PROSPERO JORGE DE VERBOOM'S GENERAL PROJECT FOR THE FORTIFICATIONS OF PAMPLONA IN 1726

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ABSTRACT

On January 10th 1710, Prospero Jorge de Verboom was appointed Quartermaster General and General Engineer of all the Spanish armies. Felipe V wanted to establish an organizational system based on the French model of Louis XIV, who had granted all responsibility of French fortifications to Sebastien le Prestre de Vauban. Verboom had received an exquisite war training and experience, participating in war campaigns with Van Coehoom and Vauban in the Netherlands. From the experience and skills of Verboom some high quality fortification projects have remained. In this paper a technical assessment of the significance that the project Verboom for the fortifications of Pamplona in 1726 had is made.

During the second half of XVII century numerous fortification projects had been established indicating the need for some external strongholds. Verboom stated two outstanding engineers who undertake two fortification projects. Firstly in 1720 Chief Engineer Ignacio Sala held a general project, mainly undertaking improvements in the citadel and the Front of France. That same year, Alejandro de Rez, Director Engineer of the district, developed an ambitious general project. Five counterguards in front of the bastions were proposed for the citadel. With respect to the stronghold he indicated some intervention points, which involved the construction of a series of advanced fortification works.

The king ordered all to be referred to Verboom in order to prepare the final project. Verboom would not be visiting Pamplona until 1726. Once realized the prescriptive recognition, a general project of great importance was developed. Verboom masterfully resolved, in the short time he was in Pamplona, which fortifications should be executed, dramatically improving the projects carried out by engineers of the standing of Ignacio Sala or Alejandro de Rez. An extraordinary selected group of works and adjusted to the real possibilities of the budget of a stronghold of the importance of Pamplona was wisely established.

Keywords: Jorge Próspero de Verboom, Vauban, fortifications, Pamplona
INTRODUCTION

By the beginning of the 16th century, Pamplona had become a strategic location on the Spanish-French border which required repeated projects for bastioned fortifications [1]. Following the annexation of Navarre to Castile in 1512, the Catholic monarchs decided to build a large quadrangular castle with the capacity to accommodate artillery. After the failed attempt by the king of Navarra, Juan de Albret, to recover the kingdom in 1521, control of the territory seemed assured. However, Pamplona's obsolete fortifications had been shown to be insufficient, and a more modern design with bastions was required. Once construction of the quadrangular castle and the bastion of San Llorente was completed, the fortress became one of the most important strongholds in the Iberian Peninsula. However, by the second half of the 16th century, rapid developments in the destructive power of artillery had rendered these fortifications incapable of withstanding a long siege. Determined to exercise unbreachable control of the kingdom of Navarre through the fortifications of its capital, Philip II decided to undertake a new project; the monarch had already embarked upon a policy of control of his other territories based on the application of these technological advances [2]. Following the design and construction of the Antwerp citadel in 1567, a paradigm and the culmination of a lengthy project, he ordered the construction of a pentagonal citadel in Pamplona, the first of its kind in the Iberian Peninsula. Its design was similar to the one in Antwerp but smaller, and construction proceeded much more slowly because of difficulties in financing the project. Several decades later however, the fortified area in Pamplona has become one of the Crown's most important strongholds.

Before analysing the various projects that form the subject of this study, it should be noted that the fortifications of Pamplona remained virtually unaltered throughout the 17th century, despite the various wars waged between Spain and France. The only modifications consisted of the construction of some ravelins in front of the citadel curtain walls and other fronts of the fortress. The need to modernise, prompted by the emergence of increasingly sophisticated and destructive explosive projectiles and the systematic approach to siege warfare introduced by the genius Vauban, merely resulted in the formulation of a myriad of projects that were then put aside at Court. It was not until the end of the century that, spurred by the Spanish-French war in 1691, several important modifications were carried out at significant points, such as the bastion of Gonzaga, the citadel counterguards and the provision of new batteries on the flanks of the bastions. During the War of the Spanish Succession, various French engineers drew up ambitious projects for the citadel, applying some of the principles established by Sébastien le Prestre de Vauban which were circulating throughout Europe as the new paradigm of modernisation of bastioned fortifications [3]. These included tenaille in front of the curtain walls, advanced lunettes in front of the tip of the outer bastions, and ditches before the bastions to delay the entry of the besieging force once an access ramp had been placed in an open breach.

The evolution of this project prior to the establishment of the Bourbon dynasty in Spain can be summarised in three distinct stages, all of which were directly related to the theoretical advances made by experts in the field. The first stage consisted of the transformation of the old medieval fortress into a bastioned stronghold that also included a large pentagonal citadel, the best in all the Iberian Peninsula. The second
stage consisted of the construction of ravelins before the citadel fronts and the rest of the fortifications, and progressed slowly and inefficiently. The third and final stage was characterised by a series of projects to construct outworks in strategic locations. As we shall see, it was the Engineer General, Jorge Próspero de Verboom, who was responsible for executing this defensive system with a brilliant project.

JORGE PRÓSPERO DE VERBOOM, ENGINEER GENERAL

On the 10th of January 1710, Jorge Próspero de Verboom was appointed Engineer General and Lieutenant General of all the Spanish armies [4]. Philip V wished to establish an organisational system based on the French model of Louis XIV, who had endowed all responsibility for French fortifications to Vauban [5], a true genius who designed a systematic approach to siege warfare and established defensive systems that were admired throughout Europe. Verboom's training and experience in warfare was extensive [6]. Born in Antwerp and the son of an expert in siege warfare, Cornelio Verboom, he was trained at the Royal Military Academy of the Netherlands, directed by Sebastián Fernández de Medrano [7]. His career was meteoric, and when aged only 27 years old he was appointed Lieutenant and Chief Engineer. Together with Van Coehoorn, he participated in campaigns such as the siege of Namur in 1695, and later with Vauban in the siege of Hulst and others in Antwerp and Namur in 1702 [8], once he had been appointed Engineer General of the Netherlands Army at only 37 years of age.

After the end of the War of the Spanish Succession, Philip V was strongly committed to modernising the Spanish monarchy's fortifications in the Iberian Peninsula, and Verboom played a crucial role in carrying out the necessary reforms as regards organisation of the military engineering corps and the practice of a profession that ought to serve as a link between the provinces and central power, something that had been recognised in France some 50 years earlier. Numerous errors had been committed in the design and construction of fortifications in Spain, as the failures of Fraga and Lleida during the War of the Spanish Succession has illustrated, and this was noted by the king in the preamble to the Royal Ordinance and instruction for engineers, written by Verboom and promulgated on the 4th of July 1718. The Engineer General himself would serve as a model due to his extensive scientific training and abundant experience of drafting projects and of siege warfare, combining in one person a "fortifications engineer" and a "military engineer" [9], [10]. Several fortifications of impressive technical quality remain standing today in the Iberian Peninsula as testimony to Verboom's experience and excellent work.

The first task undertaken by Verboom concerned the citadel of Barcelona in 1715, a project with a major impact on territorial control and one of the earliest great fortification works in Spain. Following the Sardinia and Sicily campaigns, where he demonstrated exceptional brilliance when directing the siege of Messina [11], he returned to Barcelona in 1719. He then commenced a long journey around Spanish fortifications in 1721, about which numerous references and cartographic documents have been preserved. Of particular note is his work in Alicante [12], Malaga, Ceuta [13] and Cadiz. After several years of intense activity, he took up residence at the Court until 1725, the year in which he returned to the task of inspecting and modernising Spain's strongholds. Once he had renovated the forts on the coast of Catalonia and the south of Spain, it was necessary to do the same at forts that held the key to access by land and
sea in the Western Pyrenees. Verboom arrived in the capital of Navarre in September 1725 [14].

**THE PROJECTS OF IGNACIO SALA AND ALEJANDRO DE REZ**

Some years earlier, in 1720, Verboom had requested fortification projects from two qualified engineers, Ignacio Sala and Alejandro de Rez, both of whom enjoyed his full confidence. They had worked in Flanders when Verboom was Chief Engineer and Lieutenant General of the Flemish army [15]. Now they worked for the Spanish Crown, once the Netherlands had come under Austrian control and Verboom had created the Engineering Corps in Spain. Both men took distinct approaches to their projects.

![Fig. 1. Project to increase the gorges and flanks of the citadel bastions. Ignacio Sala. October 1720. Institute of Military History and Culture (IHCM). NA-17/5.](image_url)

Besides some bomb-proof vaults designed and constructed in the citadel, the most interesting part of Ignacio Sala's project [16] was his new proposal for increasing the gorges of the citadel bastions. He also proposed flanks with increased firing power, and the provision of greater protection of the casemates at the base of the fortifications using bomb-proof vaults. These vaults would be used to quarter the troops and as stores for provisions, artillery munitions and spare gun carriages. This would also make it more difficult for the new, increasingly effective artillery to destroy the casemates with ease before an assault on the breach. There were two variants of the plan for flanks with increased firing power: with straight flanks or curved flanks (Fig. 1). The plan for curved flanks was better because there would be more slits providing better protection of facade of the bastion they defended, although this was also more costly in economic terms. These curved flanks had been also used by Verboom in the citadel of Barcelona, although this did not have the low flanks found in Pamplona. The project reflected the
proposals made by Vauban and Fernández de Medrano, who had produced very detailed treatises [7], [17]. Vauban had applied them in many of his fortifications, within what some authors have called his 'first fortification system'. Sala did not modify the curtain wall so that it would be perpendicular to the curved part of the flank, nor did he propose making the orillons curved since this would undoubtedly have been too expensive in relation to the advantages gained.

The project report drawn up by Alejandro de Rez is preserved in the Simancas General Archive, dated the 25th of September, 1720 [18], although the accompanying plan has unfortunately been lost and all that remains at Simancas are the outlines he drew. Nevertheless, a fairly accurate picture of the layout can be deduced from the information given in the report of this exciting project. The proposals can be summarised in four main points:

1. Because the enemy could easily approach from the southern dip running from west to east, and attack the citadel, it was necessary to construct a fortification in the form of a bastion "in the area known as the Cruz Negra".

Fig. 2. Plan for counterguards in the citadel of Barcelona. Alejandro de Rez. IHCM. B 13/14.

2. Counterguards on the citadel's five bastions, with priority being given to the three bastions facing the battlefield. He also proposed new buildings inside the citadel. Although no visual depictions remain except the above-mentioned outlines, it is reasonable to assume that these counterguards may have resembled those that this same engineer erected at the citadel of Barcelona some years later, in 1725 (Fig. 2).

3. Significant reinforcement of the Magdalena front in the north west of the city, parallel to the river, consisting of a projecting bastion between the bastions of Redin and Labrit, a counterguard in front of the Redin bastion and two tenaille in the front of the Magdalena front: one between the Redin and the projecting bastions, and another between this latter and the bastion of Labrit. He planned two ravelins in front of these two tenaille, to protect the front and give it as much protection as the others.
4. Between both the Abrevador and Redin counterguards or low bastions, facing the Aranzadi section, he placed a ravelin to provide the curtain wall with as much protection as at the other fronts. It was the first time a project like this has been formulated, and it formed the basis of the future French front designed by Verboom.

On the 12th of October, Verboom submitted Alejandro de Rez's project to the Court, after having examined it carefully. As he repeatedly stated, he had full confidence in the engineer. The two projects that had been drawn up took very different approaches. Sala's project focused on the citadel, whereas in addition to strengthening the citadel, de Rez's much more expensive project involved an extensive series of fortifications along the Magdalena front. Despite not knowing Pamplona, and therefore the terrain outside the fortifications, Verboom opted a priori for de Rez's project [19].

VERBOOM'S GENERAL PROJECT IN 1726

Once in Pamplona, in September 1725, Verboom decided to act in his usual way: he drew up his own project, which was far removed from the previous ones. His technical ability, praised on various occasions by Vauban himself, who had preferred Verboom's project to his own for the fortifications of Namur [20], is reflected in this project, one of the best in his long career. Verboom's project dated the 28th of May, 1726, marks an extremely important milestone in the history of the fortifications of Pamplona (Figs. 3 and 4). Once approved by the king, it was this general project that served as a guide throughout the eighteenth century. Although several copies of the plan have been preserved, unfortunately the report itself is not currently held in the Simancas General Archive. However, besides the fact that his proposals can clearly be deduced from the plan, some subsequent reports drawn up by other engineers have been preserved which provide sufficient information to clarify the plan, since Verboom's project continued as an official project throughout the 18th century. The most important of these is undoubtedly the report written by Jaime Sicre in January 1737. The Compendio histórico militar de la Plaza de Pamplona [historical military compendium of the fort of Pamplona], preserved in the Institute of Military History and Culture [21] helps elucidate Verboom's proposals, the most important of which are presented below:

1. The Fort of El Príncipe (Fig. 5). Verboom planned a large advanced fortification at the Goravera section. This consisted of a hornwork with two straight-flanked demi-bastions, with a ravelin and a small lunette in front. The plan was highly praised by later engineers, since it left the entire dip in the terrain exposed. A small demi-bastion on the counterscarp covered the left wing of the hornwork, while two three-vaulted caponiers defended the ditch. It had quarters, two bomb-proof gunpowder stores, a cistern and two guard houses, one in the ravelin and another at the entrance to the gorge. It was connected to the bastion of del Real on its right wing, with a drum tower to prevent an enfilade.

2. A small fortification or advanced lunette in front of the Tejería front, which would be called the fort of San Bartolomé (Fig. 6). It was located in front of the right side of the bastion of Labrit, where there was less of a slope, exposing all the terrain to the southeast to fire, as well as any possible advance of the enemy under the cover of the river. Inside, there were store houses and bomb-proof vaults. The design of the lunette was similar to the prototypes designed by Vauban, which Verboom himself had employed in his 1715 project for the citadel of Barcelona.
3. The fort of La Cruz de San Roque. Verboom located this at a distance from the fortification below the fort of El Príncipe, facing the left side of the bastion of Gonzaga, to protect against an enemy advance from the dip west of the Arga River. It consisted of an irregularly shaped, advanced lunette with two facades and one flank due to characteristics of the terrain, which sloped sharply down to the river, and it was connected to the San Roque ravelin on its left facade.

![Fig. 3. Verboom's general project for the fortifications of Pamplona. 28th of May, 1726. Institute of Military History and Culture (IHCM). NA-17/5.](image)

Verboom took his inspiration for these projecting fortifications from previous proposals by engineers such as Juan de Garay and Octaviano Menil, but executed them in an integrated and coordinated manner. Verboom also projected other fortification outworks, but of less importance, and in fact they were never constructed:

4. A small fortification at Mendillorri, which would expose an enemy approach from the east. This consisted of a hornwork closed by a gorge with two flanks and two ravelins and completely surrounded by a ditch and covered walkway. It was much smaller than the fort of El Príncipe.

5. An advanced hornwork in front of the ravelin and the San Saturnino counterguard in the citadel. The flanks of its demi-bastions and orillons were curved. The curtain wall doubled back at the point where it met the flanks so that the curve would be perpendicular to the wall, following the extension of the bastion facade that protected the flanks, a technique frequently employed by Vauban and Fernández de Medrano.
6. Three projecting lunettes similar to that of San Bartolomé, one in front of the Taconera front, another above the San Francisco Javier counterguard, and a third at Beloso, which together with the Mendillorri fort commanded the eastern part of the city and the meandering river.

Fig. 4. Verboom's project for Pamplona. Work of Peter Moreau. 1731. IHCM. NA-13/02.

These projecting fortifications defined a new approach to fortifying Pamplona, an adaptation to the new tactical requirements of the art of defending strongholds. It was only in planning protection from one of the possible avenues of attack that Verboom sought a different solution. Instead of designing an advanced fort, he proposed a bastioned front beneath the obsolete fortifications of Charles V, which would be the French front, an area in which the French had begun earthworks for the construction of a similar front during the War of the Spanish Succession. This comprised the low bastions of Redin and Abrevador, already started years ago and now called Guadalupe and Pilar, respectively. The left facade of the latter was aligned with that of the bastion of Abrevador, and thus did not have a left flank. In front of the curtain wall, he projected the ravelin de los Reyes. This had a ditch, a covered walkway and armed fortifications that also ran along the Magdalena front and connected with the Tejeria front. Verboom's analysis was perceptive and effectively countered potential attacks on the fort.

In addition to these important works, he also proposed numerous renovations and modifications of the defensive elements of the fort and citadel. The fine details will not be considered here, but it is worth highlighting the bastion located at the blind spot of the Magdalena, taking advantage of the earthworks commenced during the previous
war, the flat bastion of la Rochapea, completion of the Gonzaga counterguard [22], and the ditches that ran from the fort of El Príncipe to the lunette at Beloso. As regards the citadel, counterguards were raised in front of the bastions, as had been planned a little earlier in 1724 by the military engineer Luis de Langot.

Fig. 5. Verboom’s project for the Fort of El Príncipe. January 1726. AGS. MP and D. XI-42.

This was essentially the project Verboom submitted on the 28th of May, 1726. Responsible as Engineer General for planning the defence of the Iberian Peninsula in the northwestern Pyrenees, he gave clear priority to Pamplona over such important forts as Fuenterrabía and San Sebastián [23]. From an analysis of his project, it can be deduced that Verboom saw the need to distance the defences further away from the main fortifications because the enemy could approach unseen from numerous dips in the terrain and commence action too close to the city. The fronts which received most reinforcement were those of San Nicolás and la Tejería, due to their vulnerability as a result of the surrounding terrain, which rose in a gentle slope. This was the most important characteristic of Verboom’s project: the creation of a doubly fortified area in the most exposed parts by using advanced or projecting outworks that could be defended from the main fort, and which were located at an appropriate distance to flank each other, thus greatly hindering the mounting of a siege.

Verboom’s merit did not lie solely in effectively strengthening the fortifications of Pamplona. This could have been achieved simply by building a large number of outworks and other advanced fortifications of great defensive power. But the art of fortification consists of much more than this. It was necessary to achieve a balance between the strategic importance of the fort, the economic resources available and the troops necessary to defend it. This led him to minimise the fortification works whilst ensuring that all of them presented a similar defensive capacity without any clear weak points. Thus, they could defend each other and were placed in strategic locations, rendering any enemy advance both slow and arduous. All this, of course, depended on having the troops necessary, and on the fact that the fort was not isolated but interrelated.
with other forts in a territorial system of fortification among which it was necessary to distribute the available human and financial resources [24]. Verboom had learnt from the three most influential people in this field who had, despite their differences, demonstrated themselves to be geniuses in this art: Vauban, Van Coehoorn and Fernández de Medrano [25].

Fig. 6. Verboom's project for the Fort of San Bartolomé. Peter Moreau. 1731. SGE. 408, 1.

When Verboom departed from the capital of Navarre to undertake new projects, he left the military engineer, Pedro Moreau, in charge of the works, a man with extensive experience who understood the Engineer General. Numerous documents, plans and letters have been preserved that provide insights into the evolution of these works over the following decade. Verboom himself submitted a new report on the progress of the works and the sum of money required to the king [26]. In 1736, the military engineer Jaime Sicre replaced Pedro Moreau as the person in charge of the works. He drew up the most detailed report that has been preserved on the progress of the work [27], which provides an accurate picture of the priorities established by Verboom a few years previously. The French front and the fort of San Bartolomé had received the most attention, while earthworks were in progress at the fort of San Roque and fort of El Príncipe, to create embankments [28]. As regards the rest of the minor works, only a few isolated and relatively unimportant renovations and improvements had been carried out. In the late 18th century, the French front and the lunette of San Bartolomé had been completed to perfection, whereas the fort of San Roque and the fort of El Príncipe,
which had been constructed of earth without stone cladding, had crumbled. Only the
lunette in front of the ravelin had been fully completed.

CONCLUSIONS

Throughout his long professional career as a military engineer, the general project that
Jorge Próspero de Verboom drew up for Pamplona in 1726 was one of his most
important works, together with the citadel of Barcelona and his general projects for
Alicante and Ceuta. Verboom was inspired by proposals from previous engineers from
the late 17th century, such as Juan de Garay and Octaviano Meni, but achieved a
masterly synthesis and proposed an original project. Based on a strategy of placing
advanced fortifications in areas that prevented an easy enemy approach to the fort,
Verboom rejected the proposals made by Ignacio Sala and Alejandro de Rez in 1720.
Verboom's project served as a basis throughout the 18th century, despite other proposals
made by such prestigious engineers as Juan Martín Zermeño and Antonio Hurtado. One
could say that together with his projects for Barcelona and Cartagena, it was the most
ambitious project for the fortification of advanced forts ever undertaken in the Iberian
Peninsula.

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