸

4. Marc'Antonio Colonna was successively General of the Papal troops, General of the Papal Galleys in the Battle of Lepanto (1571), and Vice-Roy of Sicily (1577-1584). Colonna came to Malta in 1582, escorted by five Sicilian and two Maltese galleys, at a time when a Turkish attack was considered imminent. He was received with full honours by Grand Master Verdalle, and gave advice on the fortifications of the island. The State Archives of Lucca have a manuscript titled *Parere del Sig. Marc'Antonio Colonna sopra li Disegni delle Mura Speditigli da Lucca* (ASL, Ms.22, f.93).
5. Pietro Vagnarelli, a military architect from Urbino, was responsible for the design and construction of the *Baluardo della Libertà* in Lucca.
6. Vincenzo Civitali (1523-1597) was one of the chief architects of Lucca. He worked for some time on the city walls, and designed and supervised the construction of a number of secular buildings, including the Palazzo Giunigi, now the seat of the *Archivio di Stato*.
7. F. Camerota, *Il Disegno del Territorio e la Difesa dello Stato: I Rilievi di Vincenzo Civitali per una Mappa delle Fortificazioni Lucchesi*, in *Nuncius*, Istituto e Museo di Storia della Scienza, Firenze, xiv, 1999, 455.

The geographical position of Lucca, at the centre of a vast open undefended plain on the left bank of the river Serchio, compelled its inhabitants to construct defensive walls ever since Roman times. The Roman lines were erected at a time when Lucca established its urban boundaries probably in the second century BC. After years of peace in the region, the walls acquired new importance in the following century when the progressive weakening of the frontiers of the Roman Empire exposed the city to external aggression. Lucca was defended by means of a rectangular enceinte, with walls nine metres high, constructed with massive limestone blocks, and four well-guarded gates in the perimeter walls. The Roman walls served their purpose until medieval times when the urban configuration of the city expanded radially beyond its boundary. In the thirteenth century they were dismantled and served as a quarry for the construction of palaces and churches.⁹ The only remains that have survived may still be seen embedded in one of the walls of the aisle of the church of Santa Maria della Rosa, built in 1309, in the south-east zone of the city.

The medieval walls (1188-1265), about twelve metres high and three metres thick, were constructed by a system known as '*a sacco*', consisting of well-defined horizontal courses of rectangular blocks of stone, very similar to the Roman *opus quadratum*, on the outer surface, and bricks on the inner face, with the intervening space filled with a conglomerate of rubble mixed with mortar. In contrast with later methods of construction, the walls were perpendicular to the ground, and did not have a scarp or inclination. Some remains still exist in good condition in various places along the later walls of the Renaissance. The medieval walls survived until the middle half of the sixteenth century when they were dismantled and their stones re-used for the new buildings of the city.

At the beginning of the 16th century the rulers of Lucca became increasingly aware of the threat of the Medicis to entrench Florence as the capital of Tuscany at the expense of the independence of the last surviving city-states. Pisa, Volterra and Siena had already lost their autonomy and were forcibly annexed politically to Florence. Lucca was next in the Medicis' programme of aggrandizement especially when Florence's political strength was considerably enhanced by the ascension to the papal throne of Giovanni dei Medici as Leone X in 1513.¹⁰

In an inconclusive attempt to come to an agreement between the two states, Lucca and Florence commissioned in 1552 an accurate survey of their boundaries. Baldassare Lanci was chosen by Lucca for the difficult undertaking, while Florence nominated 'maestro' Piero Della Zucca, a renowned hydraulic engineer, for the same task. Lanci was at the time working on the walls of Lucca (1547-1557).¹¹

8. Massimo di Grazia, *Lucca and its Surroundings*, aSKa Edizioni, Lucca, 2003, 5.
9. Susanna Bianchini, *Lucca e le Sue Terre*, Lucca, 2003.
10. Roberta Martinelli and Giovanni Parmini, *Percorsi Lucchesi-Le Mura Rinascimentali*, Lucca, 1991, 11.
11. Carla Sodini, Vita, Economia e Rapporti col Potere Generale nell'Età di Cosimo I, in Giorgio Spini, ed. *Potere Centrale e Strutture Periferiche nella Toscana del '500*, Firenze, 1980, 127.

In May of 1504, the City Council nominated six of its distinguished citizens with the task of ensuring 'that our city, along with its suburbs, both walled and without walls, be strengthened and fortified'.¹² A new organization, called *Offizio delle Fortificazioni*, was set up and given ample powers to recruit workers and to requisition building materials and construction equipment as required. It was immediately decided to substitute the medieval fortifications with a new system that would be able to withstand the effect of gun-powder firing artillery. Work, however, due to a variety of reasons, not least financial strictures, could only be started in 1544. The new Renaissance walls were planned on an irregular trace that hugged the perimeter of the city. Extensive terrepleins with rather low but thick walls, intended to absorb the impact of new artillery, were constructed with bulwarks¹³ at intervals, joined by straight curtains protected by gun emplacements in the flanks.¹⁴ The work on the new walls was long and arduous, and could only be completed by the end of the century.

Cassar and the visiting military architects

Meanwhile in Malta, the first phase of the new city's fortifications was coming to a conclusion: by the middle of 1568, the fortifications along the land-front, with the exception of the two cavaliers, had been completed, followed by the fortified lines along Marsamxett and the Grand Harbour.¹⁵ Jean de la Valette died in 1568 without witnessing the urban development of the city he had lovingly fathered. His successor, Pietro di Monte (1568-1572), now shouldered the onus of installing Valletta as the new capital city and the permanent seat of his government. The fortified walls, besides keeping the enemy out and providing shelter to the population in case of siege, had to embrace within their enclave a fitting abode for the scions of European aristocracy, and a city that could rank in importance and splendour with other cities of Europe of the time.

Answering appeals by Grand Master de Valette for financial and technical assistance for the new city, Pope Pius IV (1559-1565) sent to Malta one of the best-known architects and military engineers who were active in Rome at the time, Francesco Laparelli da Cortona, in December 1565. Laparelli had already made a

name for himself in the design of several buildings in his native town when he went to Rome in 1561 with Gabrio Serbelloni (1508-1579), a cousin of Pius IV and one of the foremost military engineers of his day. Laparelli was introduced to the Pope by Serbelloni himself. Alberto Guglielmotti in his seminal work on the pontifical navies says: 'From among the many military engineers staying in Rome, the Pope selected Capitan Francesco Laparelli, a gentleman from Cortona, already famous for the fortifications he had built for Duke Cosimo. To him the Pope entrusted the direction of the work of the fortifications'.¹⁶ Laparelli directed works at the Roman Borgo and Castel Sant'Angelo and the port defences of Civita Vecchia, and eventually was nominated by Michelangelo himself as his assistant on the dome of St Peter's.¹⁷ Laparelli defends the *Maestro* against his detractors in a passionate critique titled *Risposta sopra di quel che si dubita in fare la chupola, o, vero Tribuna a S.to Pietro*,¹⁸ dated Rome, 25 April, 1565.

Laparelli arrived in Malta in December 1565 and with the collaboration of the visiting and resident engineers of the Order and often after heated discussion that involved the personal intervention of the Grand Master, produced plans for the fortifications of the city, its street layout, and the location of the main buildings. Girolamo Cassar, then still employed with the Order as *capomastro*,¹⁹ making full use of his skill and deep knowledge of local building materials and construction methods, participated actively in all discussions.

In the spring of 1569, Laparelli asked the Grand Master to relieve him from his duties so that he might visit his family at Cortona. The Grand Master granted him leave of absence, and in a letter to the Pope dated 27 April, de La Valette praised Laparelli for 'the singularity of his genius and his proficiency in a work so greatly important to Christendom'.²⁰ In another letter addressed to Cosimo I, Grand Duke of Florence, the Grand Master, after saying that the defences of Valletta had practically been completed, and that the threat of a Turkish attack was no longer imminent, stated that he 'could no longer deny Laparelli leave of absence in order

15. Roger de Giorgio, *A City by an Order*, Malta, 1985, 107.

16. Alberto Guglielmotti, *Storia della Marina Pontificia*, vol.5, Book III, 116.

17. Ludwig von Pastor, *Storia dei Papi dalla Fine del Medioevo*, Desclée, Roma, 1910, viii, 565; Filippo Venuti, *Vita del Capitano Francesco Laparelli da Cortona*, Livorno, 1761, 6.

18. Libreria Comunale di Cortona, (L.C.C.), *Scelta di manoscritti del capitano Francesco Laparelli*, Trascrizione Mancini, Codice Cartaceo, no.724, f.44.

19. The Maltese *capomastro* enjoyed the equivalent grade of his counterpart in Italy. 'The figure of a *capomastro* is that of a meticulous worker who oversees with regularity works in streets and buildings, acts as a judge in litigation between private parties, institutes inquiries with all due severity, and displays in his reports no mean skill with his pen': cf. Anna Cerchai and Coletta Quriconi, *Architetti, Ingegneri e Capomastri*, in *Architettura e Politica da Cosimo I a Ferdinando I*, Olschki, Firenze, 1967, 206. In a more local context, the *Capomastro dell'Opere* was a Maltese 'perito' combining the talents of architect and engineer and who was assisted on a 'primus inter pares' basis by a panel of twelve 'periti' elected by the Grandmaster: cf. Denis De Lucca, *The Maltese 'Perit' in History*, *Melita Historica*, vol.vi, no.4, 1975, 433.

12. ASL, *Memorie Storiche*, vol.viii, 209.

13. Bulwark: German *bollwerk*, originally a log-work, also a substantial earth-work, and sometimes a bastion-like work of semi-circular or polygonal plan, French *boulevard* and Italian *baluardo*. Gabriello Busca in his treatise *Della Espugnazione et Difesa delle Fortezze*, Torino, 1585, uses the term *belovardo*. The polygonal form was perfected by Italian military engineers in the late 15th and 16th centuries into a pentagonal work composed of two faces, flanks and a gorge, which is the interval between the extremities of the flanks. I will be using the term *baluardo* throughout since this is nearest in definition to the Renaissance meaning of the term, and is used extensively by Cassar in his manuscript.

14. Martinelli and Parmini, *op.cit.*, 12.

to return to his family'.²¹ Before leaving for home he presented to the Grand Master a memorandum which he titled '*Memoria di quello si hà da fare in mia absentia alla fortificatione et edificatione della Città Valletta*'²² in which he listed all outstanding works and instructions for their proper execution. While in Cortona, Laparelli addressed a letter to an unidentified *personaggio di Malta* in which he recalls the discussions he had had in Malta with him and with *M.ro Girolamo*,²³ the esteem with which he was held by Order, and his declaration to place himself at the disposal of the Grand Master at any time he decides to call him back to Malta, and above all his hope and wish to continue his career not only as a military engineer but also as a soldier. It is interesting to note, incidentally, that this is the only time, as far as I could ascertain, that Laparelli identifies his collaborator Girolamo Cassar by name in his *Codex*.

Grand Master Pietro di Monte, now that the defensive system and the plan of the street layout of the new city had been completed, faced the enormous task of initiating the final phase of its urban development. On 23 April, 1568, presiding over a meeting of his Council, he issued a *salvacondotto* (safe-conduct certificate) to Cassar, now the Order's chief architect and resident engineer and a *Donat* of the Order,²⁴ enabling him to proceed to Italy in order to study buildings of importance in Rome, Naples and other cities in the Italian peninsula. Cassar is instructed to study buildings that are *perfettissimi* and deserving of imitation, so that on his return to Malta he would be able to avail himself of the knowledge thus accrued and apply it to the architectural works he would be required to undertake in the service of the Order 'and not for any other purpose'. His official designation in the *salvacondotto* is stated as 'a Maltese member of our Religion and one of our architects', and as such, persons coming into contact with him during his assignment, were requested to afford to him all possible help during the period of his stay in Italy.²⁵ Salvatore Imbroli thinks that his visit overseas may have been suggested by Cassar himself, since 'he wished to show his work for the benefit of the Republic of Venice, so he got permission from the Grand Master and Council to leave Malta for that purpose'.²⁶

Before the discovery of the Lucca manuscript, practically all historians, while accepting as valid the general theory that Cassar did actually visit Italian cities in

1568, had been unable to produce any documentary proof to assert their assumption.²⁷ In certain cases, opinions had also been advanced that he may not have profited at all from the opportunity presented to him to go on his Italian study tour. Victor Mallia-Milanes is hesitant in subscribing to the conventional belief based on the 'slim evidence of a safe-conduct as well as on debatable stylistic evidence that Cassar had been on one such scholarship'.²⁸ Stefanie Paulin, who made a specialized study on Cassar for her MA thesis at the University of Malta, is similarly reluctant to concur: 'But whether Cassar actually went his study tour is not known' and 'one can assume on stylistic grounds only that the Maltese architect went abroad to study architecture in Italy'.²⁹

From the Lucca manuscript, it can now be definitely established for the first time that Cassar was actually in Italy for some time during 1568. Besides Rome and Naples he certainly travelled north to Tuscany and the walled city of Lucca. Vincenzo Bonello³⁰ and Giovanni Mangion,³¹ without quoting sources, think that he may also have visited Florence and Venice. From a purely political viewpoint it seems unlikely that Cassar, if he ever actually visited Florence, would have travelled unhindered between the two cities at that particular time. Cosimo I, with Florence and other Tuscan cities under his full control, had attempted unsuccessfully to annex Lucca in the 1540s, but after 1550 the Republic of Lucca began again to feel the pressure of the Medicis, who were intent as ever to extend their authority over the whole of Tuscany.³² In 1568 the situation caused by the conflict between Lucca and Florence regarding the line of demarcation between their territories engendered serious rivalry and intolerance that made free movement between the two cities unlikely.³³

One interesting fact that has so far escaped the notice of historians is that the dates of departure from Malta of Laparelli and Cassar coincide. The former left Malta on or immediately after 27 April 1568, the day on which the Grand Master signed the letter addressed to the Pope and which Laparelli carried to Rome in his

20. L.C.C., *Scelta di Manoscritti...*, op.cit., f.43.

21. Archivio di Stato, Florence, *Fondo Mediceo, Principat, 4176*, quoted by Enrico Sisi, *La Valletta, Un'Epoche*, Perugia, 1991, 452.

22. L.C.C., *Codice Cartaceo no.724*, vol.44.

23. L.C.C., *Scelta di Manoscritti...*, op.cit., f.43.

24. Cassar was received as a Donat (Serving Brother) of the Order on 22 April 1568.

25. See Appendix I.

26. Quoted in Ignazio Saverio Mifsud, *Stromatum Melitensium*, MLM, vol.21, 260-261. Achille Ferres, *Descrizione Storica delle Chiese di Malta e Gozo*, Malta, 1866, 129, wrote that 'it is said (dicesi)' that Cassar went to see the old church of St John the Baptist in Rhodes before drawing up the plan of St John's in Valletta.

27. Among others, Quentin Hughes, *The Building of Malta*, London, 1956, 205; Roger de Giorgio, *A City by an Order*, 1985, 146; Allison Hoppen, *The Fortification of Malta*, Edinburgh, 1979, 42; Giovanni Mangion, *Girolamo Cassar...*, *Melita Historica*, vi, 2, 1973, 192; Michael Ellul, *Heritage of an Island*, 1975, 38; Conrad Thake, *Girolamo Cassar, Treasures of Malta*, vol.vi, no.2, 2000, 30; Albert Ganado, *Valletta, Città Nuova*, 2003, 226, 229-230.

28. Victor Mallia-Milanes, *In Search of Vittorio Cassar: A Documentary Approach*, *Melita Historica*, ix, 3, 1986, 251.

29. Stefanie Paulin, *Girolamo Cassar and his Architectural Influences*, *The Sunday Times* (Malta), 8 August 1999.

30. Vincenzo Bonello, *Posizione Storica dell'Architettura Maltese*, in *L'Architettura a Malta, Atti del XV Congresso dell'Architettura*, Roma, 1970, 454.

31. Giovanni Mangion, op.cit., 19, and in *Dizionario Biografico degli Italiani*, Istituto della Enciclopedia Italiana, Roma, 1978, vol.2, 441-442.

32. Lorenzo Matteoli, *Lucca: Walls, Mercatores and Medieval Global Bankers*, University of Western Australia, 2002.

33. Carla Sodini, op.cit., 1980, 126.

pocket. Cassar's *salva-condotto* bears the date 23 April, and most probably he left soon after. Did Cassar and his mentor and collaborator travel together? Given the status of Laparelli as the Pope's protégé and envoy, and of Cassar as the Order's chief architect on an official mission, it is safe to assume that they were afforded a passage on one of the Order's galleys. Important personages travelling on galleys were accommodated on the vessel's *carosse* which was the *sancta sanctorum* for the captain, knights and any important personages who happened to travel with them.³⁴

Laparelli was travelling to Rome to present the Grand Master's letter of commendation personally to the Pope, and, therefore, the most convenient port of call was Civitavecchia. The way home to Cortona would have been either overland along the Via Francigena³⁵, or the sea-route to Livorno.

When Cassar left Malta for Italy, he had just concluded the first phase of his career. In May 1560 he was in the Djerba expedition as the *capomastro* in charge of a number of masons, carpenters and blacksmiths. Throughout the Great Siege of 1565 he toiled incessantly on the repair of the fortifications damaged by Turkish artillery. He designed and constructed 'war machines', and succeeded in destroying a bridge built by the Turks across the ditch behind Fort St Michael. This particular incident is mentioned by Bosio³⁶ and recounted in dramatic terms by Enrico Rocchi.³⁷ In late 1565, Cassar formed part of the formidable team of military engineers who were entrusted by de Valette with the planning of the new city. They were headed by Laparelli, and the team included Gabrio Serbelloni, Ascanio Della Corgna, Giorgio Palearo known as Il Fratino, Gian Luigi Vitelli and Scipione Campi, all famous names known throughout Europe for their knowledge and skill in the design of fortifications.

Like all architects and military engineers in Europe of the time Cassar did not have any formal architectural training. His acquaintance with military engineering and his understanding of the elements of architecture were mostly acquired through his many and close contacts with the several experienced architects who had been called to Malta by the Order to advise on the building of the fortifications of the new city. His experience after years of practice in both engineering and architecture must also have been backed by knowledge acquired through books in possession of individual knights and the Order itself. As early as 1555, the General Chapter of the Order had decided on the establishment of a library to be set up with books originating from the wills of knights who die in the Convent.³⁸ The National Library

34. Joseph Muscat, *The Maltese Galley*, PIN Publications, Malta, 1998, 13.

35. The Via Francigena or Via Romea was the much-frequented pilgrim-route to and from Rome for many centuries, and was also used by merchants and ordinary travellers; it went north from Rome passing through Viterbo, Siena, Lucca Piacenza and then to Switzerland and France.

36. Giacomo Bosio, *Historia dell Sacra Religione...*, Roma, 1621-1629, vol.III, 611.

37. Enrico Rocchi, *Le Fonti Storiche dell'Architettura Militare*, Roma, 1908, 399-400.

38. NLM, AOM, Arch.288 and Arch.299, *Sacra Capitula Generalia*, 1555.

of Malta still holds early editions of books on architecture, which one presumes formed part of these early collections. Among these are Vitruvius' *I Dieci Libri di Architettura*, published in Venice in 1556, Leon Battista Alberti's *L'Architettura*, Florence, 1559, and general treatises known and used all over Europe, such as *De Re et Praxi Geometrica* by Oronce Finé, Venice, 1564, and the equally famous text-book by Cosimo Bartoli, *Del Modo di Misurare*, Venice, 1564.

In Rome and Naples

Girolamo Cassar's first stop was probably Naples, where according to his instructions, he had to initiate his study-tour. Mannerist architecture, which would become his favourite style in his future work in Valletta, appeared and prevailed in most of the Italian regions between the High Renaissance of the early sixteenth century and the beginnings of the Baroque in the seventeenth (1520-1600). The Mannerist movement from Florence, Venice and Rome travelled southwards to the Campania and beyond. Naples at the time had become the capital of the Spanish vice-royalty, and the seat of Don Pedro Alvarez de Toledo (1532-1553). The Spanish viceroy widened the city walls and increased the city's surface by a third, with a consequent rise in building activity that changed Naples' face. Cassar succeeded in absorbing the basics of Mannerist examples he encountered in Naples and elsewhere, but appropriately omitted the emphasis of their decorative qualities in his future buildings in the essentially fortress-like integrity of the walled city of Valletta.

In Rome and its outskirts, presumably Cassar's next stop, the Villa Farnese at Caprarola, must have attracted his attention. Architecturally, this fortified villa, constructed to the design of Giacomo Barozzi da Vignola in 1550, is considered as one of the best examples of late-Renaissance and Mannerist styles in Italy. Ornament is used sparingly to achieve proportion and harmony, while the severity of its design makes it stand more conspicuously in its rural landscape. The marble *scala regia*, one of the five spiral staircases that lead to the upper floors, could well have been the inspiration of Cassar's later work at the Grand Master's Palace in Valletta and at Verdala Castle. Verdala itself is considered by Quentin Hughes as 'close in conception to such fortified villas as the Villa Farnese in Caprarola'.³⁹ The villa is approached by a flight of double-ramp stairs which again recalls, although on a much reduced scale, the approach to the original Cassar's Auberge de Castille in Valletta.⁴⁰

The Mannerist *Palazzo del Senatore* on the Campidoglio (Michelangelo, 1538-1564) must have also impressed Cassar to a considerable degree as may be again witnessed by his first Castilian auberge. The approach stairs, the rusticated basement, the articulation of the façade by alternating pilasters that reach up to the whole of its height, and the general arrangement of the fenestration all point

39. Quentin Hughes, *The Building of Malta 1530-1798*, London, 1956, 38.

40. Illustration in Roger de Giorgio, 1985, 162.

unmistakably to the influence that such outstanding examples of Mannerist architecture exerted on Cassar. It must be remembered that he was originally trained as a military architect and that his exposure to civil architecture in such a rich milieu in continental Europe constituted a unique experience that must have kept him on continuous alert in anticipation of his sole future involvement in the design and construction of all buildings in the new city of Valletta.

As the new chief architect of the Order, and knowing full well that the design and construction of the *Sacra Infermeria* would undoubtedly be one of his main tasks on his return to Malta, Cassar certainly visited the Santo Spirito hospital on the banks of the Tiber. Quentin Hughes firmly believes that 'the plan which undoubtedly had the most profound influence on the architect of the Valletta hospital was the hospital of Santo Spirito in Rome'.⁴¹ The *Sacra Infermeria* in Valletta, though not specifically mentioned in the citation issued to Cassar by Grand Master La Cassière (1572-1582), should on strong and convincing stylistic evidence, be included in the long list of buildings he designed in the new city. Cassar is officially credited in the citation with the design of the auberges of the seven langues, the Magistral Palace, the Conventual Church of St John, the parish church of St Paul, the church of Porto Salvo, the Carmelite church, St Augustine and St Mary of Jesus, the bakeries and mills, and private houses for individual knights, all conceived and designed 'with praiseworthy diligence'.⁴²

In this regard, a very interesting piece of 'historical' evidence is the inscription below Cassar's portrait in the main corridor of the Old University building in Valletta. Sir Joseph Nicholas Zammit (1771-1823), one of the members of a steering committee set up to carry out 'a minute investigation into the system of education in the University of Studies', just before his death, donated to the University 140 portraits in oil of distinguished Maltese personalities which were placed in the Aula Magna, and later in the corridors of the same building. The inscriptions in elegant Latin below the portraits were composed by Frà Giuseppe Zammit (1650-1740),⁴³ a distinguished medical doctor who had served for a very long number of years in the Holy Infirmary. He was the Protomedicus or Physician-in-Chief of five successive Grandmasters, and the first director and teacher of the School of Anatomy and Surgery set up in 1676. Zammit also founded the library of the *Infermeria* in 1687 to which he made a donation of 15,000 volumes for the benefit of the medical students and doctors.⁴⁴ These books were eventually transferred to the Public Library in January 1798.⁴⁵ Frà Dr Giuseppe Zammit died at ninety years of age. As a very erudite scholar and one who had passed most of his professional life at the Infirmary, his attribution to Cassar as its architect carries considerable weight.

41. Quentin Hughes, 1956, 153.

42. NLM, AOM, Arch.439, f.270v.

43. Giuseppe Zammit, *De Melitensibus Viris Sanctitate et Sapientia Illustribus Elegia*, NLM, Ms.1143.

44. A.A.C., *The Royal Public Library of Malta*, Government Printing Office, 1898, 5.

45. NLM, AOM, Arch.276, f.32.

On purely stylistic grounds, there is very little doubt, if at all, that Girolamo Cassar was the architect of this building which ranked only second in importance to the Conventual Church. All the usual architectural elements typical to all of Cassar's works are present here. Corner pilasters convey to the viewer a feeling of solidity, and in the absence of other decorative features in the façade, provide a note of finality at its extremities. The panelled pilaster, a Mannerist feature so loved by Cassar, could be seen here repeatedly as in most of his buildings, the best examples being in the courtyard of the Auberge d'Aragon, the original Carmelite Church and in the lower courtyard of the Magistral Palace. The omission of an entablature, notably in the interior of St John's and in the façade of the Auberge d'Aragon, is evident in the outer elevation of the Long Ward of the *Infermeria*. The ratio of solids to voids is overwhelming, while fenestration, with the exception of the façade along the Long Ward where it was particularly easy because of the absence of cross-walls, is haphazard in the rest of the building. The coffered ceiling in the main corridor of the Hospital is an exact replica of the entrance lobby of his Auberge d'Aragon.⁴⁶

Cassar in Lucca

We now rejoin Cassar on his journey northwards from Rome to Tuscany and the city of Lucca. Whether he parted company with Laparelli at Rome or whether they continued their journey together we may never know. Be that as it may, the safest and surest way to Tuscany for both would have been along the Via Francigena, or by sea to the Pisan port of Livorno.

The question now naturally arises. What special reason made Cassar travel to Lucca? Who was he who recommended his name and fame to the *Offizio delle Fortificazioni Della Città*?

Assuming that Cassar was born in 1520 or thereabouts,⁴⁷ one could draw up a list of the several architects and military engineers who came to Malta at the behest of the Order's Council to assist in the fortification of the island, and whom he met, or under whom or with whom he worked after attaining a 'working' age. He would have met Pedro Pardo, the man responsible for the construction of Fort St Elmo in 1552, Niccolò Bellavanti⁴⁸ between 1554 and 1556, and certainly Evangelista Menga. Menga came to Malta from Copertino in 1560, and during the Siege of 1565 took a very active part as soldier-engineer⁴⁹ with Cassar as his very close

46. Michael Ellul, *The Valletta Holy Infirmary: A History and Project for Restoration*, Unpublished Thesis, University of Rome, 1967, 16 et seq.; The Holy Infirmary of the Order, *Scientia*, xxxiii, 4, 1970.

47. Albert Ganado, *Valletta Città Nuova*, Malta, 2003, 227, believes that Cassar's date of birth 1520 might be somewhat early, and that perhaps Cassar was born nearer 1530 than 1520.

48. Bellavanti was the resident engineer for two years during which he fortified the landfront of the *Isola di San Michele* (Senglea) and probably designed its grid-iron street layout.

49. NLM, AOM, Arch.431, f.267.

assistant in all their daring exploits.⁵⁰ Stefano Zerafa,⁵¹ and later Promis,⁵² identify Menga as the tutor and mentor of Cassar, who was eventually appointed resident chief engineer on Menga's departure to Copertino in 1567. In 1562, as the Order's chief *capomastro*, Cassar followed closely Baldassare Lanci's surveys and the proposals for the Scerberras promontory which were later included in a comprehensive report which was submitted to the Grand Master in 1562.⁵³ In late 1565 Cassar formed part of the formidable team of military engineers who had been entrusted by de Valette with the planning of the new city. They were headed by Laparelli, and the team included Gabrio Serbelloni,⁵⁴ Ascanio della Corgna⁵⁵ Giacomo Palearo known as Il Fratino,⁵⁶ Gian Luigi Vitelli⁵⁷ and Scipione Campi,⁵⁸ all famous names known throughout Europe for their knowledge and skill in the design of fortifications.

Laparelli, with whom Cassar collaborated closely during the former's sojourn in Malta, is unlikely to have been the man to suggest Cassar's name to the City

50. Gennaro Bacile di Castiglione, Evangelista Menga da Copertino, *Napoli Nobilissima*, xiii, v-vi, May-June, 1904, 67. Menga designed the spur at the tip of the Senglea peninsula and the fortifications opposite Corradino. cf. Enrico Rocchi, 1908, 36.
51. Stefano Zerafa, *Discorso sulla storia artistica di Malta*, 1850, 21.
52. Carlo Promis, *Biografie di Ingegneri Militari dal Secolo XIV all Metà del XVII*, Torino, 1874, 715.
53. Albert Ganado, 2003, 101, f.n.32, very rightly remarks that 'The Cassars (Girolamo and his brother Andrea) were ever present'.
54. Gabrio Serbelloni (1509-1580), a distinguished military engineer and cousin of Pius IV, was sent to Malta by his successor Pius V at the request of Grand Master de Valette. He stayed here for three days in March 1566 when he conferred with Laparelli and the other engineers on the final plan for Valletta. He was back in Malta in April of the same year when he participated in long and sometimes controversial discussions with Laparelli and the other engineers.
55. Ascanio della Corgna (1516-1571), nephew of Pope Julius III. He studied military architecture and the art of war and participated in several campaigns in Italy and became known among his contemporaries as 'a master of arms and invincible swordsman'. He headed the Christian army sent by Don Garcia for the relief of Malta in September 1565 and commanded the troops which routed the Turks during their final withdrawal. He returned to Malta with Don Garcia and other engineers for further discussions in April 1566, and was very critical of some of Laparelli's proposals.
56. Leone Andrea Maggiorotti, in *Architetti e Architetture Militari*, vol.iii, Roma 1939, 369, has a biography of Palearo, who is credited with fortifications at Goletta, Malaga, Gibraltar, Cadiz, Valencia, Pamplona, Oran and the Balearic Isles, and architectural works at Cagliari. He came to Malta in April 1566 with Garcia, and together with Laparelli, Della Corgna, Vitelli and Serbelloni made the rounds of the site of the new city and viewed the traces of the proposed walls.
57. Another military man of fame, Chiappino Vitelli (1519-1575) commanded the Tuscan troops in 1554, was appointed ambassador to Spain in 1554 and later to England and headed Spanish army in the Netherlands and Belgium in 1564. He was in Malta with the military engineers that accompanied Don Garcia in April 1566.
58. Carlo Promis, 1874, 728, writes that Scipione Campi (1566-1579) was highly critical of some of Laparelli's work; he proposed adjuncts to Fort St Michael, and modifications to several bastions in Valletta, amongst which St James, St Andrew and St Michael and Sts Peter and Paul. Victor Mallia-Milanes, *Melita Historica*, vol.8, no.4, 1983, 275-290, writes at length on a report by Campi on Valletta's fortifications, and reproduces in full a copy of the report preserved at the Vatican Library, and another copy at the Archivio di Stato in Venice.

Fathers of Lucca. Laparelli was the protégé of the Grand Duke of Tuscany Cosimo I, for whom he built the fortress of Girifalco in 1556 and other fortifications in Cortona in 1553. He served with Cosimo's troops as a harquebusier in the war against Siena, and in recognition of his services as soldier and engineer, was appointed honorary citizen of Florence, a very prestigious mark of distinction at the time.⁵⁹ It is therefore highly improbable, taking into account his close connections with Cosimo, and to whom he owed a substantial debt of gratitude, that he would have recommended Cassar to inspect and advise on the walls of the rival city of Lucca, which at the time was Cosimo's declared aim for the aggrandizement of his territory and the establishment of Florence as the undisputed capital of the state of Tuscany.

A man who knew Girolamo Cassar well in Malta and who had previously worked on the walls of Lucca was Baldassare Lanci da Urbino (1510-1571). Lanci was the typical 'complete' man of the Renaissance. He is recognized as one of the top architects of the time and is best known for the city-fortress of Terra del Sol, built on the orders of Cosimo in 1564 as the military and administrative chief city of Romagna and Tuscany, and the Medici fortress at Grosseto. In Siena he designed a huge fortress in 1561 which was later converted into an Enoteca and recently declared as the national showcase of Italy's finest wines. Afterwards he excelled as a scenographer and was the designer of the side wings that changed scenes during the intermezzi of many theatrical productions at the Medici court in Florence. In 1567 he invented an instrument to obtain perspectives which is preserved at the Museum of History of Science in Florence.

Between 1544 and 1548 Lanci was in Lucca directing, with other architects, the new Renaissance walls⁶⁰ that later helped to frustrate Cosimo's plan for the annexation of the city. Nevertheless, Lanci apparently knew how to ingratiate himself with two rival masters, for Cosimo later re-employed him in fortification works at Florence and Siena in 1561.⁶¹

During his sojourn in Malta in 1562,⁶² Lanci certainly came to know Cassar and consequently his skill and knowledge of fortifications, and in his dual role as one of the main engineers involved in the construction of the walls of Lucca and his acquaintance with Cassar and his capabilities, could very well have been the man to introduce him to the *Offizio delle Fortificazioni* of Lucca. That Cassar was invited to go to Lucca and give his advice on the fortifications was a tribute to his proficiency and experience in military architecture, and therefore of no insignificant

59. Michael Ellul, 'Francesco Laparelli da Cortona and the Fortifications of Valletta', *Atti del XV Congresso di Storia dell'Architettura*, Roma, 1967, 346.

60. Promis, 1874, 312; Martinelli and Parmini, 1991, 18.

61. Giorgio Vasari, *The Lives of Painters...*, Everyman's Library, London, 1927, vol.iii, 266.

62. Bosio gives 18 March as the date of Lanci's arrival in Malta; Promis, 1874, 314, reproduces a letter addressed by Lanci to Cosimo indicating that he left Naples for Malta on 7 March.

import.⁶³ The authorities in Lucca had also an additional problem in their choice of experts in military fortifications: these unquestionably had to come from a state with which their city was at peace. They therefore had to look outside Tuscany.⁶⁴

Cassar, as already stated, left Malta in April of 1568, and after his stops in Naples and Rome, was in Lucca in the late spring or early summer. There he viewed and inspected the fortifications that encircle the city, some of which were still under construction, and was taken round the *spalti*, the eleven *baluardi*, the *casermette*, the curtain walls and the entrance gates.

The walls of Lucca are surrounded on all sides by wide open green spaces, called *spalti*, which had once contained suburban settlements which were pulled down in the sixteenth century in order to deny possible cover to an approaching enemy.⁶⁵ The operation was termed *tagliata*⁶⁶ or 'cut-off'. An important element of Lucca's defensive system was a number of small outbuildings, known even today as *casermette*, placed at the centre of each *baluardo*, which served as shelter for the troops and as stores for ammunition, hand-arms and tools. Many of them have survived and are still in a good state of preservation. The curtain walls impress the viewer with their clean lines and uniform maroon brickwork which contrast sharply with the dark green of the trees and the expanse of grass of the *spalti*. The walls, typical of 16th century fortifications, are scarped and have a vertical parapet with an intervening 'cable' moulding.

The eleven *baluardi* are nearest in shape, but not in height, to our bastions in Valletta and the Cottonera. They project from the main curtain walls and comprise two faces and two square or rounded flanks, and were designed to protect a section of wall or a particular gate by means of artillery placed in the embrasures. Of the present six gates that provide entry into the city, the oldest and the only one through which *forestieri* could gain access, after depositing their arms with the guards, was the *Porta San Pietro*. Cassar, as a foreigner, even if a distinguished one, could only enter Lucca through this gate⁶⁷. The *Baluardo Santa Maria*, the object of his *Discorso*, was guarded by the *Porta San Pietro* which must have drawn his attention immediately on entering Lucca (Fig. 2).



Fig. 2. The Baluardo Sta Maria and Porta San Pietro.

It is safe to assume that Cassar, as a member of the Order, during his sojourn in Lucca stayed in the Order's Commandery, known as the *Commenda della Magione del Tempio*, in the piazza of the same name. A church dedicated to Saints Peter and John, some remains of which are still visible in the south side of the piazza, formed part of the palazzo of the commandery, which originally belonged to the Order of the Templars until 1143 when it passed to the Order of St John. The present building was completely re-modelled in 1637 at the expense of Pompeo Rospigliosi, uncle of Pope Clement IX (1667-1669), and a knight of the Langue of Italy⁶⁸, and still bears the coat-of-arms, in white marble, of the Order and of the Rospigliosi family on its façade.⁶⁹ (Fig. 3). In March 1799, the Democratic Government of Lucca suppressed the Order of St John and seized all its property.⁷⁰ In 1810 the church and the *Magione* were demolished to make room for new private buildings.⁷¹

63. Roberta Martinelli e Giuliana Puccinelli, *Lucca : Le Mura del Cinquecento*, Matteconi, Lucca, 1983, 18: *Ottenere che un architetto militare si recasse a Lucca non era certo cosa di poco conto.*

64. Martinelli e Puccinelli, 1983, 18.

65. Parmini, 41.

66. It is interesting to note that the same term *tagliata* was applied in medieval times to the moat which was cut to separate Fort St Angelo from Birgu. See Godfrey Wettinger, *The Castrum Maris and its Suburb of Birgu During the Middle Ages*, in *Birgu - A Maltese Maritime City*, ed. L. Bugeja, M. Buhagiar, S. Fiorini, Malta, 1993, vol.1, 46.

67. *Porta San Pietro* was constructed between 1565 and 1566 by the Milanese architect Alessandro Resta. The civic status of Lucca (1539) distinguished between three categories, the '*habitanti*', the '*foretani*', that is, citizens of Lucca who lived outside the confines of the city, and '*forestieri*' or complete foreigners. Cassar belonged to the last category.

68. Rospigliosi was admitted in the Order in 1606. He was appointed *Capitano di Galera* in the same year, and then, Bali of Cremona and S. Eufemia and Prior of the Commandery of Rome: cf. Bartolomeo del Pozzo, *Ruolo Generale de' Cavalieri Gerosolmitani nella Veneranda Lingua d'Italia*, Torino, 1738, 190, 234, 256.

69. The only other surviving 'relic' of the Order of St John in Lucca is a narrow street with the name of *Vicolo della Croce di Malta*.

70. The last incumbent of the Lucca Commandery was Frà Gio. Antonio Laparelli da Cesena.

71. Umberto Nicolai, *I Cavalieri Gerosolmitani a Lucca*, Lucca, 1965, 4.



Fig. 3. Lucca: The Commandery of Malta with the coats-of-arms of the Order and the Rospigliosi family.

(Photo: the author)

artillery becomes too long, and only guns with a calibre of more than 8 *pollici* would be suitable.

In order to keep the number of *baluardi* as limited as possible, Cassar suggests the insertion of flanks, with appropriate measurements, in the curtain walls, and which must be in two sections, the upper one being on the same level with the top of the scarp wall. These should be covered by parapets and embrasures. Within the gorge of each *baluardo*, a mound of pressed earth should be raised to serve as a cavalier to command the surrounding country.

The sloping terreplein behind the ramparts should be 32 *braccia* deep so as to allow the construction of embrasures and vaulted chambers within its thickness as a shelter for the soldiers. Cassar warns against careless handling of gunpowder in the casemates and against the reckless dumping of material in the ditches, which would obstruct the line of sight and 'blind' the artillerymen. Embrasures should be wide enough on their outer side in order to obviate the danger of becoming choked by the smoke of the guns. Each flank should have its sally port that leads into the

72. A flank is that section of a fortified work designed to defend an adjoining work and to provide enfilading fire.

73. A *braccio* of Tuscany was approximately 60cm.

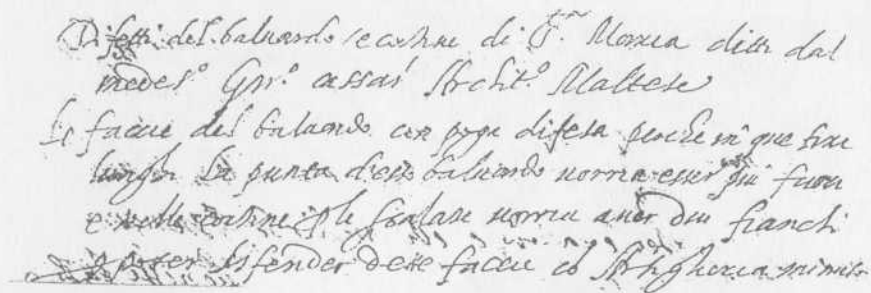


Fig. 4. The second section of the Cassar manuscript.

(Courtesy of Archivio di Stato, Lucca)

ditch. Ditches should be designed with great care so that they would not serve as a cover to the enemy 'as has happened in other places'. He next provides detailed instructions, with accurate measurements, on the walls of the counterscarp, the width of ditches, the covert way, the oreillons of the *baluardi*, the parapets and their banquettes, or firing steps.

The second section of the Lucca manuscript exposes the deficiencies of a particular section of the walls: *Difetti del Baluardo e Cortine di Sta. Maria detti dal medesimo Girolamo Cassar Architetto Maltese* (Fig. 4). Cassar criticizes strongly this *baluardo* since its salient is not advanced outwards appropriately, while the curtain walls lack the provision of flanks that would suitably defend the two faces of the *baluardo* by the use of light artillery. When the range of guns is too extended, they could not be of much use, *come per esperienza abbiamo visto a Malta*. The embrasures are very deficient because the counterscarp is insufficiently covered by the *baluardi*; they are inordinately exposed and therefore practically useless, and lack a suitable gorge which, in order to be effective, should be constructed close to the long curtain wall and its merlon.⁷⁴

Girolamo Cassar similarly uncovers harshly other defects and shortcomings of the defensive system. The casemate inside the *baluardo* of Santa Maria (Fig. 5) has its protective terreplein inclined in the direction of the entrance, a deficiency he describes as *molto cattiva*, since in the event of a withdrawal the troops would be needlessly exposed to enemy fire. In a similar vein, he disapproves of a bridge, which he says is too massive and serves only to conceal an advancing enemy. He also criticizes the nearby gate, the *Porta San Pietro*, which demonstrates its weakness from the way the drawbridge is suspended from its central arch.⁷⁵ (Fig. 6).

74. A merlon is the solid section between two embrasures.

75. At the time Cassar saw the *Porta San Pietro* it had only one main entrance; in 1846 two side entrances were added.

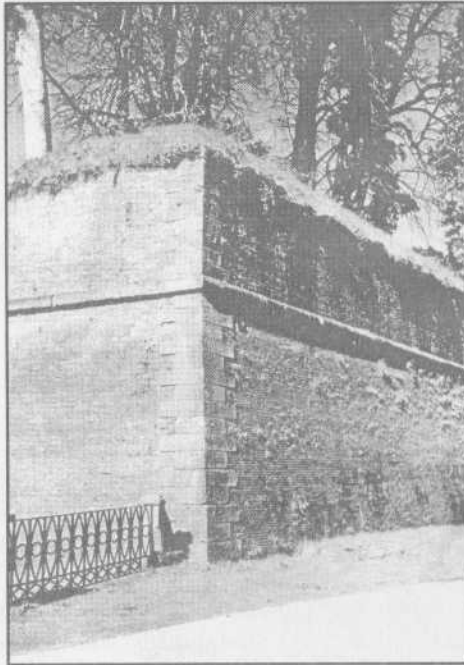


Fig. 5. The Baluardo Sta Maria.
(Photo: the author)

Cassar retains his criticism right to the end of his *Discorso*, but at the same time he offers his further services to the City of Lucca if he could obtain permission to view and inspect the walls from within the city:

'Le altre imperfettioni della città per quello che ho visto da fuori ve le esamineremo, e se avremo licenza da Magnifici Vostri andar per dentro, a loro e a voi mostrerò molto amorevolmente come affezionato a questa Repubblica'.

The Lucca manuscript is not the only written work of Cassar. Promis⁷⁶ mentions a manuscript titled *Parere di Scipion Campi e di m.^{ro} Gerolamo sopra la fortificatione della Città di Valletta messi insieme dal Cav.^o Spina* in which Spina puts together plans and written *discorsi* and *pareri* of both military

engineers, and, what in effect is a record of the various discussions held between them, which, incidentally, also display some points of disagreement.⁷⁷ The same Spina manuscript makes reference to plans with proposals for the fortification of Gozo prepared by Cassar,⁷⁸ which most probably was accompanied by a written report.

Yet another important manuscript written by Cassar, and signed Geronimo Cassar, *Ingegniero*, is among the holdings of the Archivo General de Simancas. It bears the title *Ragionamento sopra la fortificatione della città nuova dell'Isola di Malta et di alcune occorrenze tra il Sign. Ludovico Cesano ingegniero, et me sottoscritto Girolamo Cassar di alcuni movimenti che ha voluto fare in detta fortificatione*. The manuscript's transcription was reproduced in full for the first

76. Promis, 1874, 715. Albert Ganado, 2003, acknowledges the help of architect William Soler who made available to him a copy of the manuscript drawn up by the Cavaliere Spina in March 1594. According to Ganado, Roger Vella Bonavita had referred to the report in a public lecture in 1981. The manuscript is preserved at the Archivio di Stato di Firenze.

77. Ganado, 2003, 323-330.

78. Promis, 1874, 715; Enrico Rocchi, 1908, 400; Ganado, 2003, 324.

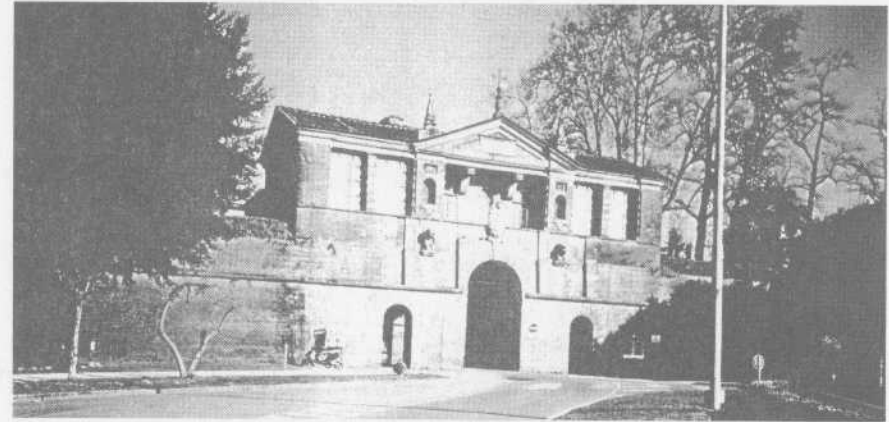


Fig. 6. The Porta San Pietro.

(Photo: the author)

time and analyzed by Roger de Giorgio.⁷⁹ Cesano was in Malta in January and February, 1576, and had long discussions with Cassar regarding certain alterations and additions to the new Valletta fortifications.

We have at least one specimen of Cassar's signature (Fig. 7) in a report which he had drawn up in a case of litigation between two owners of adjacent buildings in Valletta in October 1589, when he was requested to re-measure one of the sites in the presence of the owners and the *Commissari delle Case*.⁸⁰ As the resident chief engineer of the Order and undoubtedly the most knowledgeable Maltese architect at his time, Cassar would have been requested frequently to make drawings not only of buildings, but also plans and maps of large sites. Gian Francesco Abela speaks of a map drawn by Cassar which showed the inhabited section of Malta between Valletta and the eastern shoreline, and the area between Marsamxett westwards in the direction of the Birkirkara area.⁸¹ A map depicting the harbours of the island, drawn in 1565, has immediately above the title the capital letters I C I, which could very well stand for *Ieronymus Cassar Invenit*.⁸²

On his return to Malta after his rewarding Italian experience, Cassar dedicated himself and made use of his newly-acquired knowledge in the moulding of the urban character of early Valletta. In the architecture of the Conventual Church of St John's, the Palace of the Grand Master, the auberges, the early churches of Valletta,

79. Roger de Giorgio, Advice on the Fortifications of Mount Scieberries including Geronimo's Cassar's Contribution to their Improvement in *Proceedings of History Week 1983*, (Malta) Historical Society, ed. Mario Buhagiar, 1984, 91.

80. NAM, *Officium Commissarium Domorum, Acta Originalia 1588-1589*, vol.32, 43r. My thanks to Lewis Zammit for drawing my attention to this document which he is including in his MA Thesis.

81. Gian Francesco Abela, *Della Descrizione di Malta*, Malta, 1647, Lib.I, Notitia vii, 78.

82. Albert Ganado and Maurice Agius-Vadalà, *A Study in Depth of 143 Maps Representing the Great Siege of Malta of 1565*, Malta, 1994, vol.I, 434.

terra che al bisogno ve ne possiate servire per Cavalieri da batter la Campagna per aiutare li fianchi. Lo terrapieno vorrà esser lo suo piano di

f.2v larghezza brac.^a 32, senza la salita accioché in quella larghezza possiate fare le vostre trinciere, e li vostri contraforti per ruinar il nemico negli accidenti, e la parte di dentro nella salita per fin' alle stanze vi bisogna gra.^o spatio da poter tenere la vostra gente in battaglia per soccorrere dove bisogna e dove sarà il maggior pericolo alla sponda de ciascun fianco. Nella salita del terrapieno si farà un magazzino coperto avvolta co.^o doi porte, l'una porta no^o ____ da l'altra per tenir la polvere per servitio del baluardo.

Le case matte che si faño al pian de fossi coperti avvolta di sotto la piazza bassa del fianco. Molti si diletano di fortificare no^o abbiano fede in loro. Per aver più difese non è dan^o alcuno, ma di qⁱ sudetti se ne ha visto la esperienza che per usarle sono molto pericolose, e bisogna servirsi di quelle co.^o grandiss.^a diligenza mass.^e nel maneggiar la polvere qn.^o si carica gli pezzi et no^o vi attaccasse il fuoco che saria la rovina di tt.^o il fianco mass.^e dove sono volte di fabrica, e ancora ogni minima batteria che fa cascare matera.^o nelli fossi q.^e case matte si acciecheraño. Per servirsene bisogna che le suoi canoniere fussero larghe di fuori acciochè tirando no^o si riempisse di fumo.

A ciascun fianco gli bisogna la sua porta da sortire per il fosso co.^o il suo argine. Co.^o la strada da sortire bisognionno alzarlo in tanto per il manco 8. br^a acciochè da questa altezza si possa farne delle sortite e star coperto nelli fossi

f.2r a nettare e spianare le ruvine et fossa. Il nemico co.^o la sua batteria, nel lavorare e maneggiare di q.^a terra da alzare l'argine dalli sudetti fossi gli bisogna grandiss.^a diligentia acciochè quello che farete, se per caso vi venisse il nemico addosso, ve ne possiate servir voi, e no^o come si è fatto in altri luoghi che al nemico è tornato utile e se ne è servito per coprirsi e a quelli di dentro ha tornato danno. Per fare et alzare la suddetta contrascarpa bisogna di lavori in q.^o modo. La larghezza delli fossi alla spalla di ciascuno baluardo sia di braccia 40. Il resto si disegnerà co.^o la difesa della cannoniera che sta appresso all'orecchione, e per q.^o sito si comincerà ad alzare verso la campag.^a sempre pendente, e si alzerà perfin a 5 braccia. Sopra le 5 braccia si ricorre a fare il piano della strada coperta. Q.^a strada allo punto de fossi si farà larga p.ⁱ 16, e la parte della mezzo cortina p.ⁱ 20. Il parapetto di q.^o strada si alzerà 3 p.ⁱ. Dal parapetto verso la campagna vuol avere la sua dipendenza, e q.^a vuol essere vista dalla piazza alta del fianco e della fronte del baluardo colle cortine. Lo parapetto di q.^a strada vuol avere la sua banchetta con lo suo scalino q.^o lo soldato vuol fare il suo debito co.^o l'archibugio.

f.3v Difetti del baluardo e cortine di S.^{ta} Maria detti dal medes.^o Gir.^o Cassar Archit.^o Maltese.

Le faccie del baluardo con poga difesa perchè in que.^o siti lunghi la punta d'esso baluardo vorria essere più fuori, e nelle cortine per le scalare vorria aver dui fianchi

per poter difender dette faccie co.^o Artiglieria minuta dove nella gra.^o distanza li tiri grossi no.^o possano supplire al debito soccorso, come per esperienza abb.^o visto a Malta. In oltre si vuol fare un monte di terra ne baluardi che servono a difender e batter la campag.^a.

Le cañoniere de fianchi sono difettose molto perchè no.^o avendo la contrascarpa il debito suo, ne per altro si vede potendo farsi, ne avendo gli appositi baluardi che la difendono e mass.^e dalla parte di ponente, restano molto scoperti e inutili, dove in tal caso vorriano avere la sua spalletta vicino alla cortina lunga e lo suo merlone.

La stanza per li soldati fatta sop.^a d.^o baluardo se si deve finire per terrapieno a sopra del baluardo co.^o le sue piazze e difese da alto resterà sotterrata, e facendo il terreno pendente verso essa è molto cattiva cosa per diversi rispetti perchè nelle ritirate si perde l'Altura, la qual giova assai ne casi di bisogno.

Il ponte che va alla porta della maniera et che è

f.3r massiccio et fa trincieri al nemico nel fosso per esser cosa molto chiara mi par superfluo a dir per suddetto molto evidente.

La porta mostra la debolezza sua nell'arco che tira su il ponte levatoio e nelli archi che possengono le volte.

La contrascarpa cominciata, q.^o venisse caso di bisogno, servirà piuttosto a coprire il nemico che a difender la città, siando fatta nel modo, si vede e talvolta, saria il meglio non ci fusse che stare à cotesto modo.

Le altre imperfettioni della città per quello ho visto di fuori a bocca ve le esamineremo ____ e se averemo licenzia da Magnifici Vostri di andar per dentro, a loro et a voi le mostrerò molto amorevolmente come affettionato a questa Rep.^{ca}.