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Guns and Profit. Tuscan Naval Artillery in the 16th to 17th Centuries

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The creation of the navy of the Duchy of Florence and, later, of the Grand Duchy of Tuscany is well known. Starting with the epic-style works by Gino Guarnieri in the late 1920s, passing through the plodding writings of Marco Geminiani and the many contributors of the *Quaderni Stefaniani*, and ending with Franco Angiolini's socio-political studies of the 1990s, every aspect of the Medician naval structure has been examined and dissected, guns included (Guarnieri 1960, 1965; Various authors 1989; Angiolini 1996, 1999; Gemignani 1996). But is this really the case? Is there not, maybe, something that has fallen through the cracks of historical research, not just mere factual details but instead matters that could change our perspective on Tuscany's maritime policy, indeed on the use of ordnance in Early-modern naval warfare? In order to answer these questions, one must take a different angle of investigation, going beyond the strictures imposed by certain "cutting edge" historiographical trends. Technology historians, busy examining scientific developments *in vitro*, or students of logistics, seen exclusively as economic aspects of warfare, tend to forget the main function of a weapon or a weapon-system: namely the destruction, or at least the overpowering of physically hostile people and objects. Yet, in order to obtain this goal any sort of military hardware necessarily needs the human element to work it at the maximum potential, within a specific tactical and strategic frame. The Tuscans' use of naval artillery in the 16th and early 17th centuries is a case in point, as this study shall attempt to demonstrate and at the same time challenge some consolidated knowledge on the matter.

The need for Florence to provide itself with a navy became apparent once the Medici became its ruling princes in 1532, and especially after the Ottoman tactical success at Preveza, in 1539, that settled into the Sultan's hands for the next thirty years the naval initiative in the Mediterranean. The need for a fleet was motivated by the need to protect Florentine subjects living on the coast – and not just from Muslim corsairs, Florence's neighbours being sometimes as troublesome[1] – plus a need for the Medici to become active players on the international check board. However, only in the mid-1540s could Duke Cosimo I turn his attention to the sea, having previously been preoccupied with ridding his domain from a rather stifling Spanish presence (Spini 1980). But fleets could not be built overnight, considering also that Florence lacked a shipbuilding tradition of any significance.

Until the end of the 15th century, the Florentine Republic maintained a galley squadron in Pisa, but financial reasons and the temporary loss of the port of Pisa from 1494 to 1509 had caused Florence to abandon any sort of naval policy, always half-hearted in any case (Manfroni 1985; Mallet 1967); in 1527 the Venetian ambassador in Florence, Marco Foscari, described the Florentine fleet as practically non-existent (Segarizzi 1912–1916, 86).

By the time the Medici had managed to become ruling princes, warfare in the Mediterranean had been completely revolutionized, and, as a consequence, around the 1530s the galley had developed from a mere gun and fighting platform to a complex and versatile weapon-system. Lacking the necessary know-how, the Medici had to look elsewhere to build their fleet.

In early 16th-century Italy, only two places possessed the appropriate facilities for large-scale shipbuilding: Venice and Genoa. However, the former's distance from Florence made it an unpractical source; besides, the Venetians' strategic outlook meant their vessels were ill suited to Florentine needs. Genoa was the only feasible answer, for a number of reasons. It is quite possible that initially Cosimo I had intended his fleet essentially as a costal-protection force, to be employed, if need be, also in amphibious operations in the style of the Iberian monarchs. The Spanish, under whose intimidating wing Cosimo found himself, had a long tradition of such enterprises against Muslim bases in North Africa (Capponi 2006, 72–73). The 1528 agreement between Genoa and Spain had resulted in the Habsburg Mediterranean fleet being made up mostly of Genoese privateers, creating thus a synergy between Spain's strategic outlook and Genoa's political-mercantile

needs (Kirk 2005; Lo Basso 2004). For different reasons both the Spanish and the Genoese needed swift vessels, ideal for patrolling and the transport of men or merchandise. The Habsburgs continually needed to bring soldiers from the Iberian Peninsula to Finale Ligure, the beginning of the road to Flanders (Parker 1990), and occasionally carry troops to North Africa. The Genoese, on the other hand, engaged in a lively traffic of precious goods, bullion and the transport of documents, such as diplomatic correspondence, from Italy to Spain. In practice this meant that both Genoese and Spanish galleys, including those of Spain's Italian territories, mounted enough ordnance for defensive purposes, but always preferred speed to hitting power.

At least until the end of the 16th century, Spanish and Genoese galleys appear to have carried a main artillery battery of three pieces. That number appears in a 1575 contract for the sale of four galleys belonging to the Lomellini family of Genoa, and the weight of the ordnance's shot points clearly to them being light pieces: the heaviest gun being a 32-pounder, and the two sakers accompanying the main one on each galley were 4-pounders. The equipment was completed by two or four bronze swivel guns for each galley – (ASG, *NA*, 3150, Notary Domenico Tinello, deed of the 23 April 1575, noticed me by R. G. Ridella). In 1582 the vessels of Doria's squadron had on average a centreline cannon weighing 2000 kg and two 400–600 kg *moiane* (short sakers) on the main batter, plus four 120–180 kg light *petrieri* and swivel guns (ADP, 70/25, int. 9bis "*Inventari delle galere*", 1582; about the Genoese galley ordnance see R. G. Ridella's paper in these volume).

In the following years the iberian galleys seem to carry a slightly lighter ordnance than Doria's ones. An inventory of two Spanish galleys dated 1588 lists for one a 1700 kg centreline piece, a pair of 450 kg *moiane*, four 100 kg *mortarete* swivel-guns, and five large harquebuses; the second sported a 1600 kg main gun, a pair of 250 kg *moiane*, and four 100 kg *mortaretes* (ADP, 76/21, int. 2 "*Inventarii delle due galere di S. Altezza Santa Caterina e Santa Margherita, fatto alla fine di febraro 1588*"). The tactical implications of this type of ordnance setup become evident if one considers that Spanish galleys usually operated in large squadrons, made up of contingents from Spain proper, Naples, Sicily and Genoese privateers, all with a similar armament – the heavy swivel guns adding some extra punch at close quarters without affecting the vessels' sailing performance.[2]

Cosimo I started planning the new Medici navy around the mid-1540s – in May 1546 Cosimo asked for models of the nails used in galley construction (ASF, *MP*, 613, inserto 2, f. 83rv, Pier Francesco del Riccio to Cosimo I, 17 May 1546) – and the first galley was launched from the arsenal of Pisa in October 1547 (ASF, *MP*, 383, f. 352r, Luca Martini to Cosimo I de' Medici, 13 October 1547). In order to accomplish this Cosimo had imported a substantial number of Genoese shipbuilders, but the need to speed matters up caused him to ask the Viceroy of Naples, Don Pedro de Toledo, to furnish him with a ready-made "*light and swift*" vessel (ASF, *MP*, 5, f. 674r, Cosimo I to Don Pedro de Toledo, 15 March 1547; ASF, *MP*, 1174, ins. 3, f. 32v, Cristiano Pagni to Pier Francesco del Riccio, 4 August 1548). Although Genoa would have been a better place for purchasing galleys, at the time the Genoese were concerned about Cosimo's decision to fortify Portoferraio, on the Isle of Elba, since they suspected the Duke wanted to impose with his navy a stranglehold on the upper Tyrrhenian sea, especially given Cosimo's attempt to take over the state of Piombino (ASF, *MP*, 11, f. 71r, Cosimo I de' Medici to Girolamo degli Albizzi, 28 April 1548; Cappelletti 1897, 159–161). There were concrete fears that the Genoese intended to attack Portoferraio before the fortifications had been completed (ASF, *MP*, 11, f. 122r, Cosimo I de' Medici to Bernardo de' Medici, 5 May 1548; ASF, *MP*, 1169, ins 6, f. 207r (Cristiano Pagni to Pier Francesco del Riccio, 27 February 1550). Until the tensions with Genoa had abated, Cosimo could not tap into that particular source for his ships, while economic and military constrictions meant that only in February 1550 could a new galley be completed in Pisa (ASF, *MP*, 1169, ins 6, f. 207r (Cristiano Pagni to Pier Francesco del Riccio, 27 February 1550).

Cosimo needed Genoa for more than just shipbuilding, since he completely lacked any sort of experienced maritime personnel. Once again the Ligurian area provided the nearest source of expertise and for the greater part of the sixteenthcentury, sailors, coxswains and sailing officers on board Florentine, and later Tuscan, galleys came from Genoa or the surrounding coast. During the early years of its life even the administration of the fleet was in the hands of Genoese naval entrepreneurs, in particular Marco Centurione and later, thanks to an *asiento* stipulated with Philip II of Spain, Giovanni Andrea Doria (Manfroni 242–243, 252–255; Angiolini 1996, 8–9, note 33; Lo Basso 2004, 257). This meant, of course, that Florentine galleys followed closely Genoese patterns for what concerned their tactical employment.

Both Cosimo's request to Don Pedro for a "*swift*" galley and the 1555 inventory of the Florentine fleet are telling in this respect if one looks at the artillery on board. On average, the main gun batteries consisted of a centreline gun, plus a variable number of *sacri*, *petrieri*, and smaller *smerigli* swivel-guns. Indeed, it would be wrong to believe in any sort of standardization, given the hodgepodge structure of the Medicean fleet at that time. For instance, the *San Giovanni Battista* carried a centreline piece weighing 4887 French *livres* (2390 kg) and a *petriere* of 650 *libbre fiorentine* (230 kg) in its main battery, the flagship *San Giovanni* (the Evangelist, in this case) mounted a 4225 French *livres* (2100 kg) cannon, two sakers of roughly 1,400 *libbre fiorentine* (480 kg) each and a 600 *libbre fiorentine* (200 kg) *petriere*. Yet this galley also sported a rather large rowing crew of 181 men, while the *San Giovanni Battista* counted only 125 (ASF, *MP*, 627, registry dated 22 April 1555: for the detailed inventory of these galleys). Logistic needs and potentials were often more telling than a theoretical idea of what sort of artillery a vessel should carry. It should be added that the San Giovanni's three

main pieces were French ones salvaged from a shipwreck on the isle of Pianosa two years earlier, a stroke of luck for the Florentines yielding "*four large reinforced cannons and eight* sacres *for galley service, plus twenty-eight smaller artillery pieces, all these guns made of bronze*" – not to mention three-hundred French prisoners of war, ideal rowing material for the muscle-starved Medici fleet (ASF, *MP*, 29, f. 357r, Cosimo I de' Medici to Averardo Serristori, 12 March 1553); a number of the captured French eventually ended up on the rowing bench (ASF, *MP*, 627, passim).

Providing artillery for the navy had become a priority for Cosimo I; however, obtaining the necessary ordnance was not an easy matter. Although Florence had been fabricating artillery since the fourteenth century (Camporeale 2003, 222, n. 95), at the advent of the Medici principate it could not be described as possessing state-of-the-art gun-casting technology; even if the contrary had been true, it lacked the appropriate facilities for such a task. The building of the new fortress of San Giovanni, on the northern section of Florence's walls, provided the Medici with a much needed foundry, but in any case the know-how had to be imported from abroad. In the mid 1540s one of the important fabricants was a certain "*Maestro Janni Franzese*" (Master Jean from France), who in 1549 is recorded to have cast a number of pieces of various sizes "*for the galleys*" (ASF, *MP*, 613, ins. 5, f. 17r, Pier Francesco del Riccio to Cosimo I de' Medici, 20 May 1549). In 1551 a certain "*Maestro Cremonese*", probably Antonio da Cremona, made five pieces "*all of which have turned out perfectly*" (ASF, *MP*, 613, ins. 7, f. 46rv, Pier Francesco del Riccio to Cosimo I de' Medici, 4 December 1551). Antonio da Cremona and his broche Bartolomeo were considered "eccellenti maestri" (ASF, *MP*, 3101a, f. 1179r, Francesco Vinta to Cosimo I de' Medici, 12 August 1549). Overtime the Florentines managed to acquire the needed gun-casting abilities; but the draught of skilled artisans forced the Medici sovereigns to search continually abroad for the necessary personnel, especially Venice, engaging in a hard-nosed competition with other Italian states, Genoa *in primis* (ASF, *Magona*, 2255, n. 5, nnf, Carlo Capponi to Ferdinando II de' Medici 14 November 1563). Not surprisingly, these craftsmen were pampered by the Florentines, in the mid-17th century, an artillery maker receiving an annual stipend of 200 *scudi* (four times the gross amount of a regular infantry soldier), a house, a workshop, plus 20 *scudi* every 1000 *libbre* (340 kg) of ordnance made (ASF, *SFF*, 1928, ins. 38, n. 348, nnf, Andrea Arrighetti to Ferdinando Bardi, 7 February 1658). Apparently the Medici never managed to produce iron pieces of satisfactory quality, being forced to buy them from other countries – England and the Low Countries in particular (ASF, *MP*, 4184, f. 23r, Belisario Vinta to Ottaviano Lotti, 3 September 1605). Also most of the saltpetre used had to be imported, despite the existence of recipes to make it locally, and the same was true of gunpowder. Saltpetre producers enjoyed a number of fiscal privileges, revelatory of their importance in the Florentine defence system (ASF, *MM*, 370, ins. 33, nnf., Memo by Raffaello de' Medici and Jacopo Corsi, 7 December 1616).

The cost of the navy would be a constant worry for Cosimo I and his successors; yet they understood perfectly well that, to use the words of the Commissioner of the Galleys Piero Machiavelli (son of the celebrated Niccolò) that on the international military check board "*the affairs of the sea are two thirds of the game*" (BNCF, *Magliabechi*, E.B. 15.10, c. 176r (*c.* 1556). Indeed, after that the 1557 peace Cateau-Cambrésis had confirmed for good the Hapsburg's hegemony over the Italian peninsula, Cosimo needed a fleet if he wanted to be taken seriously, and not just considered one of Spain's minions by the other European powers. Unfortunately, in order to obtain from Philip II of Spain the state of Siena in fief, the duke had been forced to agree to send his galleys whenever the king should request them, and also for this reason Cosimo created the military/chivalric order of Saint Stephen: an independent institution under canon law, tied to the Medici ruler through a hereditary Grand Mastership but in no way dependent from the latter's international obligations as duke of Florence and Siena. The origins of the Knights of St Stephen have already been discussed elsewhere, so it would be useless to go over this matter again (Angiolini 1996, 14–24). What has not yet been examined in any depth is the operational side of the question, and how it affected the tactical employment of the Medici fleet.

Cosimo planned the order to be self sufficient financially, and thus not a burden for the ducal coffers. This was to be accomplished thanks to the profits deriving from an extensive patrimony, yet in a pre-industrial economic setting it was unthinkable that military hardware should not yield some sort of profit. Florentine galleys could, indeed, be used for transporting precious merchandise, but Florence lacked the extensive maritime connections of Genoa or Venice. The solution was two fold: rent one's galleys to a foreign power, something Cosimo did with little success and considerable monetary loss up to the late 1560s by loaning his galleys to Philip II (Aglietti 1998; Capponi 2006, 110). Alternatively, vessels could be used for pursuing enemy shipping at sea, thus profiting from the booty obtained, something which also went hand in hand with the Order of St. Stephen's declared goal of defending Christendom. The only people practicing such activities belonged to another religious/chivalric order and independent polity: the Knights of St John of Jerusalem, by then known as the Knights of Malta.

The Maltese built their galleys with different criteria than most other southern European states. While those belonging to Spain or Genoa were intended primarily for patrolling and commerce, those of Malta were essentially hunter/killer weapon systems, preying on Muslim shipping across the Mediterranean (Atauz 2004). Being friars, the Knights upheld the three vows of chastity, poverty and obedience, to which they added a fourth of never retreating from the enemy even when outnumbered three to one (De Caro 1853, 43). This meant having enough fighting men on board and, most of all, the capacity of delivering

a sufficient amount of metal to keep an adversary at bay. There is enough evidence that the knights of Malta mounted a five-gun main battery on their galleys already by the mid-1560s (Muscat 1993, 256–325; 1996, 77–113), and it is therefore logical that their colleagues of the order of Saint Stephen should have done the same. Already in 1564 Cosimo I was ordering guns for his galleys at a ratio of twenty-four "major and minor sakers" for every centreline piece produces (ASF, *MP*, 220, f. 33rv, Cosimo de' Medici to Francesco di Ser Jacopo, 19 April 1564). Also thanks to this amount of ordnance at the battle of Lepanto (1571) some outnumbered Florentine galleys would manage to repel repeated Muslim attacks (Capponi 2006, 283–284).

The new ordnance array of the Florentine galleys would pay large dividends in the years to come, allowing the Medici (now Grand Dukes of Tuscany) to pursue their own naval policy and act independently from Spain (Guarnieri 1960; Manfroni 1985: for the military history of the Tuscan navy). In the end, however, the order of St Stephen did not live up to Cosimo I's expectations, his successors having to foot their navy's bill (ASF, *MM,* 264, ins. 29, "*Ristretto delle Entrate Ordinarie e Straordinarie di S.A. Ser.ma, si come di tutte le Uscite Calculate dall'anno 1625 a tutto l'anno 1650*", n.n. ff). Yet the close connections between maritime activities and profit would always be present in the mind of the Medici sovereigns. When in the seventeenth century Grand Duke Ferdinando II tried to create a squadron of sailing ships, he sought to buy heavily armed vessels good for trade as for war (Capponi 2009). The Florentine use of naval artillery should remind us how in the Early modern world, the application of technological developments was motivated not so much by a lofty desire for scientific advance, but more crudely by complex political situations and, just as important, the prospect of concrete financial gain.

Notes

1 The Genoese, in particular, had the habit of raiding the Florentine coast for shipbuilding timber (ASF, *MP*, 181, f. 35r, Duke Alessandro de' Medici to Andrea Doria, 29 May 1534); once Florence managed to reassert its own position, ransacking was substituted by negotiation (ASF, *MP*, 380, f. 99r, Andrea Doria to Cosimo I de' Medici, 24 June 1546). prospect of concrete financial gain.

2 *Colección de documentos y manuscriptos compilados por Fernandez de Navarrete*, 33 vols. Madrid, 1946: VIII, 14, ff. 114r–118r., 1580. For Spanish naval organization in the sixteenth century, see especially: Olesa Munido 1968.

Abbreviations

ADP Archivio Doria-Pamphili, Rome.
ASF Archivio di Stato di Firenze.
ASG Archivio di Stato di Genova.
BNCF Biblioteca Nazionale Centrale di Firenze.
MM Miscellanea Medicea.
MP Mediceo del Principato.
SSF Scrittoio delle Fortezze e Fabbriche.

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