Giovanni Girolamo Sanmicheli and Luigi Brugnoli’s design for Famagusta city walls, Cyprus (1550-1562)

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Abstract

The Lusignans built a first walled enclosure at Famagusta in the XII-XIV cent. After the Genoese seize of the city in 1372 and the Venetian conquest of the island in 1489, many military engineers arrived from Italy to transform the city walls. Starting with the citadel built by Nicolo Foscarini in 1482, different interventions were accomplished through time. The construction of the west side of the Venetian walls is clearly dated on the Moratto bastion where a slab records the construction by Nicolo Prioli in 1486, “Nicolao Prioli Cypri Praefecto MCCCCLXXXXVI”. The Limassol bastion was finished in 1541, introducing the new Ravelin defence (Lorini, 1609). Giovanni Girolamo Sanmicheli, nephew of the famous designer of Verona’s fortifications, arrived in Famagusta in 1550 ( Vasari, 1568) and started working on the enforcement of the city walls. The port of Famagusta was strategic for the control of the eastern sea-routes, in danger of the Ottoman conquer. The paper will focus on Sanmicheli’s project comparing it with his other projects, such as the fortresses of Zara, Corfu, and the fort S. Nicolò at the entrance of Sebenico Gulf and the coeval literature on military architecture. After his death in Famagusta at the age of 44 in 1558, on suspect of murder (Milizia, 1768), the defence works were continued by Luigi Brugnoli and completed in 1562 before the Ottomans conquered the city in 1571.

Keywords: Cyprus, Architecture, Famagusta.

1. Introduction

The walls of Famagusta run for about two miles in length around the old city, and are remarkably well preserved. Probably the most astonishing view of the city walls is from the moat, surrounding them for over a mile along the three landward sides. The form of the walls is roughly rectangle, interrupted by the Castle and a series of bastions. These are hereafter listed clockwise, the Land Gate or Ravelin (also known as Akkule or Rivettina), the Diocare bastion, the Moratto bastion, the Pulcazar bastion, the San Luca bastion on the west side, and the Martinengo bastion. On this western side of the walls, the city is surrounded by a military area where no access is allowed. The former Famagusta city walls were built by the Lusignan, between 1192 and 1489. After the Venetians captured the island from the
Lusignans, they brought over specialists from Venice like Nikolao Foskanni. Giovanni Girolamo Sanmichele, nephew of the famous designer of Verona’s fortifications, arrived in Famagusta in 1550 (Vasari, 1568). On The City Walls, different interventions were accomplished through the time. The construction of the west side of the Venetian walls is clearly dated on the Moratto bastion where a slab records the construction by Nicolo Prioli in 1486, “Nicolao Prioli Cypri Praefecto MCCCLXXXXVI”. These specialists started to work on the City Walls in 1550's. The Limassol bastion was finished in 1541, introducing the new Ravelin defence (Lorini, 1609). This part of the city walls was finished in 1562, after 12 years of work. The old City Walls were high but thin, therefore the Venetian project fortified the walls against artillery fire, particularly to protect themselves from Ottomans.

After this fortifying process (1550-1562) the total length reached 3 km, the average height became 15 - 18 m. and the width reached 9 m.

in some places. When the Ottoman Empire came to the island, the Venetians in Famagusta resisted for 10 months thanks to this fortification. However, at last, the walls of Famagusta could not stand the Ottoman artillery in 1571. After this invasion, in some places of the Castle, there was serious damage. Nevertheless, two of the original gates of Famagusta are still standing the Sea Gate (Porta del Mare) on the Northeast and the Land Gate (Ravalin/Akkule Bastion) on the South-West. Two new gates have been opened during British Period: The Canbulat Gate and the New Gate. The Land Gate is one of the two original entries to the walled city of Famagusta; the other one is the Sea Gate, which is indeed the most spectacular. It is the second oldest part of the walls, after the Othello’s Tower (Citadel). The original Ravelin was built by the Lusignans as a tower outside the city walls to guard the

Fig. 1- Georg Braun and Frans Hogenberg, Civitates Orbis Terrarum, I, 50, Cologne 1572, view of Famagusta.
nearby entry to the city. Its name, is from a corruption of the old French, reflecting its half-moon shape.

Fig. 2- Henry de Beauvau, Relation journaliere du voyage du Levant, Nancy 1615, view of Famagusta.

It was built in the 12th century during Lusignan rule in order to protect the harbor and the Sea Gate entrance further south. In 1492, during the time of Venation rule, the Citadel was further reinforced by its transformation into an artillery stronghold like the Kyrenia Castle. Above the impressive entrance to the Citadel you can spot the Venetian Lion inscribed with the name of the captain of the city Nicolo Foscarini.

2. The Martinengo Bastion

The Martinengo Bastion is the only arrowhead shaped bastion in the Famagusta City Walls; it was named after the Venetian commander Martinengo. The Bastion, originally called also Tophane, is in the North-West corner of the walled city. The Venetians realized that none of those walls were suitable for modern defence in the cities when they first arrived to Cyprus, and therefore begun a massive construction project to bring them all up to state of the art. In 1550 they brought over Giovanni San Michele, a renowned Venetian architect, to redesign and strengthen the weakest part of the walls is in the North-West corner. He worked over a nine-year period in this.

The Martinengo bastion is one of the best examples of Military Architecture, being shaped like a barbed arrowhead pointing out to landward.

Fig. 3- Ferrandus Bertelli, Cyprus Insula olim Macharia, Rome 1562, detail of Famagusta.

The shape of the bastion meant that not only did it command a large field of fire away from the walls, but ensured that should any attackers manage to enter the moat area to attack the weaker walls, its field of fire could also be directed along the line of the walls. It is believed that this model of fortification was inspired by the fortifications of Florence designed by Michelangelo Buonarroti. This arrowhead fortification was conceived in the first quarter in the 16th century in northern Italy to design a fortress where is no place for the attacker to hide from the defenders. This revolutionary solution meant the bastions could fire upon the ground in front of the curtain walls, and fire along the faces of the adjacent bastions so that the attackers did not have a place to hide; hence, this design dominated the battlefield for 300 years.

Fig. 4- Michelangelo Buonarroti, Fortification studies for the Porta al Prato, Firenze 1528, Casa Buonarroti, inv. 28 A.

The designers also had to find a solution for artillery fire; the solution was to design the
bastions with a very low profile to the attacker. For that solution, they used the earth as the main construction material to absorb the impact of the shot. In addition, the bastions were surrounding with wide ditches, and wide cleared area outside the ditch. The bastion covered one square mile, which allowed it to house the biggest Venetian cannons to fire in two directions and cover a wide area. The bastion was built on top of solid rock, so to make it very hard to dig tunnels beneath it to plant explosives or mines. Moreover, the maximum thickness of the walls is 6 meters. Sanmicheli noticed that the angular corners were going to be a weakness for the bastion; therefore, he added the biggest cannons along the entire walls on either side of the triangular fort to stop any flankers for the moat to be watched by a field of fire. There are passageways inside it that lead to the gun positions and a smoke hole in the ceiling to clear the smoke that comes from firing the cannons and to ventilate the place.

Fig. 5- Plan of the Martinengo Bastion

3. Comparative analysis

In 965, the Emperor Nicephoros Phocas conquered Cyprus and built its first defences to protect it from the Arab raids. Since the 10th century to the Italian Renaissance, many changes happened in battlefield making the old defensive structure ineffective. Therefore, the fortifications were redesigned to face the new challenges in the battlefield. That resulted in introducing pentagonal (arrow-shaped) bastions instead of the spur towers. In Famagusta, the most ambitious expressions of Venetian’s military architecture are the Ravelin, the Sea Gate, and the Martinengo Bastion. By using substantial terrepleins for backing the walls and thickening them. The bastions were built ex-novo, or in some cases remodelled the former bastions. Martinengo was a new bastion that dominated the North-West corner of Famagusta City Walls. Martinengo Bastion is the most modern invention in bastion design, which took modern cannons and artillery into account, and improved the bastion’s defence and offence. The Serenissima Republic of Venice had a new defensive system, called “alla moderna” (“modern style”) starting from the XVI century.

The same military engineer who designed its surrounding walls, Ferrante Vittelli, constructed the New Fortress (Forteza Nuova) in Corfu. It was completed in 1576. In the beginning of the 16th century, an evolution in war tactics led to the modernization of the western side’s façade, opposite of the Contrafossa. This allowed the cannons to have direct fire against an attacking force, parallel with the line of the walls. On the landward side of the Contrafossa, a new outer rampart was built with two big and similar bastions (the Savorgnan and Martinengo Bastions), and a gate was made in the middle of the curtain wall (cortina).

The New Fortress is located on the low Hill of St. Mark in Corfu to the west of the old town, above the old port in the north-western part of the old town, to command the surrounding land, and the 24 suburbs that are enclosed by a
ditched wall with bastions and four gates. The fortress is made in two levels, lower and upper level. On the lower level includes two curtain walls that connects it to the town’s wall and pentagonal rampart, an additional salient and the little fort of Punta Perpetua. It is a three-story building currently is being used as a naval base, it has an exposed brick masonry dates back to the 19th century. It protected the new port on the NE side. The upper level of the fort is made by two ramparts on the west side, which they are the two bastions of the Seven Winds. This level looking out over the countryside. The system of defences was meant to strengthen the west by a second wall, designed by the military engineer Filippo Vernada and Marshal Schulemburg (1669-1682).

Like any other gunpowder fortress Fort Manoel was defined by the number and size of its bastions, since they were the main defence of the fortress, they were placed on each corner. They were called St. Anthony, St. Helen (Bastion de la missida), St. John, and Notre Dame. Both St. John and Notre Dame were land front bastions; they were carved out of solid rock except their parapets, which were built out of stone. For the two bastions that are facing Valletta fortress (St. Anthony and St. Helen) were built out of masonry.

The bastions were built in pairs, two on the land front being smaller than the ones facing the sea, the outer faces measure 54 m at the magistral line. The size of the bastions was limited to the size of the site but Mondion was able to manage to endow the bulwarks with salient angle (flanked angle) of around 68 degrees, which is more than the recommended 60 degrees. Unlike the bastions facing the Valletta bastions, the two land front bastions are asymmetrical thanks to their unequal flanks, the flanks facing south on both bastions are considerably shorter and allowing for only one embrasure. The two pairs of bastions are also different from one another in their angles of curtain and in the length of the intervening curtain walls. Three of the four curtains, those on the land front and the two flanks were carved out of rock. While that facing Valletta and containing the main entrance was built in stone. The ramparts have an average height of 12 m from the floor of the ditch. While the average height of the ramparts of the eighteenth-century forts was 10.7 m. The walls have a batter, which is an external slope with a gradient of about 1:5, which is lined perfectly with the guidelines that were recommended by Vauban. The ramparts elevations, just like the other forts, were relieved with a cordon and goletta, which looks like a continues decorative string course, of a rounded section, its slightly coming out from the face wall beneath the parapet at the point where the sloping escarp gave way to the tableau of the parapet.

Fort Manoel is a bastioned fortress, which also could be considered a star fort, located on Manoel Island in Gżira, Malta. It was built in the 18th century by an Order of St. John in Malta, as a new defence system for the existing fort. The fort was a product of French military, mainly because the orders are actually come from the Imperial to the French sphere influence at the beginning of the 18th century. In addition, the designs of Sebastien le Prestre de Vauban were considered perfect, hence why the French engineers followed his designs when building a fortification outside France.

4. Conclusion

For the defence of territories in warfare, military constructions or buildings are designed to fortify and rule in a region, during peacetime. When we look at in the Medieval Secular Architecture, we can find surviving examples, which mainly served for defence. In addition, Castles and Fortified Walls provide the most remarkable remaining non-religious examples of medieval architecture. In the 9th century in Carolingian Empire, Roman Forts and Hill Forts were the main antecedents of the European Castles. For extra protection, in the middle Ages, they started building walls around cities. After the arrival of cannons to the battlefield in the 14th century, Medieval-Style forts became less effective. In the age of Black Powder, all fortifications became low profile by using ditches and earth ramparts that would protect the forts by blocking the impact of the cannon
ball and send it into the ground. Walls exposed to direct fire were very vulnerable, so they were sunk into the ditches fronted by slopes. When looking at Martinengo Bastion and the other two fortresses, we can see the similarities between them. New Fortress’s bastions have an arrow-shaped that closer resembles the shape of a triangle. In Martinengo Bastion, it was built in the shape of a barbed-arrow head. Therefore, they share the same shape; Bastions of the New Fortress stand out from Martinengo bastion because they do not follow the exact shape of an arrow. In addition, they lack the edges in the back of the bastion (the other side of the pointed edge), which gives them a shape of a triangle more than an arrow. Martinengo Bastion and bastions of Fort Manoel also used the same shape (barbed arrow). The difference between them is that in Fort Manoel, the bastions extend more than the Martinengo bastion away from the fort, which resulted in giving them a shape of sharper arrow (narrower arrow). Also when looking at the history of both, Martinengo Bastion and New Fortress, there are some similarities between them.

Fig. 7- An aerial view of the Martiengo Bastion
They had the same problem which is part of the walls were weak. In Famagusta, they built Martinengo bastion to fortify the north-west corner by the help of some people were brought from outside the island. In the New Fortress, part of the walls was also weak, so they added a second wall to make the west side stronger. The Famagusta city walls (castle) and Fort Manoel have a moat around themselves this gives them an opportunity in defence to protect the castle from land siege weapons, but the New Fortress does not have a moat around, instead it has a river, which separates the city from the old fortress, another important factor in defending the castle. Above this, the castle was also built on top of a hill.

Fig. 8- The Land Gate (Akkule, Ravelin, or Rivettina Bastion), Famagusta city walls, Cyprus (northern)
This gives the defenders an extra advantage in protecting the castle. A moat is deep, broad ditch that could be either dry or filled with water, it surrounds a fortification, castle (building), or a town to add an extra line of defence. The importance of the moat around Famagusta City Walls and The New Fortress plays an important role in defending the castle. Which will give the enemies another obstacle in their way, located directly outside the walls. It gives some advantages in protecting because it makes it harder for the siege weapons, like siege towers and battering rams to do any harm to a castle, because these should be brought to the walls to do any damage. For the New Fortress, the fort was placed on top of a hill instead of digging a ditch around the fortification. A type of earthwork that would grant the fort an extra advantage giving the defenders a rise in elevation. In addition, the river helped in protecting the fort. It acted as an obstacle against the attackers, giving a chance for the defenders to attack the enemies with ranged weapons before they reached the fort.
Fig. 7- Olfert Dapper, *Le voyage au Levant*, Paris 1624, view of Famagusta.

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