The Galleasses at Lepanto as a Reflection of the Sixteenth-Century Venetian Strategic Outlook

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Abstract:

By the sixteenth century, the Republic of Venice competed economically and militarily with the Ottoman and Spanish-Habsburg Empires. Moreover, diminishing sources of troops and oarsmen presented further strategic obstacles for her navy. Eventually, these considerations manifested in the galleass—a vessel that debuted at the Battle of Lepanto (1571). Opposed to the traditional historiography of this encounter, this paper emphasizes the galleasses' decisive role in the victory achieved by the Christian Holy League against the Ottomans and places the development and implementation of this vessel within the context of the Venetian strategic outlook.

The Christian Holy League obtained a momentous victory over the Ottoman navy on October 7, 1571. Renowned afterward as the Battle of Lepanto, this naval encounter occurred off of the Greek coast in the Curzolaris Archipelago, waters near the site of the ancient Battle of Actium. Many factors ultimately contributed to the Holy League's triumph; however, many contemporaries and subsequent scholars attributed the Christian fleet's success to the Venetian galleass, a warship that debuted at Lepanto.[1] Although these vessels have consistently received accolades for their contribution, scholarship in the English-speaking world has traditionally neglected to analyze the galleass' tactical role in the battle. Furthermore, the galleass embodies the greater Venetian strategic outlook. Reliable manpower to row her galleys and fight her enemies eluded the Republic. Yet, times necessitated that she challenge the two goliaths at her doorstep.

The Habsburg Spanish Empire and the Ottoman Porte increasingly dominated the Mediterranean during the sixteenth century. Under the shadow of these massive powers, the Venetian Republic contended economically and militarily against their vast material and human resources. Despite a few difficulties early in the century, the *Serenissima* remained a vital part of the lucrative Mediterranean luxury trade in spices and other goods.[2] From the turn of the thirteenth century, the *galea grossa*, literally the great galley, carried Venetian wares throughout

[1] "Galleass" can refer to vessels a century or so earlier. As will be seen in subsequent paragraphs, however, the Venetian galleass was based on the *galea grossa* (merchant galley) platform. Frederic Lane regarded the development of the *galea grossa* as a "distinctly Venetian ship." Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance* (Baltimore: Johns Hopkins University Press, 1992), 13. Based on this platform, the galleasses at Lepanto were also "distinctly Venetian."

[2] Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*. vol. I, trans. Sian Reynolds. (New York: Harper & Row Publishers, 1973), 543-555. Porte (sometimes Sublime Porte) is synonymous with the Ottoman Sultan's realm and government. Similarly, *Serenissima* ("Serene Republic") is a feminine, Italian term that refers to the Republic of Venice.

the Eastern Mediterranean.[3] Whereas standard galleys lacked cargo holds, devoting most of their decks to the oarsmen, great galleys offered a balance between speed, space, and security.[4]

Essentially, this model combined the cargo capacity of a merchant ship with the speed and combat effectiveness of a warship. Since these vessels were primarily sailing craft, the oarsmen on board were also recruited for their combat skills. Between the thirteenth and sixteenth centuries, these ships underwent many modifications that increased their cargo capacity from 140 to 250 tons. Because of the ships' sailing speed and many defenders, the Venetians transported their most precious goods aboard the great galleys.[5]

Although invaluable for commerce, the *galea grossa* also carried pilgrims en route to the Holy Land. Nobles throughout Europe preferred to journey to Judea in these trade galleys, and their journals reveal that these vessels primarily travelled under sail. Based on various accounts, these massive ships reached speeds ranging from three to twelve knots; however, the unpredictable Mediterranean winds meant that average pilgrimages travelled at about three knots. Corsairs rarely captured these ships, and contemporaries perceived them as the preferred and safest means of transportation across the Mediterranean.[6]

Nevertheless, *galee grosse* pilgrim voyages did not yield as much profit by the 1550s, and the *Serenissima* was left with an excess of these colossal vessels. Between 1504 and 1560, the number of these merchant galleys significantly dropped from thirty-two to six. Destined for destruction, they were preserved in the vast shipyard, the *Arsenale*. Astute Venetians quickly realized that these vessels provided the perfect frame for a gunship. The great galley's heavy

[3] Guido Ercole, *Galeazze: Un sogno veneziano*. (Trento: Gruppo Modellistico Trentino, 2010), 37.
[4] Lane, *Venetian Ships and Shipbuilders of the Renaissance*, 14.
[5] Lionel Casson, "Merchant Galleys," in *The Age of the Galley: Mediterranean Oared Vessels since pre-classical Times*, eds. Robert Gardiner and John Morrison (Edison, NJ: Chartwell Books Inc., 2000), 123-124.
[6] Sergio Bellabarba, "The Sailing Qualities of Venetian Great Galleys in the 15th Century. Evidence of their Influence on the Development of Sailing Ships in the Atlantic Area during the Following Century," in *Boats, Ships and Shipyards: Proceedings of the Ninth International Symposium on Boat and Ship Archaeology Venice 2000*, ed. Carlo Beltrame. (Oxford: Oxbow Books, 2003), 201-207.

prow structure allowed many heavy artillery pieces to be installed. With assistance from Francesco Bressan, about twelve *galee grosse* were transformed into *galeazze* (galleasses) by 1570.[7] The inspiration for the great galley's metamorphosis into a warship was rooted in the sixteenth-century Venetian experience.

In a response to the pirates that plagued Venice's Levantine and Barbary trade routes, by 1526, Vettor Fausto, a professor of Greek, suggested that the answer lay in antiquity with the Roman *quinquireme* and enigmatic references to the medieval "castle ship." For centuries, Mediterranean empires sought to construct vessels that could protect all other ships and galleys under their "defensive shadow." Fausto believed that this concept was a viable possibility. Understandably, the Venetian war office, the Council of Ten, hesitated to heed the words of an academic. After much deliberation, the Council and the Senate allowed Fausto to work within the *Arsenale*.[8]

Upon completion of the *quinqireme*, Gerolamo da Canal assessed this reincarnated relic and concluded that a few of these vessels could lead an armada of galleys against a mighty foe. Despite its praise, the *quinquireme* remained merely a prototype for other vessels. Nevertheless, Fausto's work set the precedent for the Venetian galleasses that appeared in the Holy League's Armada between 1570 and 1571. Even by the late seventeenth century, observers acknowledged Fausto's influence on the galleasses. Vessels of the same type were referred to as "*galeazze alla faustina*."[9] If nothing else, Fausto's intricate *quinquireme* proved the possibility of large galleys

[7] Niccolò Capponi, *Victory of the West: The Great Christian-Muslim Clash at the Battle of Lepanto*, (Cambridge, Mass.: Da Capo Press, 2007), 191; and Ulrich Alertz, "The Naval Architecture and Oar Systems of Medieval and Later Galleys," in *The Age of the Galley: Mediterranean Oared Vessels since pre-classical Times*, eds. Robert Gardiner and John Morrison. (Edison, NJ: Chartwell Books Inc., 2000), 160-162.
[8] Ennio Concina, *Navis: L'umanesimo sul mare* (1470-1740). (Turin: Giulio Einaudi editore s.p.a., 1990), 46-47, 50, 52-55, 59-60, 74-75, 110. Concina's text and images indicate that "castle ship" refers not only to vessels featuring sterncastles and forecastles, but to literal "floating fortresses."
[9] Ibid., 57, 63, 65-66, 100, 151-152.

and the advantages that the larger hull provided, especially the capacity to carry many artillery pieces.[10]

Gunpowder weapons redressed the imbalances Venice faced concerning the tremendous military might of the Ottoman Empire and the Spanish-Habsburgs. Whereas previous naval melees were akin to sieges, gunpowder ordnance made short, decisive engagements possible. Venice, traditionally "long on cash and short of manpower," quickly identified the advantages these weapons provided and embraced nascent gunpowder technology at sea by the late fifteenth century.[11] Thus, the Venetian war galley, the *galea sottile,* possessed a serious artillery advantage over her fellow powers. Although each vessel's armament varied, the large fifty-pounder centerline bow gun always went to battle with a vast accompaniment. Usually, this arrangement included four twelve-pounders and two six-pounders. In the stern, the galley sometimes armed two three-pounders. Along the sides, they bore between six and thirty-six mounted one-pounder swivel guns.[12] These smaller weapons along the sides allowed Venice to circumvent boarding tactics.[13] Although the contending Spanish and Ottoman forces possessed many soldiers and oarsmen to man their galleys, the *Serenissima* simply did not. By arming her galleys with significantly more ordnance, Venice seemingly found a "better way to skin the tactical cat" despite her deficiency in manpower.[14]

Venetian rowers (*galeotti*) were usually volunteers from the lower classes, lured by the tantalizing recruitment bounty of twenty-five Venetian ducats in addition to a yearly pay of

[10] Capponi, *Victory of the West*, 191.
[11] John F. Guilmartin, Jr., "The Earliest Shipboard Gunpowder Ordnance: An Analysis of Its Technical Parameters and Tactical Capabilities," in *The Journal of Military History* 71, no. 3 (July, 2007): 650, 666.
[12] Marco Morin, "*Artiglierie navali in ambito veneziano: tipologia e tecniche di realizzazione*," in *Quaderni di Oplologia* XXIII, no. 2 (2006): 19-24.
[13] Pantero Pantera, *L'armata navale, del capitan Pantero Pantera. Divisa in doi libri. Ne i quali si ragiona del modo, che si ha à tenere per formare, ordinare, & conseruare vn'armata maritima*. (Rome, 1614), 85-92.
[14] John F. Guilmartin, Jr., "The Tactics of the Battle of Lepanto Clarified: The Impact of Social, Economic, and Political Factors on Sixteenth Century Naval Warfare," in *New Aspects of Naval History*, eds. Craig L. Symonds et al. (Annapolis: Naval Institute Press, 1981), 50.

twelve. The bounty, however, was intended to cover each oarsman's expenses. As a result, free oarsmen rapidly found themselves bound to the oar until their debt was paid. On the other hand, all *galeotti*, including convicts and slaves, typically traded goods in port. Additionally, Venetian free oarsmen were warriors, and loot acquired in battle could potentially nullify their debts and provide profits. Overall, life at the oar could easily shift for or against a rower's favor, and few were willing to gamble on an oarsman's life. Especially considering the logistical needs of feeding and equipping a vessel almost entirely powered by muscle, traditional galleys proved to be "veritable money and food sponges."[15] Aside from oarsmen, in a time of crisis or war, these vessels also required troops to board enemy vessels or to deflect an attack.

Venetian galleys carried a minimum fighting complement of fifty or sixty men.[16] Throughout the sixteenth century, Venice recruited soldiers from her scattered holdings as well as her mainland *Terraferma* populace. Furthermore, like many contemporary powers, she depended on mercenary companies, especially "foreign" Italian troops. When war erupted, numerous contracted captains accepted Venetian pay, but not as many reported for duty. Additionally, by midcentury, the growing presence of the Spanish Habsburgs in Italy and a waning relationship with the Papacy removed many previous sources of troops. Throughout her Levantine holdings, Venice also competed with Ottoman recruiters. To augment these difficulties, the *Serenissima* attempted to devise a militia; however, this more or less resulted in administrative confusion and troops of questionable value.[17]

When war against the Porte was officially declared in March 1570, various offers provided Venice with a paper army of around 109,000 troops. These captains possessed previous

[15] Capponi, *Victory of the West*, 201-202, 217.
[16] Ibid., 237; and John F. Guilmartin Jr., *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century* (Annapolis: Naval Institute Press, 2003), 255.
[17] M. E. Mallett and J. R. Hale, *The Military Organization of a Renaissance State: Venice c. 1400 to 1617* (Cambridge: Cambridge University Press, 2006), 79-81, 85-86, 202, 315-359, 452-460.

familial contracts with the Republic; however, recruiting them into the Venetian army often required permission from the Spanish King Philip II. In reality, Venice conscripted about 62,000 men, and fewer than 12,000 were deemed loyal enough to join the ranks aboard her galleys. On top of this tremendous sorting process, the difficult and dangerous life at sea frequently prompted deserters, absentees, and inadequately prepared soldiers. Thus, the Venetian military required constant replacements. Especially after the 1570 forces succumbed to disease; troops eventually bound for Lepanto in 1571 became especially expensive, regardless of quality.[18]

Mediterranean galley warfare's vast manpower requirements for mobility and combat were clearly more difficult for a smaller power like Venice to sustain. Although the numbers of oarsmen and soldiers existed, their reliability and effectiveness was another matter entirely. Each galley was essentially an investment of these increasingly scarce "resources," and the ever-shrewd Venetian Republic wanted to ensure that she received the highest profits in spite of the risks. In short, Venice sought to deploy the most tactically effective ships against her enemies without significantly increasing her required number of men per vessel. The galleass offered a solution to her issues recruiting adequate rowers and troops.

Previously, trireme galleys required between 144 and 164 oarsmen. Yet, increasing difficulties in acquiring skilled oarsmen prompted many fleets to adopt new methods, necessitating an increase of as many as 240 oarsmen, though not all skilled.[19] On the other hand, a single *galea grossa* (galleass) of the late sixteenth-century required 275 oarsmen and seventy-

[18] Mallett and Hale, *The Military Organization of a Renaissance State*, 315-359. See also Capponi, *Victory of the West*, 213; John R. Hale, "From Peacetime Establishment to Fighting Machine: The Venetian Army and the War of Cyprus and Lepanto" in *Il Mediterraneo Nella Seconda Meta Del '500 Alla Luce Di Lepanto*, ed. Gino Benzoni (Florence: Leo S. Olschki Editore, 1974), 174, 179-181; and John R. Hale, "Men and Weapons: The Fighting Potential of Sixteenth-Century Venetian Galleys," in *War and Society*, eds. Brian Bond and Ian Roy. (London: Croom Helm Ltd., 1975), 22 (see Hale's footnote 112).
[19] Capponi, *Victory of the West*, 194.

five *soldati*.[20] In short, a galleass required no more than fifty or sixty additional *galeotti* and no more than twenty-five additional troops. While these vessels prepared for war in 1570, the Venetian Senate recognized the galleass' theoretical effectiveness "even without marines."[21] Because of its commercial past, a *galleazza* could carry more provisions, sail open waters, and endure the tempestuous Mediterranean winter, a tactically valuable option.[22] Especially considering the scattered nature of the Venetian Empire, possessing such vessels offered the option of directly, and more effectively, aiding any troubled region in her domain. Although each individual ship required slightly more rowers and troops, the galleass' tactical capacity seemed to offer a greater return on the *Serenissima*'s investment.

Her aforementioned preference for naval gunpowder ordnance, opposed to traditional boarding tactics, manifested exponentially aboard the galleass. Despite the tremendous attention these vessels received in the glorious wake of Lepanto, their exact armament remains a bit of a mystery. An anonymous observer who sailed with the Holy League in 1572 estimated that each of the *galee grosse* at Lepanto bore thirty pieces of artillery.[23] That very same year, Duke Cosimo I de Medici composed a letter discussing "how to '*armare*' a *galeazza* like the ones utiliszd by the Venetians at the battle of Lepanto," including everything from lumber and sails to artillery. He estimated that these mighty vessels bore forty-two artillery pieces: two fifty-pounders, eight thirty-pounders, eight twenty-pounders, fourteen six-pounders, and eight three-pounders.[24] According to Cosimo's report, the galleasses carried a galley's centerline equivalent: a fifty-pounder with its compliment of smaller pieces. Additionally, their payload

[20] *Archivio di Stato Venezia, Materie Miste Notabili, Busta Numero* 28-31.
[21] *A.S.V., Senato I-R 39, MAR 1569. 5 MAR -1570.24 BMV*, "27 *Maggio* 1570."
[22] Casson, "Merchant Galleys," 124; John H. Pryor, *Geography, Technology, and War: Studies in the maritime history of the Mediterranean, 649-1571* (New York: Cambridge University Press, 1988), 54, 71, 79; and Guilmartin, *Gunpowder and Galleys*, 123.
[23] *A.S.V., Materie Miste Notabili, Busta* N. 28-31.
[24] *Archivio di Stato di Firenze, MEDICEO DEL PRINCIPATO*, Registri 238. Duke Cosimo to Concino, 27 February 1572; how to 'armare' a galeazza like the ones utilised by the Venetians at the battle of Lepanto. ff. 66 v. - 68 r.

included an extra fifty-pounder, eight thirty-pounders, six twenty-pounders, twelve extra six-pounders, and eight three-pounders. In other words, a single galleass bore the ordnance of several galleys.

A more heavily armed Venetian "round ship" withstood the Ottoman navy under the infamous corsair Hayreddin Barbarossa in 1538 at the Battle of Preveza; however, this sailing vessel lacked mobility.[25] Barbarossa perceived it as a "floating castle," and hunted the fleeing lighter galleys instead.[26] Over the subsequent decades, Venice sought to deploy warships capable of bearing more firepower without sacrificing the maneuverability of a galley, hence the galleass. Their debut at Lepanto marked the first major encounter between the Venetian and Ottoman fleets since Barbarossa's triumph at Preveza.

At Lepanto, a combined fleet of Venetian, Spanish, and Papal vessels confronted the Sultan's navy. Plans outlined a month or so before the battle indicated that their six galleasses, under Captain Duodo were to lead each of the three wings of the Christian formation "two by two."[27] This strategy implied that the galleasses would fire the first volley against the Turks before rejoining the Christian ranks.[28] Although the Curzolaris Archipelago presented quite the obstacle course, the galleasses assigned to the Left and Center were a mile ahead of the fleet, precisely where the Christian strategy anticipated them. Later accounts erroneously claimed that the galleasses on the Right Wing never reached their position; however, this pair certainly fell behind. Waiting to trap the Christian fleet, the Ottoman Grand Admiral, Ali Pasha, was most perplexed by the appearance of the galleasses at the front of the Christian line. Rumor had spread

[25] Marco Morin, "*Le galeazze a Lepanto*," in *Oltre Lepanto: dallo scontro di ieri all'intesa di oggi* (Milan: Centro Studi Vox Populi di Pergine Valsugana (TN) 2012), 107. See also Lane, *Venetian Ships*, 6.
[26] Haji Khalifeh, *The History of the Maritime Wars of the Turks* trans. James Mitchell (London, 1831), 64.
[27] *A.S.V., Secreta - serie diverse –Annali* 1571, "*Seguita l'ordine del cam-mai dell Armata dato di Messina il medno. Giorno della dato di Capitoli*."
[28] *A.S.V., Secreta - serie diverse –Annali* 1571, "*Adi 3 Ottobre 1571 al Porto delle Gominezze furono dati si missa seritti ordini, e prima*."

throughout the Mediterranean about the Venetian project to arm *galee grosse*, but reconnaissance indicated that these vessels only bore three artillery pieces at the bow and stern. Furthermore, Ali believed that the galleasses he spotted were nothing more than supply or transport vessels, vulnerable prey for the Ottoman war machine.[29] Although this "Trojan Horse" was unlikely a foreseen part of the Venetian strategy, the galleasses leading the Christian charge provided the Holy League with the element of surprise.

Ali's fleet closed in at least a thousand yards from the seemingly vulnerable galleasses, only to receive a horrid surprise. Their oars allowed the redirection of bow, starboard, portside, and aft firepower against the enemy. Even if the galleasses of the Right Wing did not engage the enemy in the opening stages, the Ottoman fleet sustained heavy bombardment: ordnance from forty heavy and medium forward guns, followed by up to fifty-six medium and small rounds, another sixteen strikes from heavy and medium guns, and an additional volley of up to fifty-six medium and small rounds. Within six minutes, the *Serenissima* unleashed four volleys against Sultan Selim's mighty fleet.[30] Ali made every effort to evade the relentless galleass fire while attempting to avoid fatiguing his crews so early in the battle. Despite his orders, the galleasses hindered Turkish attempts to reform their lines, and they approached the Christian ranks in disordered groups.[31]

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[29] Capponi, *Victory of the West*, 256-258, 260. See also Geoffrey Parker, *The Military Revolution: Military innovation and the rise of the West 1500-1800*, 2nd ed. (Cambridge: Cambridge University Press, 1996), 87.

[30] The approximation of gun placement is based on the numbers provided by *A.S.F., MEDICEO DEL PRINCIPATO*, Registri 238. Duke Cosimo to Concino, 27 February 1572; "how to 'armare' a galeazza like the ones utilised by the Venetians at the battle of Lepanto." ff. 66 v. - 68 r.; and by Capponi *Victory of the West*, 192. See also Marco Morin, "Fearlessness Was Not Enough," Presented at the International Symposium on Piri Reis and Turkish Maritime History (Istanbul, 2013), 13; and Morin, "*Le galeazze a Lepanto*," 114. Niccolò Capponi suggests that it took the galleasses about two minutes per quarter turn.

[31] Guido A. Quarti, *La Guerra Contro Il Turco In Cipro E A Lepanto, 1570-1571, Storia Documentata*. (Venice: Stabilimento Grafico G. Bellini, 1935-1938), 619-622.

A formation of galleys required vessels to vary their speed between two knots and up to five or six knots for outlying galleys.[32] Muslim galliots were significantly faster and more agile, and it is likely that many Ottoman vessels approached speeds of eight knots.[33] Considering the galleasses' tremendous bombardment, it is reasonable to suspect that Ottoman vessels rowed at greater speeds in an attempt to escape the incoming rounds. On the other hand, these accelerated speeds meant that formation became difficult, if not impossible, to maintain. After four hours, the Christian fleet emerged victorious. Combatants and contemporaries marveled at the galleasses.

After the battle, Captain Duodo, commander of the galleasses, mentioned their valuable cannonade at the battle's onset.[34] When the young commander of the Christian fleet and half-brother of King Philip II, Don Juan of Austria, greeted Duodo, he confessed that the Holy League was indebted to the galleasses for their victory.[35] A few days later, "Lucky" Scipione Corbinelli wrote that the galleasses fragmented the enemy lines into "disorder."[36] One month after Lepanto, Filippo Bragadin declared that fire from the galleasses made "it clear from the start that the victory was ours." Furthermore, he advised that soldiers "of the sort we get nowadays" should be replaced with artillerymen and gunners.[37] Early the next year, Duke

[32] Guilmartin, *Gunpowder and Galleys*, 216-217. All conversions of knots to meters per minute are based on the estimated 1 knot = 0.504 meters per second or 30.84 meters per minute; 2 knots equals 61.68 meters per minute and 5-6 knots equals 154.2-185.04 meters per minute.
[33] Marco Morin, "*La battaglia di Lepanto: alcune considerazioni su una vittoria veneziana*," in *Quaderni di Oplologia* XXII, no. 1 (2006), 12. See note on converting knots above. Eight knots equals 246.72 meters per minute. Morin bases his estimate on Guilmartin (ibid.).
[34] *A.S.V., Secreta - serie diverse –Annali* 1571, "*Adi, 8, Ottobre Seriemme Franc.o Duodo Capitano delle galee grosse*."
[35] Marco Morin "*La battaglia di Lepanto*," 12 quotes from "Manoscritto anonimo *La batalla naval de Senor Don Juan de Austria di proprietà del signor Josè Pacheco y Muños de Baena* pubblicato a stampa in Madrid dall'Istituto Storico della Marina nel 1971."
[36] *A.S.F. MEDICEO DEL PRINCIPATO*, 4025 October 10, 1571 "'*Io havevo cominciato la lettera per il cardinale, però la mando a vostra signoria acciò non si stia a batter la testa sopra quell'altra*." Many thanks to Dr. Niccolò Capponi for clarifying Corbinelli's statements.
[37] M. E. Mallett and J. R. Hale. *The Military Organization*, 238-239.

Cosimo composed his letter discussing "how to '*armare*' a *galeazza*."[38] Having endured relentless volleys, the Ottomans were also greatly impressed by the fighting capacity of the galleasses. Unsurprisingly, the Grand Vizier's Council requested the development of a similar vessel.[39] Tales of the galleass clearly gained great renown across the Mediterranean, and the reasons for these accolades become exceptionally clear when their performance at the Battle of Lepanto is taken into consideration.

The galleasses contributed to other stages in the battle; however, their thunderous debut before the galley fleets ever engaged each other proved their value. With relatively the same amount of rowers and soldiers as her standard galleys, Venice achieved what up to that point had only been hoped for: defeating the Ottoman fleet in battle. In short, the galleasses' high concentration of firepower supplemented manpower. The galleasses bombarded the enemy from a distance and scattered their fleet, thus significantly contributing to the Christian victory on October 7, 1571. Furthermore, under the guidance of Vettor Fausto and other sixteenth-century shipwrights, the Venetian Republic had cleverly repurposed her increasingly unprofitable merchant galleys for war. The *galea grossa*'s large frame permitted galleasses to arm more medium and heavy artillery pieces than the standard galley. Moreover, Venice solved her deficiency in quality oarsmen and troops with a single vessel—the galleasses at Lepanto.

[38] *A.S.F., MEDICEO DEL PRINCIPATO*, Registri 238. Duke Cosimo to Concino, 27 February 1572; how to 'armare' a galeazza like the ones utilised by the Venetians at the battle of Lepanto. ff. 66 v. - 68 r.
[39] Colin Imber. "The Reconstruction of the Ottoman Fleet after the Battle of Lepanto, 1571-1572," in *Studies in Ottoman History and Law*, ed. Colin Imber (Istanbul: The Isis Press, 1996), 87-88.

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