‘PARERE DI GIAN GIACOMO LEONARDI, CONTE DI
MONTELABbate, SULLA FORTEZZA Gerosolimitana
DI MALTA, 31 OTTOBRE 1557’

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Introduction
Towards the end of October 1557 a meeting took place, most probably in Venice. Present were Gian Giacomo Leonardi, Conte di Montelabbate (a very eminent military engineer), Cardinal Giulio della Rovere (who probably organised the meeting), Fra Cesare Visconti (a knight of the Order of St John) and a certain Signore Chiericato whose identity is obscure. Visconti had with him plans and documents concerning a fortress that the Order proposed to build on Mount Xiberras which he showed to Leonardi. The group discussed the projected fortress at length and it appears Visconti tried to interest Leonardi in coming to Malta to realise the project as consultant engineer.

The immediate background to this episode is as follows: on 27 August 1557 the newly elected grand master of the Order, Fra Jean de Valette, instructed Visconti and another knight, the Comendatore della Motta, to go post haste to Rome and confer as a matter of extreme urgency with Fra Pierre de la Fontaine, the Order’s ambassador there. Some time before, de la Fontaine had been asked to engage Marc Antonio Quinsani da Montalcino, another eminent engineer; but nothing had been heard from him. Valette instructed the two knights that if Quinsani declined the invitation they were to go on to Florence and Milan; there to identify and engage some other engineer who, in their opinion, was:

‘…così buono pratico et savio nella arte sua et tale a chi possiamo fidar tanto li edificij et forti"\cze incominciante quanto quelle che si hanno di far.”

According to Bosio, immediately after his election Valette decided to make the fortification of Mount Xiberras an absolute priority and he spent much time on the site discussing the project with his engineers and advisors. De la Fontaine’s instructions are not documented but he would have received them some time before

Valette became grand master on 21st August, a mere six days before Visconti and della Motta received their orders. The original attempt to engage Quinsani, therefore, was an initiative of Valette’s predecessor Fra Claude de la Sengle who died on 17th August. Of course de la Sengle would not have sought the services of a first class military engineer unless he had an important project in mind—and the fortification of Xiberras was a major project. Given the very short time between Valette’s election and the Visconti/della Motta mission, it is possible (though we cannot be absolutely certain) that the plans and documents Visconti showed to Leonardi had been drawn up while de la Sengle was grand master—if not even earlier—and that Valette perhaps adopted them as the preferred option for the fortification of Xiberras because of the shortage of time. Unfortunately the plans have not been traced.

When the two knights arrived in Rome they established that Quinsani would not (or could not) go to Malta.⁴ Accordingly, as instructed by Valette, they attempted to identify another suitable engineer. Della Motta’s activities are not known but, most probably through the good offices of Cardinal della Rovere, Visconti was able to meet Leonardi, discuss the ‘brief’ in detail and, as it appears, offer him the consultancy. Leonardi also declined Visconti’s invitation but he did write a report or parere on the proposed fortress and, happily, the original manuscript survives. It is published in full here.⁵ Chance led me to this important document during research into the life of Francesco Lapiarelli da Cortona. Gian Giacomino Leonardi’s report is the earliest strategic analysis of issues relating to the defence of Malta and the earliest report on a proposal to strengthen the island’s defences that has so far come to light. There are, it is true, a number of earlier manuscripts relating to the construction of fortifications in Malta but, as far as I know, this is (thus far) the earliest surviving contemporary description of the principles on which the defence of Malta should be based—and thus how the knights of St John should fortify the island in the light of these considerations.

Gian Giacomino Leonardi

Leonardi has not so far been associated with Malta in any way so it is appropriate here to introduce him briefly to scholars of Maltese history. He was born in Pesaro in 1498 and by 1519 he was in Bologna studying law. He took his doctorate in Ferrara in 1522. A few years later he was appointed Luogotenente of Senigallia and then of Gubbio. In 1528 the duke of Urbino sent Leonardi to Venice as his oratore or personal representative. He held this position without a break for over 30 years until 1559. He died in 1562. The duke ennobled Leonardi as Conte di Montelabbate in 1540. He even gave Leonardi the right to add the ducal family name of della Rovere to his own and in 1558 he was given an annual pension of 200 scudi (in gold) which his wife would continue to receive should he predecease her. Leonardi was known all over Italy as a fount of wisdom and he was consulted by prominent personalities on high matters of state and diplomacy. His discretion, tact and integrity were proverbial. Many of his papers are now in the Biblioteca Olivariana in Pesaro while others are said to be in an archive in Turin.

Leonardi’s papers and treatises range over such subjects as jurisprudence, politics, diplomacy, philosophy, chivalry and so on. Apart from diplomacy, his main activity was as a military engineer in the service of Francesco Maria Della Rovere who worked on the defences of Venice and her possessions on the mainland. Though Leonardi wrote important treatises on fortification these remained unpublished until very recently. He is of importance in the history of military engineering because his career coincided with the development of the bastion trace which transformed fortification and urban design. Leonardi attributed the invention of the true polygonal bastion to the Duke of Ferrara and gave the Duke of Urbino the credit for further developing the bastion by refining the flanks to take casemates, dedicated artillery platforms and so on.⁶

The ‘Xiberras Project’

I will not attempt here to analyse the evolution of the defences of Malta during the first three decades or so of the Order’s occupation of the island. Many scholars have discussed the subject and Jacomo Bosio’s text covering the period still remains the main source for this and many other topics relating to the activities of the Order in Malta.⁷ Still it is important to place the scheme shown to Leonardi and his parere, into their proper context as regards the role of Xiberras in the Order’s strategic thinking.


We know that, in 1524, years before they moved to Malta, the knights were aware, *speculando la carta* (i.e., having examined the map or plan), that the Xiberras peninsula offered a superb site for a *castello o vero fortezza per la residenza del Convento*.\(^8\) It is argued below that until Bartolomeo Genga produced a design for a city (*città*) in 1558, the Order thought mainly in terms of building a stronghold on Xiberras which would house the Order - but, and this is the point, not the population. The Maltese, especially the non combatants, would take refuge in Mdina, Birgu and (in due course) Senglea, or they would be evacuated to Sicily. The advantages of Xiberras were obvious to one and all - as were the insuperable weaknesses of the positions that the Order fortified piecemeal over the years at St Angelo, St Elmo, Birgu and Isola. Apart from being very small and cramped these works were overlooked by surrounding heights at Corradino, Margherita, Salvatore and, especially, by Xiberras itself. Enemy artillery would dominate and even enfilade the defences from these heights.

Three difficulties had discouraged the earlier grand masters from occupying Mount Xiberras. The first was a lack of total commitment by the Order to remaining in Malta. Many knights hoped to recapture Rhodes, or to develop Tripoli as their headquarters, or to move to some other location closer to the *comum nemico* where they would enjoy truly sovereign rights as they had done in Rhodes. Grand Master Valette himself probably shelved Bartolomeo Genga’s scheme for a city (rather than for a *Castello o vero fortezza*) on Xiberras in favour of the ill-fated expedition to recapture Tripoli that came to grief at Gerba in 1560. An offer of Corsica was seriously considered in 1558.\(^9\) The second difficulty was the Order’s chronic shortage of funds and physical resources; though this problem might have been overcome given the will. The third and really the most important difficulty was time. And these were indeed perilous times; for the perennial danger of an assault in strength on Malta discouraged the government of the Order from committing itself to such a major project on the grounds that, unless a fortification could be placed in a state of defence between one campaigning season and another, it should not be undertaken lest the unfinished work was occupied by an enemy force and turned against the Order’s other defences. The design of Fort St Elmo (built in 1552) was dictated by the requirement that it be commissioned within six months.\(^10\) After the Great Siege of 1565, Valette refused to commit the Order to building Laparelli’s city on Xiberras until he was assured by Spain that a substantial force capable of meeting the enemy in the field would be stationed in Malta through the summer of 1566 - thus providing the Order with a full year in which to prepare a defensible main front for Valletta.\(^11\)

Grand Master de l’Isle Adam brought in Piccino, described by Bosio as an eminent Florentine engineer, to develop the fortifications of Malta and Tripoli in 1532; including one presumes the *residenza* on Xiberras.\(^12\) But this project was never really more than a twinkle in de l’Isle Adams’ eye: the first Chapter General of the Order in Malta held in 1533 decided to establish its *collachio* in Birgu. In December 1533 Piccino (perhaps as an alternative to the fortification on Xiberras) designed and traced a work on St Elmo point to command the mouths of the harbours, but this project too was shelved before the foundation stone was laid.\(^13\) De l’Isle Adam set him to work on the main fronts of Birgu and St Angelo. Antonio Ferramolino da Bergamo was engaged by de l’Isle Adam’s successor Pierino del Ponte after the departure of Piccino and he continued the work started by Piccino. Nothing was done to fortify Xiberras and in 1539 the second Chapter General voted to build a wall around the area designated as the *collachio* in Birgu.\(^14\) The prospects for a *residenza* on Xiberras were fast receding.

Ferramolino appears to have visited Malta on various occasions between 1535 and his death in 1550. Bosio relates that in 1541 he returned to Malta with instructions from Emperor Charles V to urge the Order to build a *buona fortezza* on Xiberras. Ferramolino did his best to persuade Grand Master Juan de Homedes (1536-1553) to build this *buona fortezza* there and it would be unlikely that he did not produce a design (now lost) for it. Ferramolino’s proposal had the support of a strong pressure group in the Order but Homedes disagreed - and apparently he also rejected a plan for a small fort at St Elmo point which was probably Ferramolino’s.\(^15\) Bosio explains that Homedes believed that the likely scale of attack on Malta did not justify the huge expenditure required for the realization of the Xiberras project. It would suffice, he considered, to turn St Angelo into an artillerie platform, capable of supporting the main front of Birgu while also protecting the mouth of Grand Harbour and even that of Marsamxett. He instructed Ferramolino to strengthen the main front of St Angelo with a bastion (completing Piccino’s work), a wet ditch and the artillerie

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10. Ibid; 323.

11. Ibid; 747, 765, 766.

12. Ibid; 110.

13. Piccino probably thought in terms of a ‘bulwark’ - an isolated work mounting artillery - possibly like that at Pozzallo on the South coast of Sicily. Talk of building a similar structure on Comino also came to nothing. (Ibid; 128).


15. There are two undated, unsigned and almost identical plans of St Elmo, probably by Ferramolino, in the Archivio General de Simancas. One is filed with 1539 documents and the other with documents of 1543. The movements of Ferramolino between Malta, Sicily and elsewhere have yet to be fully worked out. The plans are published and described in Ganado *Op. Cit.*, 472-3 and 359-361.
platform which is still known as the Cavalier of Ferramolino and to improve the main front of Birgu. Homedes concentrated on developing Birgu as the permanent headquarters or residentia of the Order; auberges, the hospital, the arsenal and naval facilities crowded the new city, as Birgu came to be called, and he even acquired a site for the conventual church.  

The councils of the Order remained divided throughout the 1540's as to whether the scheme of defence set out by Homedes was realistic. It may well be, as Bosio claims, that the grand master was lulled into a false sense of security during the mid-1540's by French efforts to negotiate peace between Spain and Turkey. However Turkish and corsair forces, at times numbering a hundred sail and thousands of troops, became a regular feature of Mediterranean warfare and only really well fortified positions could stand up to them. During the Chapter General of 1548, a group of knights led by Valette, then governor of Tripoli, rejected Homedes' strategy as suicidal and lobbied for change. Valette argued that the Order had two options. The first was to adopt Ferramolino's plan. Bosio's text is confusing here because he describes Ferramolino's plan for Xiberras, resurrected by Valette in 1548, not as a buona fortezza (as related in 1541) but more grandiosely as una nuova città protected by fortificazioni reali. It would house the Order and according to Bosio would also be capable of giving refuge to the entire population of Malta. The second option (preferred by Valette) was to convert Tripoli into the Order's principal stronghold and to retain only a small garrison in Malta at St Angelo. Valette got his way and the Chapter General voted for a gradual move to Tripoli. Unfortunately, Dragut captured the ship carrying the funding (some 70,000 scudi) for the fortification of Tripoli and the move from Malta failed for lack of money.

A map of Malta published perhaps in the early 1550's but certainly after 1546, since it shows the great chain installed that year between St Angelo and Isola, is of considerable interest as it shows a nuova città named St Ermo on Xiberras protected by a main front of three bastions. The 'city' shown in this map (Illustration 1) is clearly conceived as a rather small residential fortified enclave, containing a church and other buildings. This is perhaps the residentia that the Order had dreamed of building since 1524 and it may well have been derived from Ferramolino's proposal dating back to 1541 as taken out and dusted by Valette in 1548. It cuts off a fair proportion of the peninsula down to St Elmo Point. This area could be used by the civilian population as a refuge and in time of course it could develop into a large city, protected on the land front by the Order's headquarters - and also dominated by it.

Homedes' defence strategy did not survive the traumatic events of 1551. Dragut's fleet forced the mouth of Marsamxett in spite of fire from the Cavalier of Ferramolino. Soon afterwards the Christians in St Angelo and Birgu saw the corsair

16. Bosio, op.cit; 198-9, 213-4 and 231.
18. Published and described in Ganado, op. cit; 471 and 358-9.
commander and his staff looking down on them from Xiberras. The harbour defences and Mdina were fortunate to survive unscathed, but Gozo was sacked and Tripoli taken. The initiative, clearly, had rested throughout with the enemy. Fra Leone Strozzi, the Prior of Capua, developed a survival strategy for the Order at this time of crisis. The government appointed a three-man committee including Strozzi and gave it full powers to strengthen the defences - though Homedès insisted that all new works had to be in a state of defence within six months. This put paid to fortifying the heights of Xiberras. Strozzi developed an alternative plan using the services of Captain Pedro Prado, a Spanish engineer loaned (reluctantly) by the Viceroy of Sicily. Two small works were built quickly; fort St Michael at the neck of Pietra Longa or Isola would prevent an enemy from occupying that peninsula and threatening Birgu, while fort St Elmo at the point of Xiberras would command the mouths of the harbours. Strozzi worked very quickly; he arrived in Malta on 3rd January 1552 and less than a week later, on the 8th, he was appointed to the defense committee. The foundation stone of St Elmo was laid on the 14th a mere six days after that. Small wonder Prado only had time to adopt Ferramolino's plan, now somewhat obsolete. He appears to have strengthened the main front of the tiny star shaped fort by converting the curtain of the main front into wide platform or cavalier.19

Of course the weakness of Strozzi's plan was the failure to fortify Xiberras - though this was hardly his fault given the ground rule imposed by Homedès. Bosio says St Elmo was intended to be a bastion (presumably a bulwark) of a new city on Xiberras, so perhaps Strozzi was aware of the basic flaw in his scheme. Whether Prado had the time to design a position on the heights of Xiberras however is to be doubted since he also worked on the walls of Mdina and quickly returned to Sicily. Still, thanks to Strozzi, enemy warships could no longer force the mouth of Marsamxett harbour. If the enemy wanted their fleet to anchor close to their camp at Marsa they would be obliged to land forces and artillery elsewhere down the coast and then take the tiny fort at the tip of Xiberras. This would take time and as Laparelli was fond of saying:

'Give me time and I will give you life!'20

Fra Claude de la Sengle succeeded Homedès in the autumn of 1553 and brought Niccolò Bellavanti to Malta as consultant engineer in 1554. The length of his stay is uncertain. As well as improving the works at Birgu, de la Sengle strengthened St Elmo by adding the large external spur-cavalier and a large unnamed work low down below the walls of the fort on the Grand Harbour side. He also founded

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19. Generally see Bosio, op. cit., 322-4. A plan filed with papers dated 1552, clearly copied from the two plans attributed to Ferramolino noted earlier, is in the Archivio Generale di Simancas and it is published and analysed by Guarno, Op. Cit., 474 and 361.
20. Codex Laparelli, f.44v: 'Doventi tempo che ti do vita.'
population, for the most part, would live elsewhere. This ‘fortezza’ therefore would be the Order’s self-contained headquarters, presumably housing the conventual church, the grand master’s residence, the auberges, the hospital and so on, as well as its military and naval facilities. Here, the Order would take its stand were it subjected to a sustained and determined siege. In short Valetta and very probably de la Sengle too, planned to build the castello o vero fortezza per la residenzio del Convento conceived decades before in 1524.

At the end of his discussions with Visconti, like any good professional, Leonardi reserved his opinion. He consulted his colleagues and then wrote a carefully worded report to the cardinal. In his last paragraph Leonardi very tactfully declines the invitation to go to Malta:

‘I am well aware that it is not for me to address these knights, who are so honoured and illustrious, in writing and at such length. However since I am unable to serve them and you, my Most Reverend Lord, in person (for I wish to join them; even risking my life fighting for the faith), I have tried to help them with my words. I have written this report in all sincerity and goodwill and I trust it will be taken in the same spirit.’

Leonardi commences his parere by slating the engineer who drafted the plan or plans for the new fortezza – criticising the actual drafting of the design:

‘...I hereby present my opinion on the fortification which the Most Reverend and Most Illustrious Knights of the Order are thinking of building on the island of Malta. I would willingly have declined the task because although many of us have studied the plan [here in Venice] we are uncertain on many points. My Most Reverend Lord, you must understand that conclusions arrived at a long way from the actual site can lead to any number of errors. This is particularly likely in the case of these plans that have been shown to me because they have been drafted incompetently. They do not show the heights of the land along the shoreline and the depth of the sea; the nature of the bedrock and the soil; the distances between the various positions near and far and so on.’

This is an interesting comment on the increasingly professional approach of military engineers during the sixteenth century towards the drafting of plans and in particular with their concern to take the lie of the land into account. Of course Leonardi was also anxious to avoid coming to conclusions on the basis of imperfect data – which might result in his giving flawed advice. Some forty years later, Fra Pietro Spina commented in similar terms about plans and a model submitted for counterguards on the main front of Valletta by Giovanni de Medici observing dryly:

‘Since he has not seen the site I do not know how he managed to design these works.’

It is pertinent to note here that Leonardi was not the only engineer to accuse engineers working in Malta at this time of incompetence. In his analysis of St Elmo, Laparelli has hard words for the engineers who modified the original design of the work:

‘Whoever intended to carry out the plans of the original designer of the fort (i.e., St Elmo) modified the design or added new features to it. But these men were incompetent and, regardless of their motives, their work did not strengthen the fort and nor was it faithful to the original plan. The masonry walls were built too high and then the cavaliers were built even higher although they would never be able to challenge enemy artillery positions on the high ground. Excessively high walls are dangerous, for to expose too much masonry to the enemy gives him the opportunity to fill the ditch with their ruins and then to climb over the rubble into the defences. When it is realised that walls are disproportionately high, it is time to stop building - they must not be built even higher!’

Laparelli was not accusing Prado of degrading Ferramolino’s original design but, rather, was pouring scorn on whoever was responsible for the post 1552

23. Parere, para. 29.

25. Archivio di Stato [Firenze], Carte Storiche, la serie, Filza 319, ff 15/19, Parere di Scipione Campani e di Mro Geronimo [Cassar] sopra la fortificazione della Città di Valletta messi insieme dal Cavaliere Spina per sua intelligenza e per non lasciar oscure le cose che si mantengono vive per tradizione. The quotation is from f.18v. Gamardo, op. cit., 323, argues that this parere was written by Fra Pietro Spina, Governor of Gozo from 1586 to 1594. I intend to publish the entire document with commentary.

26. Codex Laparelli, f.38v: ‘...chi ha pensato mettere ad effetto il voler del primo fondatore aggiugnendo o trovando cose nuove: ...non han saputo fare cosa che stessi per il suo verso né che si asimigliasse a fortezza ne avicinassi al voler del primo: Le avele tivariate tanto alie mura con la fabrica e avere facili cavalieri poi alti molto più non potendo mai per altezza che in tal loco potessi fansi venire alle equali del sito nemico. ne ancor mai era possibile di tali cavalieri tirare alli nemici ermate con artiglieria sopra tal sito: be per ho ho la cosa danno tali alteze perche quanto si mostra maggior alzetta di fabrica al nemico tanto se li da maggior speranza e commodita di potere con la grossa rottura riempire il fosso & far scala per se quando si trova aver la fabrica fuora di scala si po fermarla & contentarsi.’ Laparelli also criticises those who modified St Elmo elsewhere (Ibid., f.38v).
additions. Bellavanti is an obvious candidate here, but his role (if any) at St Elmo is not clear. Perhaps the fault lies with one or more resident engineers of the Order working at St Elmo under the Comendatore d’Orla, Fra Pietro de Juniente and Fra Giorgio Adorno. One cannot help but wonder if Leonardi and Laparelli were not pointing the finger at the same individual.

Leonardi prudently qualifies his assessment of the site for the fortress by stressing his dependence on details provided by Visconti — and, one presumes, on the briefs provided by Valette. He is careful to make it clear that he is taking the information on trust:

‘I am given to understand that the Order intends to move to the peninsula which, I am assured, overlooks and dominates all the surrounding terrain and any enemy forces approaching by land and sea. I am assured too that the curtains and fighting platforms (piazzes) of the bastions of the fortress that is to be built there are not in any way exposed to [bombardment from any] high ground beyond the enceinte.

That being so, the position is indeed very strong …’

Leonardi is similarly at pains to spell out his understanding of the nature and availability of the building materials on site further to define the terms on which his opinion is based:

‘I assume the bedrock and earth on the site of the fortress are suitable for the construction of strong defenses and that all other resources are also available there. If so, the fortress can be built more quickly and at less expense than would be the case if the materials came from afar. The walls will be that much stronger too if they are built with stone cut from the bedrock on site …’

One may suspect that Visconti, and possibly Valette in his briefing notes, had painted a rather rosier picture of the resources available in Malta than was really the case. In 1562 Baldassare Lanci was very careful to qualify his (optimistic) estimate of the time it would take to build the main front of the city he had designed on Xiberras. He was well aware of the shortcomings on the island for he chose his words very carefully:

27. Parere, para. 2-3.
28. Parere, para. 11.

PARERE DI GIACOMO LEONARDI

‘With four months labour they [the knights] will have a fortress — provided the materials are available.’

In 1566 Laparelli, while acknowledging the quality of Malta’s stone, bewailed the almost total lack of other materials — including manpower to cut the ditches and build the walls:

‘The position [i.e. Xiberras] has no qualities at all except for usable stone, a healthy atmosphere, large and beautiful harbours and a hill higher than any others nearby. Moreover it is surrounded by water on all sides except where it faces Mursa. However, the place lacks water, lime, sand, wood, picks and shovels, beams, fascines, labourers and all kinds of timber. Malta is just a bare rock really and, as for food, it is short of bread, wine, meat and oil, and the fish catch is small - even though this is an island.’

Having said he assumes that all the resources necessary for building the fortress are available, Leonardi proceeds to provide a checklist of what he believes is required: the tools needed to cut and dress stone, to clear the ground of rubble and to move it around as necessary; the kinds of timber and metals, large quantities of which the expert and fully equipped carpenters and blacksmiths (at least two of them) will require and so on. But of course, once built, the fortress has to be fully furnished with the wherewithal to survive a siege. There are the basics: flour mills (wind, horse or man powered); rain water cisterns (kept clean) to give the fortress an adequate and secure water supply; sufficient victuals, clothes and arms for the defenders, and so on.21

Leonardi devotes considerable space to the types of artillery to be mounted, specifying a fully equipped and competent maestro di carri to manufacture and maintain the gun carriages and wheels, and a powder mill and stocks of the raw materials for gunpowder — saltpetre, carbon and sulphur. The numbers and types of artillery pieces are described in some detail: two colubrine, and other guns firing 50lb shot will be mounted on the higher positions to bombard the enemy at long

29. Codex Laparelli, f.22v: ‘... in. 4. mesi che si lavori facta la provisione delle materie saranno in forma...’
31. Parere, para., 18, 19, 20, 24, 26, 27, 28. Laparelli produced a very similar list; see Codex Laparelli, ff.29/30.
range as he approaches by land or sea. For fire at closer quarters, Leonardi specifies guns firing shot weighing from 8lb to 12lb, others firing lighter (3-6lb) shot and yet more in the 1-3lb class. He recommends the provision of heavy harquebuses (arcobuggiotti da posta) and points out that the colubrine and the 50pdr do not require as much ammunition as the other guns because they are incapable of rapid fire – though very effective.

He goes on to describe the role of artillery at St Elmo as well as on the main front of the proposed fortress:

'I must stress that the work under construction for the defence of the mouths of the harbours [i.e., St Elmo] if possible must be armed with batteries at sea level [in pello d’acqua] that can engage enemy warships as they approach. Other batteries high up will challenge the enemy at a distance or at close range with plunging fire. These batteries should be able to cover the waters of the harbours as well as protecting their entrances.

Similarly on the main front those batteries that fire directly at the enemy must be at a level high enough to engage his forces at a distance. The guns lower down will engage the enemy at close quarters. Those in the flanks will defend the counterscarp and the ditch and these positions should be lower than the edge of the ditch. I recommend that a narrow covered way is provided all along the edge of the counterscarp. Thus, should it be necessary to make a sortie, one can send out bodies of troops and bring them back safely [into the fortress].”

All this was pretty basic to gunpowder fortifications – text book stuff - but in 1557 these concepts were still relatively new. Leonardi places his heavy forward firing guns high up (presumably on cavaliers) where they can engage the enemy at a distance; discouraging the massing and deployment of large bodies of troops in the open, disrupting efforts to build entrenchments and, last but not least, giving the defences a counter bombardment capability by challenging enemy batteries. The ordinance in lower batteries (also forward firing) along the main line of the defence (on the curtains and faces of bastions and above their flanks) would sweep the glacis as enemy troops tried to storm across it or tried to push entrenchments forwards towards the defences. Lastly, light quick firing guns and heavy harquebuses in the lowest emplacements in casemates and in ‘piazzette basse’ under the flanks, protected the ditch and swept the scarp of the curtains and bastions. The covered way along the counterscarp defended the ditch too, but it was also designed to permit the defenders to muster bodies of troops there unseen by the enemy and to

move them securely along the covered way to the point of the sally or counterattack. If the ditch was wet, as was the case in this project, the ability of the defenders to mount operations beyond the defences was limited. Leonardi applies slightly different principles to coast defence. Here the heavy guns again take on the enemy at extreme and medium ranges with plunging fire, while fleur d’eau batteries, firing at point blank range, deal with ships and boats attempting to force the harbour entrance. The value of sea level batteries was amply demonstrated in 1565 when de Guiraut’s battery below St Angelo played a major part in frustrating a Turkish seaborne attack on the Sperrone of Senglea. It is interesting that Leonardi gives the guns of St Elmo a role in the defence of the waters and shores of the harbours themselves. These guns, presumably, would be the heaviest pieces mounted in the highest positions on top of the spur-cavalier which appears to have been still unfinished in mid-1557.

Leonardi considered the likely scale of attack on the new ‘fortezza’ and the difficulties of besieging it. He concluded that the Order should manage to survive a major assault but with an important proviso:  

'I must stress that the knights must not start fortifying this position unless they know the work will be in a state of defence in good time - lest the enemy descend on the unfinished fortifications and turn them against the island. Therefore before starting to build the fortress it is necessary to find out if the Turks are ready to attack or on the point of doing so.”

A number of paragraphs in Leonardi’s parere are devoted to analysing the strategic issues the Turks would face if they attacked Malta. But like so many military strategists down the ages he thought more in terms of past experience than attempting to foresee what surprises the future might bring. As will be seen, Leonardi believed the Turks would not attempt to capture Malta but that they would mount surprise raids in the manner of Dragut’s descent on Malta and Gozo in 1551:

‘Provided it is built on the planned site, the fortress will be very strong indeed. Furthermore it is located on an island that cannot be attacked unless troops are brought by sea and Malta is not only barren but also a long way away from the Turks’ bases. Thus the knights need not be afraid of a repeat of their experience in Rhodes where they were much closer to Turkish territory. There were far more resources available to the enemy on Rhodes than in Malta and it was also much easier to invade that island.

There is no harbour in Malta available to the Turks that is

32. Parere, para., 8, 9.
33. Parere, para., 10.
capable of holding a large number of vessels. They will be obliged
to disembark their forces on a rocky and dangerous beach many
miles from the fortress. It is also my understanding that the route
from the beach to the fortress is unsuitable for the transport of
artillery as the ground is very rocky and too rough. The terrain
around the fortress is bare rock and impossible to entrench as there
is no earth. So the enemy will not be able to take cover behind
earthworks and he will be fired on from near and from afar as he
cannot protect his camp or mount artillery under cover. There is
no water close by either. When planning to build a fortress, the
first matter we must consider is where the enemy will camp. If the
camp site is poor - either because it is exposed to bombardment
or because there is no water or because the enemy's lines of supply
for victuals are bad - we [the besieged] will be secure even if our
fortress is weak.

The camping ground is close to that part of the defence which
the enemy must attempt to attack in force [i.e., the main front
of the fortress facing Marsa]. There are no victuals or water here and
the camping ground suffers from all the disadvantages arising from
its being exposed. The enemy's lines of supply extend from [their
camp before] the fortress to the fleet [at the disembarkation
beaches] and thence to Tripoli over two hundred miles away -
which is where his victuals must come from. This supply line
across the high seas is very insecure and on these grounds alone
therefore the safety of the fortress is assured. The situation in Malta
is totally different to that in Rhodes because the larger the enemy's
force sent to Malta the greater will be their problems and the less
time they can spend trying to take [the fortress]."  

Not having been to Malta himself, Leonardi here clearly bases his advice on
the information given to him by Visconti and in writing by Valette - and it is difficult
not to conclude that they exaggerated the difficulties the Turks would face when
invading Malta to attack the proposed fortress on Xiberras. There were a number
of bays and even a harbour that the Turks could use - Marsaxlokk, San Tomas and
Marsascala come to mind - and these had sandy beaches across which the Turks
could disembark their troops, supplies and artillery, which they accomplished without
much trouble in 1565. The route from these beaches to Marsa at the neck of the
Xiberras peninsula (clearly the camping ground discussed by Leonardi) was not so
rough and rocky as to be impassable for artillery - again as the Turks would amply
demonstrate in 1565. Visconti and Valette knew that Dragut's forces disembarked


Parere di Gian Giacomo Leonardi

(in force) at St Paul's Bay in 1551 and dragged seven large artillery pieces (one
was a 60pdr) as far as the chapel of Our Lady of Wied il-Gasell while platforms
were being prepared for them at Rabat. They also knew that Dragut, having decided
he could not spare the time to take Mdina by means of a regular siege once it was
clear the garrison was determined to resist, attacked Gozo instead and captured the
Castello, after moving an artillery battery of nine large cannon and many smaller
guns from M_arr (over terrain very similar to that in Malta) to Rabat below the
Castello. 35 Visconti and Valette knew too that, while it did not appear there was
much soil in Malta, there was a fair amount of it about on agricultural land all over
the island (including Xiberras) together with vast quantities of rubble from fields
and field walls, all of which the Turks could use to protect their camp, to build
entrenchments in the siege lines and to create artillery platforms. In 1565 the Turks
threw up entrenchments and batteries all round the Order's defences. Visconti and
Valette surely also knew that the Turks, whether attacking a fortress on Xiberras or
the defences on the other side of the harbour, had a good supply of water at Marsa.
Laparelli was quick to realise, early in 1566, that all one had to do on the plain of
Marsa was dig - and the water was there for the taking. In fact the Turks could not
have wished for a better water supply:

'...you cannot prevent the enemy from obtaining water; anyone
who digs a hole 4 palmi deep on the plain [of Marsa] will find
fresh water and in abundance.' 36

History shows that Leonardi underestimated the logistical skills of the Ottoman
and Corsair high commands. In 1565 they proved perfectly capable of mustering an
immense (for the times) expeditionary force and dispatching it halfway across
the Mediterranean. They kept their armada supplied throughout the siege of Malta
from Tripoli, other parts of North Africa and the Eastern Mediterranean. When
they were forced to abandon the siege, they brought fleet and troops in good order
safely back to base without serious losses en route. So much for the insecure supply
lines that would weaken an attack on Malta and so much for the assertion that a
very large attacking force would face unsurmountable logistic difficulties! While
Leonardi was correct in pointing out that a siege of Malta could not be sustained
indefinitely - contrary to the situation in Rhodes where the Turks could attack at
will due to the island's proximity to Asia Minor - the fact remains that they
maintained the 1565 siege for the full campaign season from May to September.

Naturally those parts of the parere that refer to the actual design of the proposed
fortress are of great interest. Leonardi (unfortunately) refuses to comment on the
proposal in detail, on the grounds that he has inaccurate information. But even so

35 Bosio, op. cit., 302,304.
36 Codex Laparelli, I.33v. '...no he possibile il vetar le acqua allo nemico per che dove si cava piu.
in quella pianura si trova acqua abundante & bona.'
of course he cannot help but make his suggestions on the basis of what he saw, what he read and what he was told. In the extract considered below he seems to be answering a question relating to the trace of the main front and specifically the number of bastions it should have - it would not make any sense to ask how many bastions there should be around the entire enceinte. If this interpretation is correct it appears that the detailed design of a main front across Xiberras was the subject of debate even at this date and perhaps earlier. Wisely, Leonardi ducks the question:

‘.....I cannot advise on the trace of the fortress or say how many bastions it should have [i.e., on the main front?]. This is because I have no measurements [on which to base my calculations] but in any case, it will be easy to work out the [best] design on site and the fortress will be imposing and strong.’

Another comment relates to an equally important and much debated issue: should the lateral walls running along the sides of the enceinte, be built on the higher ground towards the spine of the peninsula, (thus avoiding the need to build high exposed walls where the ground sloped steeply to the coasts on either side of Xiberras), or should they closely hug the shores? Leonardi’s recommendation is unequivocal:

‘As far as possible the enceinte must follow the shoreline so that the enemy will not be able land anywhere [below the walls of the fortress].’

The need to prevent an enemy from penetrating along the shore past the main front of a defence, or landing below the walls became self-evident to the knights in 1565 at St Elmo, the Post of Castille on the main front of Birgu and at Senglea. The following year, during the famous debate early in April 1566 on the design of Valletta, Laparelli and Valette insisted that the main front of the city should run from the shore of Grand Harbour across Xiberras to the waters of Marsamxett on the other side in order to prevent this from happening again. The Spanish engineers led by Fratinò objected to the height of the walls that it would necessary to build at the demi-bastion of St Michael and the bastion of SS Peter and Paul in order to achieve this.

Even more interesting are Leonardi’s views about the main ditch of the fortress front:

‘As for the ditch to be dug on the main front facing the land [i.e., Marsa] which will be open to the sea; let it be of a decent width. I am in favour of a wet ditch because it is not possible to contemplate sorties [against the besiegers] since the place is small and the defenders not very numerous.’

This paragraph reads as though Leonardi approved this feature of the project shown to him, and that he was simply stressing the need for a reasonably wide ditch. Of course, given the lack of accurate data at his disposal, he was clearly unaware of just what cutting a ditch across Xiberras would entail. But here Leonardi may well be identifying the position of the main front of the proposed fortress. Only a line on the very neck of the peninsula, (running from the innermost part of Pieta creek across to what used to be known as Marsa Piccola) conceivably could have been cut down to below sea level in the sixteenth century. Indeed there was a scheme to build a canal across Xiberras at this very point in the mid-nineteenth century in order to relieve the shipping congestion in Grand Harbour. It must be borne in mind that the terrain here has been much altered over the centuries for the ground was heightened by the Floriana crownwork and its glacis and Pieta creek ran much further inland than it does today - probably as far as the little chapel at the bottom of Ta’ Braxia hill. In 1566 Laparelli considered (and rejected) this position for the main front of Valletta, though he did say many considered it very suitable. Don Garcia de Toledo, himself an engineer, proposed building a very large city taking in the entire peninsula in February 1566. There is a contemporary map showing such a city and it is depicted with a wet ditch running from Pieta creek to Marsa Piccola. While the map (Fig. 2) must be regarded with the usual caution as evidence, we can conclude (again with the usual caution) that the Order perhaps contemplated building the main front of the proposed fortress at the neck of Xiberras.

Leonardi’s support of a wet ditch is understandable in view of the fact that there was not likely to be a large body of defenders within the fortress. Laparelli agreed:

‘A wet ditch provides a defence against a sudden assault especially at those times when an attack is least expected and the garrison is small. Wet ditches may suit those who hold small fortresses

37. Parere, para., 12.
38. Parere, para., 3.
41. Parere, para., 7.
43. Codex Laparelli, ff.10,11,33v,16.
44. Gianado, op. cit., 141-3, 490.
defended by small garrisons and also those who wish to survive without resorting to sorties: for without wet ditches they are doomed."  

The whole point of spending huge sums on fortifications was to reduce a perennial dependency on large defensive forces. Laparelli made this point very succinctly in 1568:

"Those who build themselves fortifications do so mainly so that they can reduce recurrent expenditure on troops through a single capital investment which enables 'the few to resist the many'. Now if any small state or entity can benefit from the art of fortification it is the Order of St John - and it really has no choice but to fortify."  

As for the main front itself, Leonardi is at pains to recommend that it be built much more strongly than shown on the plan with stronger shoulders and with flanks that could not be 'masked' or 'blinded' by rubble falling from the walls under bombardment and with sufficient space behind the ramparts for retracements and retreats:

"There must be enough space behind the walls [of the main front] so that the defenders can build properly flanked retreats wherever the walls are breached by bombardment. The platforms of the bastions and their terrepleins have to be much larger [than shown on the plan?] and the shoulders of the flanks too must be much stronger than is normally the case because they have to withstand the extraordinary might of the Turkish forces for they use many more artillery pieces than do Christian armies. I recommend that a large quantity of earth be collected within the fortress to be used for the throwing up of cavaliers, forming parapets and filling gabions as may be required. The flanks must be so built that they cannot be blinded [by rubble falling into the ditch under bombardment]."  

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45. Codex Laparelli, f.31, 'La Aqua in essi fossi difende da una improvvisa scultata massime quando accesi tengo che si ha poco suspetto si sta con poco prestissio & po giovare aquelli che han fortezze piccole difese da poche gente & quelli che si vogliono conservare senza far sortile perche mancando non han speranze di soccorso'.

46. Ibid., f.65v, 'Il primo & principale intento di quelli che si fortificano he di fare una spesa per una volta tanto... per levarsi dalla continua restringendo le forze insieme & far che li pochi restino alla assai: si he al mondo Signoria, loco che abbi bisogno de valersi di questa arte he la Religione che ni ha di necessita.' Laparelli then goes on to support dry ditches.

47. Parere, para., 4, 23, 5.
The issue of whether to build retreats behind breaches or to hold the original line of the defence at all costs was hotly debated. In 1562 Lancia advised Valette to build a properly flanked retreat immediately behind any sector of the enceinte where the enemy was bombarding in preparation of attempting to storm the defence through the breach – and to build the retreat as soon as the enemy’s intentions became clear. In 1565, the *gran ritratto* that Valette threw up in good time behind the post of Castille saved Birgu (and the Order) when the Turks burst through the defences there.\(^{48}\) Laparelli held the contrary view arguing that retreats were bad for morale:

> ‘In my opinion, one must not build retreats in fortresses if this involves the surrender of ground to the enemy, for once the enemy occupies part of the fort he will go on to reduce the rest of it. I put forward this view for many reasons, some of which will be advanced now and others during the discussion about retreats from one prepared position to another - though to my mind these are better described as ‘defeats’ rather than ‘retreats’!’\(^{49}\)

I have left the most interesting paragraphs of Leonardi’s *parere* to the end. The first is his recommendation for digging a galley port or *darsena* on Xiberras; the first time, as far as I am aware, that the concept was floated:

> It would be excellent if it were possible to allocate space for a galley port inside the enceinte or close by. The galleys, other vessels of the Order and ships arriving with reinforcements can lie there protected from enemy bombardment by land or sea.\(^{50}\)

Leonardi had thought things through. It was all very well for the Order to yearn for a standalone, impregnable, and imposing stronghold for its headquarters on Xiberras, but where would its navy and transports be safe during a siege and how would supplies and succour reach them during a protracted siege, if the defences on the other side of the harbour fell to the Turks? Some way had to be found to avoid this problem - which of course diminished the self-sufficiency of the stronghold. Since there was no natural haven on Xiberras, Leonardi reasoned, then an artificial haven, which he called a *ridutto*, could be excavated inside the fortress or close by;


\(^{49}\) Ibid., f.81v. ‘Ora dico che non è possibile in dicte fortezze che si possi far ‘retirate cedendo sito alli nemici qual abbinia da impatnati’ qual impatnati : non faccino il simil del resto & questo per molte cause che si diranno parte ora qua & là quando si parler del far ‘retirate fagendo di uno frutto in un altro quale si asminighia più a fuga che a ritimento’.

\(^{50}\) *Parere*, para. 6.

presumably somewhere between St Elmo and the *residenza*. That Leonardi was unsure as to whether the fortress was large enough to accommodate the galley port is an indication of just how poor the plans he was working from were. Laparelli also thought the problem through, as his plans for Valette show, and indeed a start was made on excavating the *manceracchio*.\(^{51}\) Girolamo Cassar took things even further by proposing to construct breakwaters on both sides of Xiberras so that Valette would have its own port facilities independent of those at Birgu and Senglea.\(^{52}\)

Finally Leonardi displayed his humanity:

> ‘The knights must remember that it is not enough to develop an impregnable stronghold [for their own security on Xiberras], for the main threat [to Malta] is not a long drawn out siege but rather, surprise raids by corsairs. Thus they are also in honour bound to attend to the safety of the island’s inhabitants by looking to the city in which they live, taking measures to prepare and strengthen it and setting up a signal system to warn the people to take refuge there. The city must be strong enough to look after itself, even if besieged, for the safety of all these people.’\(^{53}\)

It took a man who would never come to Malta to jog the conscience of the Order and remind the knights of their responsibilities to their fellow Christians.

Conclusion

No other references to Leonardi’s *parere* have come to light. It is very likely that Cardinal della Rovere passed a copy to Visconti and that this was sent to Malta. The original, corrected and signed by Leonardi, is among the state papers of Cosimo de Medici, Duke of Tuscany. Why it is there is not clear. It is possible that the Duke of Urbino sent it to Florence a few years later when Cosimo I was asked to send Baladassare Lancia to Malta. Alternatively the manuscript may have been brought to Florence with the archives of the dukes of Urbino and for some reason it was filed with the Medici records. Further research may provide the answer. As for Visconti, we know that he went on to Urbino and it is highly likely that he did so on the advice of Leonardi and the cardinal in order to seek the services of yet another eminent military engineer: Bartolomeo Genga. On that occasion he was successful;


\(^{53}\) *Parere*, para. 16. Leonardi is almost certainly referring to Mdina.
Appendix

The Document

(f.486) (Al Cardinale della Rovere) Signore mio Reverendissimo.


55. Bosio, op. cit., 395, 397-8. Genga is known to have made a model of the city he designed. The manuscript attributed to Genga is published and analysed by Ganado, op. cit., 476-8 and 364-5.

56. ASF, Medecio del Principato, filza 465, filza 486-490. Leonard drew up (probably dictated) the text in some hurry since the points he makes at times do not follow the one from the other and there are some contradictions too. He then made a few corrections and additions and signed the document. Leonard’s additions are given in the text. The words between the symbols ‘ ’ and ‘ ‘ is interlined in the original and any text struck through is deleted. Abbreviations have been expanded in the interests of clarity.

57. Celli, op.cit., 153 note 3, states that the report was addressed to Cardinal Gulio della Rovere and that it was printed by a certain Landi with notes written by a certain Milanesi on the occasion of a marriage between the Berlingieri and Pescetto families. I have not been able to trace it. Scalese, op.cit., loc. cit. refers to another printing of the ‘Paree’. I have not had the opportunity to consult his sources.

[2] Dirò dunque che havendo ragionato co’ Vostra Signoria Reverendissima, et li Signori Chiericato, & Visconti, vedo che quelli Signori disegnano ritirarsi in quella lingua, la quale mi vien presuppuesto che sia di tanta altezza che scopra et superi tutti l'intorni, et la venuta del nemico per terra, et per mare, et che la fortezza da farsi no' sia per esser scoperta, ne per corina, ne per le piazzee delle belliard, ne in altro modo da Alto alcuno da fuori/

[3] Essendo così la fortezza per il sito resta gagliarda, la quale deve pigliare co’ il circolo della muraglia nelli intorni piu avanti sopra il mare che si possa, per non lasciar luoco di smontata in parte alcuna al nemico/

[4] (f.486v) Deve haver spatio dentro la muraglia per potersi ritirar e fiancheggiarsi di nuovo diretto una batteria. le piazzee delle belliard, li terriani devono esser piu ampij, similmente le spalle de fianchi assai piu gagliardi della ordinari, poi che hanno a reggere la forza del turco, che è straordinaria, et di maggior numero de canoni che no' si usano tra cristiani/

[5] Li fianchi devono esser fatti di modo che non possino esser imboccati

[6] Se dentro della muraglia, o poco lontano si potesse guadagnar luoco per un ridotto delle galere/et Altri legn di la religione/ e navilji che venissero per soccorso, che no' potesse esser batuto de nemici per via di terra o di mare; sarea in gran proposito/

[7] La fossa che si farà alla fronte di verso terra, ove ha da entrar un braccio di mare doverà esser honestamente larga. Desidero l’acqua nella fossa, però che la sortita non è in considerazione per la piccioletzze del loco, et per li pochi soldati che saranno dentro.

[8] E d’avvertire che quelle parte che è principiata per diffesa delle due bocche del porto sia fatta di canioni e piazzee che possano batter la venuta de navili nemici, s’egli è possibile in pello d’acqua, et anche dall’alto al basso per riconoscerli lontani et vicini, et che bata anche oltra le bocche derbito il porto in ogni loco/

[9] (f.487) Similmente quelle da terra et che voltano verso’l nemico habino il rispetto con l’altezza del veder lontano, et con la bassezza ilposergli offender da presso et dall canioni delle fianchi che hanno che hanno (sic) a defendere la contrastarga e il fosso /de fosso restino coperte dal ciglio del fosso, intorno il qual ciglio io loderei una stradetta coperta, accio che per ogni bisogno di qualche uscita si potesse metter fuori numero de fanti & raccoglierli sicuramente.

[10] Gli è d’avvertere che quelli Signori no’ comencino l’opera che no’ la possino metter in diffesa in tempo che sopragionendo il nimico no’ se ne valesse lui in danno dell’isola perciò nel principiara è da considerare se’l turco ha armata o sia per haverla presto fuori.

[11] Et perche mi si presuppone che il sasso medesimo et la terra che si trova siano atti à far il muro gagliardo, et che ogni cosa è sopra il luoco, essendo così, la fortezza si farà et presto, et co’ menor spesa che se fusse la materia lontana, et tanto

58. Leonard’s marginal insertion.
[12] Con così fatti avvertimenti che io no' potrei dire co' quali disegno ne co' quanti belloardi per no' veder misure che anche è molto facile a metterlo in essere sopra il fatto la fortificazione riuscìa e regia e forte.

[13] Ma gagliardissime et forte restera ove è disegnata, poi che ella è in isola, ove no' si può per ofessa senza traghetto di gente con navilij, et è isola (f.487v) lontana dalla forza del turco et sterile di modo che no' bisogna spaventarli per l'esempio di Rhodi, concio sia che quella era più vicina, al turco, più abondante, et più conmoda ad esser offesa.

[14] Questa no' ha porto ove il turco possa starvi in grosso numero de navilij, la smontata del nemico è discorsa, desastrosa, lontana dalla fortezza tante miglia, nel qual spazio della smontata alla fortezza la strada si presuppone sciondissima per condurvi arteglieria, tutta sopra il sasso, di modo che il nemic no' havendo terreno da coprirsi, non essendo il sasso atto a ricever trincerca egli vien bottato da lontano et da presso, no' ha luoco coperto ove possa allagare, ne coperto ove possa piantare l'arteiglieria, no' ha acqua se no' lontana, di modo che essendo nel fabbricare una fortezza, la prima considerazione si è di veder ove il nemico possa allogiare, come vediamo il mal alloggiamento, o perche sia scoperto et bottato, o perche no' vi sia acqua, o perche la venuta per lui della vettovaglia sia incomoda, siamo sicuri in ogni debol forte.

[15] Lo alloggiamento nemico in quel luoco ove volese tentar la forza patisce della vettovaglia, dell'acqua, tutte le (f.488) incommode del scoperto, per cio che vi sono quelli miglia dall'armata alla fortezza, et dalla fortezza a Tripoli luoco lontano più di dugento Immigial, donde si ha daver la vettovaglie che è poi tanto incerta per esser il mare di mezzo, in tanto che per questo sol vantaggio abbiamo il luoco sicuro, et molto differente di gra' longa dall'altro di Rodi, perciocche quanto più in numero furse la offesa della gente tanto sarebbe l'in commodo maggiore per il nemicco, & tanto meno tempo potria fermarsi in offesa/

[16] È necessario ancora venire considerando che no' basteria haver il luoco forte per li soli cavalleri, ma per honor loro che hanno poi che a temere piu delle corsari , et di cose impramisse che di guerra longa, devono pensare di metter in sicuro gli habitatori dell'isla, haver locchio alla città ove habitano, assetarla, commodarla, dar buon ordine, che con segni avvertiti si ritirino in quella, et che sia tale che anche per guerra possa reggere da se stessa à salute di tutti loro/

[17] Fa bisogno d'haver molini da vento

[18] Non bastaria che havessero li luochi forti, se no' (f.488v) fussero proveduti. Tra le piu principali bisogna che vi siano cisterne in copia che largamente diano l'acqua, che li purgatori siano bene intesi per conservarla buona./

[19] Fa bisogno d'haver molini da vento, o da cappellu, o da mano per le farine tenuti ben riservati et conci/

[20] Non pigliar peso di raccontar quel che sia necessario per il viver dell'huomo, per vestirlo, et per armarlo, perció che la esperienza pur troppo ci mostra quel che ci fa mestiero/

[21] Raccordar do solamente che sia d'haver cura alla qualità, alla quantità, dell'artiglieria nella quale vorei due colubrine poste in alto per riconoscere il nemicco lontano in mare e in terra, vorei pezzi di 50 per batterlo, per gastigarlo, sempre che presumessi volev voler fabricarcmi con massa vicina, vorei di quelli pezzi da 8 da 12 et da 6 fino a 3 et d'una libra, et arcobugiami da posta. La provisione per le colubrine per li pezzi di 50 sono di menor numero di palle di maggior sempre quanto li pezzi se isonoi menori, (f.489) perció che si operano più spesso con spesa menore, & con commodità maggiore/

[22] Desiderei materia per la polvere, salnitri, carbone, et solfaro, et tutti li instrumenti che sono necessarii per far detta polvere, vorei una cucina co' duo maestri con tutte le sue pertinenze, co' ferro, acciaio, & piombo, in onesta quantità, badili, zappe, et altri ferramenti, et instrumenti da maneggiar terreno.

[23] Vorei gran copia di terreno dentro la fortezza per valernene per montagne, per gabbioni, et parapetti, come più portasse il bisogno.

[24] Devono ben considerar che togliendo il terreno di fuori per portarlo dentro, lor Signorine no' facciano/cavamento tanto basso che porri/ alloggiamento, col quale il nemicco possa coprirsi in ofessa della (f.489v) fortezza, o co' la forza o con il furto, et anche con le piogge fermandosi in quelle fosse non portassero mal aere/

[25] È necessario haver un buon maestro de carri & letti per le arteglierie, et per ogni pezzo, ruote, et letti, et altre cose da rispetto/

[26] Et perche mi si presumpone esser tutto sasso ove la fortezza sia da fabbricar, per ciò sono necessarii scarpellini, o spezz monti che vogliam dire, ferri, piccioni, per gastigarl il sasso nel bisogno à vantaggio di quelli che differendaro/

[27] È necessario ancora un maestro de legname co' suoi ferri, et seggioni di grandezza per segar legni grossi, tavolini, et somiglianti/

[28] Sono necessarii Canapi, grossa corda, mezzana, per l'artiglieria, et sottile per l'arcobusiera, lanteroni da hasta, lanterne piccole, & (f.490) torce da vento co' haver sempre buona cura di poter haver soccorsi da luochi vicini.

[29] Io so benissimo che scrivendo a cavalleri tanto honorati et illustri come sono quelli, che haverote potuto restringermi con manco parole, ma poiche io non posso satisfar Vostra Signoria Reverendissima et loro con fatti, con quali vorei nellis rischi per la religione esservi con la vita, ho voluto satisfar con parole, le quali vengono da buona et sincera volontà, che in questo senso spero che saranno accettate. Co' proferir mi sempre a servitio di Vostra Signoria Reverendissima et alla religione, le bascio la mano:

Di Venezia l'ultimo di ottobre del '57

Di Vostra Signoria Reverendissima

Affettuosissimo Servitore Giovan Jacomo Leonardi
Conte de Montelabbate