DEVELOPMENT OF THE OTTOMAN MARITIME TECHNOLOGY IN THE SIXTEENTH AND SEVENTEENTH CENTURIES

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ABSTRACT

DEVELOPMENT OF THE OTTOMAN MARITIME TECHNOLOGY IN THE SIXTEENTH AND SEVENTEENTH CENTURIES

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The thesis aims to study the period of changing maritime technologies during 16th and 17th centuries when the Ottoman Empire followed and adopted some of them. In this regard, the thesis takes the Ottoman transition period to the galleon technology as a main discussion issue. To detect the Ottoman position in the periods of changing maritime technologies properly, the thesis suggests an examination that does not have any belatedness or decline perspectives. In this way, the thesis discusses firstly the Ottoman maritime history until the 17th century by focusing on some cornerstones that had been shaped the perception of the Ottomans towards adopting new technological developments. Then, the thesis also examines the technological changes in the navies of the major early modern seaborne states in detail to suggest that the Ottomans were not incapable in following or adopting recent nautical technologies. In the thesis, certain militarily and political developments are suggested as causes for the Ottoman persistency towards using oar ships during the 16th and 17th centuries. Finally, fiscal condition of the Ottoman Empire is pointed as a primary cause for the possible delay for galleon building in the 17th century.

Keywords: The Ottoman Empire, maritime technology, galleon, galley, maritime history.

ÖZ

ONALTINCI VE ONYEDİNCİ YÜZYILLARDA OSMANLI DENİZCİLİK TEKNOLOJİSİNDEKİ GELİŞME

Hergül, İlyas Can

Yüksek Lisans, Tarih Bölümü

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Bu tez, 16. ve 17. yüzyıllar boyunca denizcilik teknolojilerinde değişikliklerin yaşandığı, Osmanlının bunların bazılarını takip edip uyarladığı dönemi incelemeyi amaçlar. Tez bu bağlamda Osmanlı'nın kalyon teknolojisine geçiş dönemini esas inceleme konusu olarak ele alır. Osmanlı Devleti'nin denizcilik teknolojilerinde değişimlerin yaşandığı dönemlerdeki konumunun tespitini doğru yapabilmek için "geç kalmışlık" ve "çöküş" bakış açılarından uzak bir incelemenin yapılmasını önerir. Bu sebeple İmparatorluk'un yeni teknolojileri benimseme algısını oluşturan belirli dönüm noktalarına odaklanarak, 17. yüzyıla kadar olan Osmanlı denizcilik serüveni incelenmiştir. Daha sonra ise diğer Erken Modern Çağ devletlerinin donanmalarında yaşanan teknolojik gelişimleri ayrıntılı inceleyerek Osmanlıların yeni teknolojileri benimsemede ve takip etmede yetersiz olmadığı iddia edilmiştir. Tezde, Osmanlı'nın 16. ve 17. yüzyıllarda kürekli gemiler kullanma yönündeki ısrarının bazı siyasi ve askeri nedenleri olduğu savunulmuştur. Sonuç olarak ise, kalyon teknolojisine geçişteki "gecikmenin" esas itibariyle mali kaynaklı olduğu vurgulanmıştır.

Anahtar Kelimeler: Osmanlı İmparatorluğu, denizcilik teknolojisi, kalyon, kadırga, denizcilik tarihi.

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CHAPTER 1

INTRODUCTION

It has always been vital for the states to have recent nautical technology with a continuity in production. In a certain period which had begun with the Age of Discoveries and came to the boil in the 17th century, this necessity became the top policy of many maritime states. Building new types of ships by ensuring the continuity in production became fundamental duties for the 17th-century maritime states. From this aspect, that concern of the 17th century-states have parallels with the concerns of modern-day states which need obligation to upgrade aeronautics and space technologies. Endeavors for advancing in maritime technologies have also driven states into fierce competitions which might cause even major wars. Furthermore, just like having aeronautics and space technologies, possessing the ultimate naval technology had been seen as power and prosperity signs for centuries. This thesis examines the Ottoman adaptation period of galleons in which these vessels were seen as essential war powers.

The development level of certain states in maritime area in the 17th century constitutes a debatable time span. Until quite recently, dominant perspective on maritime advancements of the Early Modern states was generally based on looking out for "sides". Because there is a fact that the 17th century witnessed many of the major technological, commercial, social and economic changes in favor of some certain states, the others were evaluated as ''the losers". In that circumstance, all the attempts of ''the losers'' in several areas were examined by considering their distressed conditions. Specific to the Ottomans, they were evaluated as a loser on the eve of the Age of Sails as they were late to adopt galleon technology. This thesis argues primarily that the Ottoman transition period to the galleon technology should not be examined with the "belatedness" lens. Considering a belated power in adopting recent nautical technologies, Ottomans and their efforts to advance in technological area seem to have

been despised. As another fact which creates an arguable environment in writing of Ottoman maritime history, there are constant attempts to detect major breaks. For example, Svat Soucek, who wrote on the Ottoman-Venetian War lasted between 1645 and 1669, claimed that the almost 25 years-war shown the Ottomans were no longer a maritime power.[1] It is understood from this argument that once a state is not seen as the glorious winner after a certain time period, then there always be a looking for a regression for them. The thesis sees this approach is also defective as it ignores the economic, social and military reasons behind some major events. In this sense, the thesis argues that the Ottoman maritime history cannot be examined by constricting it in main periods which have a bright start and a piteous end. In fact, the long-term wars were facts of the 17th century. Moreover, the thesis shows that the Ottomans did not lose their effectiveness in the Mediterranean even after a certain debacle, Battle of Lepanto. There is also a claim on the Ottoman position in the technological arena of the 17th century. Geoffrey Parker argues that because the Ottomans possessed nearly all means of military opulence, which fed by human and economic resources, they did not care much about their technological inferiority.[2] Contrary to Parker's argument, the thesis also claims that the Ottomans were always felt the necessity of adaptation of recent maritime developments. For example, they were quick to adopt the Venetian *galeazza*s after the Battle of Lepanto as they saw their effectiveness in the battle.

In summary, the thesis has three main arguments. First of all, the thesis argues that the Ottomans were not late to adopt galleon technology in the 17th century. Militarily, they just did not see any logical reason because they could gain victories over the fleets consisting galleons. The first chapter of this thesis presents a frame in which the political atmosphere and actors had formed the Ottoman consistency in using galleys. It is seen in this chapter that the Ottoman preference of using oar ships had been shaped over the periods with the contribution of the developments in the rival states. Secondly, the Ottomans were not incapable to follow recent developments in the 17th-century maritime developments because of their conservative attitude towards having

[1] Svat Soucek, *Studies in Ottoman Naval History and Maritime Geography*, İstanbul: The Isis Press, 2009, p.17.

[2] Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800,* Cambridge: Cambridge University Press, 1996, p.227.

recent technologies. In the second chapter of the thesis it is seen that the Ottomans had always shaped their naval structures according to recent developments. Thirdly, in the *Fiscal Conditions as a Principle Determinant* chapter, the thesis argues that the Ottoman relative "belatedness" in adopting certain maritime technologies should be studied by considering their fiscal situation.

It would be definitely wrong to claim that there were intentional attempts which denigrated the Ottoman maritime history in purpose. Instead, this picture was shaped by major periods of writing on the Ottoman maritime history. The period before 1980's in Turkey constitutes the first period of historiography on the Ottoman maritime history. In fact, according to Bernard Lewis, the Ottoman archives could not attract the historians who studied on the Ottoman maritime history until 1959.[3] By taking these arguments a step further, John Pryor claimed that writing a history of the Mediterranean by ignoring the Ottomans was an intentional choice of European-centered historiography[4]. Therefore, the first period can be summarized as a period in which Ottoman archival sources had not been consulted.

The period of efficient use of archival sources in Turkey to study Ottoman maritime history have begun shortly after 1980s, which can be counted as the second period. Here, it is convenient to note that İdris Bostan's leading effort has provided a breakthrough to the studies in the Ottoman maritime history. In his book *Osmanlı Bahriye Teşkilatı: XVII. Yüzyılda Tersane-i Amire*[5], Bostan gives precious information about the organization, constructions and employees in the Imperial Arsenal. In respect to the book even tackles the issues of clothes of the personnel, their salaries and foods, this book can be accepted as a most comprehensive study of the Ottoman naval organization. In his another book, *Osmanlılar ve Deniz: Deniz Politikaları, Teşkilat, Gemiler*[6], İdris Bostan goes back to the period when the Ottomans met with

[3] İdris Bostan, *Osmanlı Akdenizi.* İstanbul: Küre, 2017, p.11.

[4] Ibid, p.12.

[5] İdris Bostan, *Osmanlı Bahriye Teşkilatı: XVII. Yüzyılda Tersane-i Amire*, Ankara: TTK Basımevi, 1992.

[6] İdris Bostan, *Osmanlılar ve Deniz: Deniz Politikaları, Teşkiat, Gemiler*, İstanbul: Küre Yayınları, 2007.

the seas at the first time. In the further chapters of the book, Bostan approaches on the periods when Ottomans became sea power in the Mediterranean. Organization of the shipyards and naval policies of the Ottoman Empire were also taken in this study in detail. In the preface chapter of the book, Bostan states that issues of like role of the ship types in the naval struggles and effects on the maritime trade and transportation have not been clarified yet[7]. In that sense, John F. Guilmartin, Jr.'s salient study *Galleons and Galleys*[8] has also a considerable importance. In his book, Guilmartin starts his assessment by examining the age of galleys before the period of European hegemony in the world. In the next chapters, Guilmartin also embraces the issues of global trade and emergence of new sea powers. The weapons of naval warfare and evolution of the European vessels constitute the backbone of the study. Guilmartin, gives extensive information about the different arms that were used in various types of ships apart from galleons and galleys. Still, Guilmartin gives a special place for galleons in his book and analyses the characteristic features of these ships. Guilmartin's another comprehensive account *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century*[9] includes detailed illustrations and descriptions about the major naval operations in the Mediterranean. In this book, Guilmartin discusses the technological aspects of the changing strategy of galley warfare. By doing this, he mainly focuses on the issue that how the strategic sentiment in naval wars in which galleys were used mainly, was different from those in wars galleons were used mostly. In addition to all these, the effectiveness of the musketeers, arquebus and bows in naval warfare is discussed in the study.

Nowadays, it can be understood that debates on the Ottoman maritime history have paved a way for new methodological approaches to study the entire Ottoman history in time. The increased number of studies on the entire naval activities of the Ottoman

[7] İdris Bostan, *Osmanlılar ve Deniz: Deniz Politikaları, Teşkiat, Gemiler*, p. V. (Preface).

[8] John F. Guilmartin, Jr, *Galleons and Galleys*, London: Cassel, 2002.

[9] John F. Guilmartin, Jr, *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the Sixteenth Century.* Cambridge: Cambridge University Press, 1999.

Empire until the *Millennium* were in evidence. New comprehensive studies have focused on the military expeditions of the Ottoman Empire by paying regard to technological, political, social and economic structures behind the construction of navies. It was not a surprise that the maritime history of the Ottoman Empire have started to been counted as an "arising branch of historiography"[10]. That last period have been started by a new generation including well informed graduate and doctoral students. As from the early 2000s, studies on the Ottoman maritime history have had both more comprehensive and sophisticated structures. The studies which have evolved from the thesis written in the first decades of the *millennium*, revealed new questions to answer. Although Yusuf Alperen Aydın and Tuncay Zorlu focused on the 18th century when the Ottomans fully embraced galleon technology, they also revealed that the Ottomans had followed changes in the maritime technologies over the centuries.[11] The history of shipbuilding in Turkey seems to be studied by also considering the developments in shipbuilding techniques in the world at the same time when the Ottoman Empire adopted galleon technology. By giving a wide coverage to the chapters on different shipbuilding techniques of the Mediterranean and Atlantic traditions, Muharrem Sinan Dereli tries to designate the Ottoman position in the nautical area of the 17th and 18th centuries.[12]

The whole journey of historiography of maritime studies in Turkey have shown some important points to consider while writing on the Ottoman maritime history. First of all, the variety of archival resources in the Ottoman archives is insufficient to write a maritime history at European level. Although there are excessive number of records on the shipbuilding materials, or incomes-expenses of the Imperial dockyard, depictions of various types of sailing or rowing ships and logbooks of sailors are

[10]A review on Palmira Brummett's *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, Salih Özbaran, "Tarihçiliğin Canlanan Bir Dalı: Osmanlı Denizciliği", *Osmanlı'yı Özlemek ya da Tarih Tasarlamak,* Ankara: 2007, pp.212-213.

[11] Tuncay Zorlu, *Innovation and Empire in Turkey: Sultan Selim III and the Modernisation of the Ottoman Navy*, London: I.B Tauris, 2011, Yusuf Alperen Aydın*, Osmanlı Denizciliği 1700-1770 (Doctoral Thesis),* Yusuf Alperen Aydın, *Sultanın Kalyonları*, İstanbul: Küre, 2011.

[12] Muharrem Sinan Dereli, *Galleon Technology in the 18th Century and Galleons of the Ottoman Empire*, (Master Thesis), İstanbul, 2010

almost not found in the Ottoman archives. This deficiency in the Ottoman archives brought the necessity of reading the European archival sources. Emrah Safa Gürkan and Hüseyin Serdar Tabakoğlu have come to the forefront in recent times as historians who examined the European archival sources to write an Ottoman maritime history. In his book Emrah Safa Gürkan examines the issue of piracy in the Mediterranean by examining the archival sources of seven different countries. Gürkan treats the issue of piracy as an issue with its own law, economy and administration. In this respect, he does not only segregate the facts corsair and pirate, but also he displays various types of vessels which were used by corsairs and navies of different states.[13] Furthermore, Hüseyin Serdar Tabakoğlu focuses specifically on the Spanish-Ottoman struggle in the 16th-century Mediterranean. In his work, which Spanish archival sources take place extensively, Tabakoğlu gives detailed information on the capacities of fleets in the Mediterranean and the battle tactics of both sides.[14]

1.1. Plan of the Study

Considering the time span and main subject of examination, this thesis is one of the first works which tries to reveal possible causes of the Ottoman insistency on using galleys. While writing on the subject, the thesis suggests that presenting the former Turkish journey of maritime technology and politics with the main lines is inevitable to understand the dynamics which had shaped the Ottoman maritime policies in the 16th and 17th centuries. In this sense, the first part of the second chapter discusses the Ottoman Maritime history briefly before the 17th century. By this way, the thesis gives information about the political arena which formed the maritime affairs including the Ottomans themselves. Thus, the range of vessels and their developments in the course of time can be followed clearly. Ultimately, there are inferences in the chapter on why the Ottomans were so pertinacious to use certain types of vessels and naval tactics until the 17th century.

[13] Emrah Safa Gürkan, *Sultanın Korsanları Osmanlı Akdeniz'inde Yağma ve Esaret 1500-1700,* İstanbul: Kronik, 2018.

[14] Hüseyin Serdar Tabakoğlu, *Akdeniz'de Savaş: Osmanlı-İspanya Mücadelesi*, İstanbul: Kronik, 2019.

To avoid to limit the 17th-century technological changes with the debates on the Ottoman, and the "glorious" Dutch and British navies, this thesis had to deal with the changing area in the 16th and 17th centuries for other maritime states. In this sense, technological, economic, political and social factors affecting the Mediterranean and Atlantic maritime states' activities in the mentioned centuries are examined in the second part of the second chapter.

As a principal focal point of this thesis, the third and final chapter mainly discusses the possible causes for the Ottoman insistency in using certain naval technologies. Two main causes are argued behind the asserted belatedness. Although it is the most visible, the military reasons are analyzed primarily to offer new view on the issue. Furthermore, the chapter offers some fiscal reasons that preoccupied the Empire in the matter of adopting bleeding-edge technology by using some archival sources. In the end, there is a comprehensive conclusion part of the thesis.

1.2. Archival and Contemporary Sources

There are copious archival sources in the Ottoman archives on shipyard organizations, materials and fiscal records. That might be because Ottomans directed their considerable interests to naval development as from the 15th century. Among these registers, *Tersane-i Amire Muhasebe Defterleri* (Account Books of the Imperial Dockyard) provide information on the revenues and expenditures of shipyards, materials used for shipbuilding, branches of shipyard activities, and salaries. *Kuyud-ı Mühimmat Defterleri* (Record Books of Ammunition) as another salient register, contain records of the required materials for shipbuilding. *Mühimme Defterleri* (Records of Significant Affairs) give also details about the imperial council's thoughts and on the shipyard organization.

However, it is so hard to determine the total expenses for building and rigging of oar or sailing ships by using Kuyud-ı Mühimmat Defterleri and *Mühimme Defterleri*. Yet, *Tersane-i Amire Muhasebe Defterleri* can give information on the yearly expenses of the Imperial Dockyard in certain periods. True, the only information which is derived from a single account book of the Imperial Dockyard would not be sufficient to

explain the fiscal capacity of the Ottoman for shipbuilding activities. Therefore, in the *Fiscal Conditions as a Principle Determinant* chapter there will be comparisons of an archival source and the studies which examines the Ottoman budgets.

Contemporary sources on the Ottoman maritime history are also beneficial to understand the Ottoman understanding of shipbuilding and managing. Of course, one of the salient works on the issue is Katip Çelebi's account on the Ottoman history of maritime battles.[15] The thesis benefits from the Çelebi's work to comprehend developments in the Ottoman maritime tactics and organization and to follow changings in the structures of battleships in time. Basing upon the Çelebi's broad chapters on the corsairs and his view on the corsair tradition, the thesis claims that the corsair tradition had affected the Ottoman mind considerably towards using certain types of ships before the 17th century. The account of Seyyid Murad Reis which contains detailed adventures of Barbarossa brothers (Oruç and Khayr-al Din) by focusing primarily on the Ottoman maritime actions after the Khayr-al Din's appointment as Grand Admiral. It is also understood from the Seyyid Murad's account that the Khayr-al Din and the corsair tradition had formed the Ottoman understanding of maritime affairs.

[15] Kâtip Çelebi, Deniz Savaşları Hakkında Büyüklere Armağan: Tuhfetü'l -Kibâr Fî Esfâri'l- Bihâr, Kabalcı Yayınevi, İstanbul: Kabalcı, 2007.

CHAPTER 2

AN OVERVIEW OF THE OTTOMAN MARITIME HISTORY

2.1 Ottoman Navy from the 14th to 17th Centuries

2.1.1 The Ottoman Relations with Turkoman Principalities, Latins and the Byzantine Empire in the 14th Century

To understand the Ottoman maritime development comprehensively throughout the centuries having information on some historical cornerstones, which contributed Empire's progress in seas, is crucial. Many of the contemporary works provide important information which make reader convenient to follow military, social and commercial relations or conflicts between the Ottomans and their naval counterparts. It will be seen in the first place that the naval policies of Turkoman maritime principalities affected the Ottoman policies towards the seas. In a substantial part of the 14th century Turkoman principalities, which have emerged mainly along the western shores of Anatolia, have added a new dimension to the Turkish maritime history. Each of principalities both chose the way of constituting commercial relations with Latin forces and endeavored to consolidate Turkish presence by organizing campaigns.

In the middle of the 13th century, Anatolian Seljuk State (Sultanate of Rum) was defeated by Mongols in Battle of Kösedağ in 1243. Mongol invasion of the Seljuk lands gave a chance to the Turcoman chiefs (*beys*) to move freely especially in the Western Anatolia. At the beginning of the 14th century, respectively from Northwestern to Southwestern Anatolia, Karasids, Sarukhanids, Aydinids, and Menteşe Principalities came to the fore in the sense of being Turkoman mercantile and military powers. Beylik of Menteşe emerged as a first Turkoman naval power in 1261

after the defeat of Kösedağ. Menteş Bey, who was dubbed coastal *bey* of Sultanate of Rum, organized Turkomans migrated from the Taurus Mountains to the coastal lowlands in every season and occupied southwestern ports (Teke Region)[16]. Especially Ephesus (Selçuk) port became a gathering point and naval base for Muslim and Turkoman corsairs. In the further periods, Beylik of Menteşe liaised with other Turkoman Principalities in the military and commercial issues. Together with Aydınids, Beylik of Menteşe cooperated with Catalans under the command of Don Alfonso Fadrique against the other Latin maritime force, Venetians[17]. It is understood that Beylik of Menteşe could implement multi-directional policies to gain elbow room against the Venetians. On the other side, Beylik of Menteşe could establish long termed commercial relations and networks. It can be derived from the treaty documents that there were constituted commercial relations between Beylik of Menteşe, Aydınids and Latin states especially over grain trade which could continue until 1407 when Bayezid I invaded and captured Beylik of Menteşe and Aydınids[18].
Aydınids can be seen the most efficient invader Turkoman force among the maritime principalities in the Archipelago during the first half of the 14th century. They could gain this character thanks to the efforts of Ghazi Umur Bey both in the political and military areas. Before 1334, when his father Mehmed Bey dead, Ghazi Umur had embarked expeditions to the Aegean islands. The primary campaign among these was launched to Chios in 1319 and to the port area of İzmir in 1322. In the following period after the complete invasion of İzmir, Aydınid expeditions gained momentum. Although Mehmet Bey had not wanted to gain Byzantine hostility in consideration of commercial relations, Ghazi Umur plundered Marmara shores and Thrace in 1331. Turkoman attacks led by Ghazi Umur hit the Byzantine Empire as from 1334. Ghazi Umur commenced his large scaled plundering movement in 1340. Attacking on Cyprus, and Crete, domination of Archipelago obtained in 1344. However, the period started with the conquest of both upper and lower part of Izmir, which had gained

[16] Halil İnalcık, ‘‘Batı Anadolu’da Yükselen Denizci Gâzî Beylikleri, Bizans ve Haçlılar’’ in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, p. 31.

[17] Ibid, p.3.

[18] Kate Fleet, *European and Islamic Trade in the Early Ottoman State, The Merchants of Genoa and Turkey* New York: Cambridge Univ. Press, 1999, pp.60-61.

elbow room to Aydınids, ended up after the re-occupation of port area of Izmir in 1344 by a Christian coalition consisted Venetians, Kingdom of Cyprus and the Knights of St. John. Ghazi Umur dead during the attacks in an attempt to retake İzmir in 1348. After the death of Ghazi Umur and when Aydınids went into a period of regression, the Ottomans took over a multifaceted political sphere. In one sense, there were military and economic collaborations between Turkoman Emirates and the Byzantine Empire. It can be even seen that in the period of warfare between the Byzantine Empire and Ottomans, which was triggered by a war in 1329 and İznik fell to Ottomans in the end, Aydinids and Sarukhanids signed a treaty of nonaggression with the Byzantine Empire.[19] According to some viewpoints, this treaty was a unification act against the Ottoman advance.[20] On the other hand, there was a mixed policy which followed by the Aydınids consisting both equilibrium and aggression sides. There is one issue should be emphasized here that Ottomans followed these signs of progress and chased Aydınids in the matter of diplomacy and war-making policy. Together with Ghazi Umur Bey, Orhan Bey signed a peace treaty with John VI Kantakouzenos in 1334 and when the Byzantine Empire shaken by a civil war between 1341 and 1347.[21] The successful assaults against the domestic enemies of John VI Kantakouzenos have opened the door of Balkans to the Ottomans and provided them an opportunity of first recognizing and then interfering in the Balkan policy. From these experiences on, Ottomans took the opportunity of both struggling with the Serbians and Bulgarians in the Balkans and ruining the collaborations between Latins and the Byzantine Empire which were formed from time to time.[22]

[19] Yusuf Ayönü, "Umur Bey Döneminde Aydınoğulları-Bizans İttifakı," in *Aydınoğulları Tarihi - Bildiriler Uluslararası Batı Anadolu Beylikleri Tarih Kültür ve Medeniyeti Sempozyumu 1*, 1st ed. Ankara: Türk Tarih Kurumu, 2010, p.85.

[20] H. Mustafa Ervacı, "Saruhan-Aydın Beylikleri Arasındaki Münasebetler," in *Aydınoğulları Tarihi - Bildiriler Uluslararası Batı Anadolu Beylikleri Tarih Kültür ve Medeniyeti Sempozyumu 1*, 1st ed. Ankara: Türk Tarih Kurumu Yayınları, 2010, p.129.

[21] Yusuf Ayönü, p.89.

[22] Ibid, p.39.

It was not long before Ottomans could find a chance to expand in the Balkans by turning the crisis in the Byzantine Empire into their opportunity. The demands for the domination of economic bases and routes in the Archipelago pitted Genoese against the Venetians in the middle of the 14th century. During the battle which lasted for five years between 1350 and 1355 Ottomans supported Genoese against the Venetian-Byzantine forces even by giving capitulation in 1352.[23] It seems that with the help of that intimacy and taking advantage of the second civil war in the Byzantine Empire lasted from 1352 to 1357 Ottomans could mobilize their forces in the Thrace Region of the Balkan Peninsula. As an important cornerstone for the Ottoman naval development, the occupation of Tzympe in 1352 and whole Gallipoli in 1354 performed by Orhan Gazi's son Suleiman Pasha. According to a contemporary chronicle, before Suleiman Pasha annexed some additional important Karasid bases like Biga, Lampsakos (Lapseki) and Aydıncık which ease the passing to Gallipoli Peninsula.[24] This tendency of Suleiman Pasha can be interpreted with the aim of providing territorial integrity between Gallipoli and the regions annexed previously.

2.1.2. 15th Century: Technology Designates the Course of Struggle

The annexation of Edirne in 1361 was one of the primary factors which ensured the permanence of the Ottomans in Balkans. Furthermore, the conquest of Gallipoli in 1354 and building a shipyard in the peninsula in 1390 made Ottomans a unique force in the Balkans which could develop their naval forces closer to the open seas. Indeed, Ottomans had three more shipyards in İzmit, Karamürsel and Edincik along the Sea of Marmara shores. Vessels produced in these shipyards during the period of principalities were carried to Gallipoli shipyard, and new vessels were built there.[25] In a short time period, by using the advantage of their new fleet, Ottomans kept the Dardanelles, collected transit charges and even raided Venetian colonies in the

[23] Yusuf Ayönü, p.41.

[24] Zerrin Günal Öden, *Karası Beyliği*, vol. 166, VII. Ankara: Türk Tarih Kurumu Yayınları, 1999, p. 89.

[25] İdris Bostan, '' İlk Osmanlı Deniz Üssü: Gelibolu'', *Türk Denizcilik Tarihi 1*, ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, p.75.

Archipelago. From these points on, Gallipoli became an issue of itself which cause reciprocate movements between the Venetians and the Ottomans.[26]

The Peninsula was fortified again by Mehmed II in 1452. The Sultan wanted to provide a certain control of the straits, especially over Gallipoli, since he was about to put his plan into action, the conquest of Constantinople. Kilidbahir Castle was constructed in 1452 for that purpose. Then, in the same year, the Sultan completely blocked the supply lines of the Constantinople by building Rumelian Fortress in where the narrowest point of the Bosphorus. Breaking through the massive walls of the Constantinople in 1453, Ottomans also took up the Byzantine naval inheritance.[27] Two years after the Conquest construction of a new arsenal later called as Tersane-i Amire, started a new period of naval development for the new empire. Not long after the conquest, Sultan invited experts from coastal areas of the Empire to Constantinople by requesting their naval service.[28] Constructing a new shipyard in the new capital also meant that the Empire could now control and operate all the naval affairs closely. However, it seems that Gallipoli shipyard was still the prior base for the naval production base for the Empire, in which military vessels were built and repaired before the campaigns. According to a contemporary chronicle, four hundred vessels came from the Gallipoli shipyard joined the Siege of Eğriboz in 1470 under the command of Mahmud Pasha.[29] The Ottoman advance against the Venetian existence in the seas began after the Venetian-Ottoman naval conflicts between 1463 and 1479. As another cornerstone in the Ottoman naval history, Venetian-Ottoman naval conflicts encouraged Ottomans to set sail as far as to the southeastern Italy. In fact, Ottomans launched an attack on Otranto and took the town in 1480. Although the Ottoman forces under the command of Gedik Ahmed Pasha gained an impressive victory, the town felt after a siege by Christian troops. Even if that happened,

[26] ‘‘İlk Osmanlı Deniz Üssü: Gelibolu’’, *Türk Denizcilik Tarihi 1*, ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, pp.74-76.

[27] Andrew C. Hess, “The Evolution of the Ottoman Seaborne Empire in the Age of the Oceanic Discoveries, 1453-1525,” *The American Historical Review* 75, no. 7 (1970): 1900.

[28] Ibid, p. 1901.

[29] İdris Bostan, ‘‘ İlk Osmanlı Deniz Üssü: Gelibolu’’ in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, p.78.

Ottomans were now considered as a significant threat in the seas developing incrementally.

After the death of his father, Bayezid II took over an empire which now controlled from an imperial capital and had developed in maritime affairs. Although Bayezid II made his considerable effort to quell the continuance of a riot, which was presided by his brother Cem and lasted 1495, it was surely the fact that he opened a period in which Ottomans began to use their fleet in parallel with their land armies. An obvious example of that issue was seen in the Expedition of Moldova which ended up with the surrender of Ackerman and Kiliya castles. While he was departing from his capital, Bayezid II sent a well-equipped fleet to the Danube. On June 27, 1484, Bayezid II passed over a bridge which was formed by in-line vessels and reached to the shores of Kiliya. After a siege both from sea and land, the Castle of Kiliya surrendered on July 15, 1484. The Castle of Ackerman was also surrounded in the same way and sacked on August 3, 1484.[30] Securing of the northern frontier, Bayezid II focused his attention on the southern frontier of the imperial domain and fought series of unsatisfactory wars with the Mamluks until 1495. Defeat of the Ottoman army in Cilicia and a reputed Mamluk victory in 1485 urged the Sultan to order for a larger scaled fleet. The frantic efforts of the Ottomans to establish a new and bigger fleet disquieted mainly the Venetians since the Bayezid II was planning to attack explicitly to their ally Mamluks and was also demanding Famagusta port to supply his navy. Although the Venetians rejected the demand considering it would strain their relationships with their allies Mamluks and Kingdom of Cyprus, Bayezid II directed his navy to the south. Initially, the Ottoman navy bombarded Bagras and prevented the Mamluk landing in Tripoli in 1488. However, because of a storm blew from Africa, Ottoman fleet met with a disaster and many of vessels either sank or captured by the Mamluks.[31] The entrance of the Ottomans into a full naval professionalization period was possibly the product of Bayezid II's thoughts about that calamity of 1488. The period which

[30] İdris Bostan, ''II. Bayezid Döneminde Osmanlı Denizciliği" in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran. İstanbul: Boyut Yayıncılık, 2009 p.112.

[31] Ibid, p.115.

began with the death of Cem Sultan in 1495 and ended up with the dethronement of Bayezid II in 1512 can be accepted as the second stage in his reign. Ottomans could recently begin to establish a strong navy in this period.[32] Bayezid II, who followed a heedful policy of balance because of the period of disordinance, could now find a chance to use his navy primarily against the Venetians. Because the Sultan knew that the Venetian-Ottoman relations had continued in mutual distrust, he had to gain an advantage over the Venetians in naval area. Hence, he primarily ordered building a large fleet. Building flagships (*göke*) in behalf of famous admirals Kemal and Barak Reis shows that the Sultan attached importance to this preparation.[33] Crucial achievements of the new navy right after the preparation period shows that Ottomans gradually reached the point of contending against the Venetian navy. During the Ottoman-Venetian War (1499-1503) Ottomans captured Lepanto in 1499. Modon, Navarino and Corone castles surrendered hereafter in 1500. Towards the end of 1502, Ottomans gave an *ahidname* to the Venetians and signed a peace treaty. Although it would be expected that Ottomans entered a non-militant period, Bayezid II had already started a three-stage reorganization operation in the fall of 1502. The operation involved the repair of some vessels, disassembling of the vessels for reconstruction and building new vessels.[34] Contemporary records show that by the end of 1503 Ottomans had an abundant range of ships at the Empire's service. Reports of Andrea Gritti who was a *bailo* in Istanbul give detailed information about the size and efficiency of the Ottoman fleet. Gritti counts the Ottoman fleet in Galata as follows: thirty light galleys, twelve galleys *bastarda*[35], two *galeazza*[36] (unnavigable), and some

[32] Palmira Brummett, *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, Albany, NY: State University of New York Press, 1994, 89.

[33] İdris Bostan, ‘‘II. Bayezid Döneminde Osmanlı Denizciliği’’ in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, 117.

[34] Palmira Brummett, *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, p.92.

[35] A big galley with 26 to 32 oars per each side. Each oars were propelling by 5 or 7 oarsmen.

[36] A great galley with 3 masts. These ships had generally 32 oars each were propelled by 5 men. They also had fore and after castles which could be rigged with 36 big cannons (*grossi cannoni*).

assorted fustas[37]. Bailo also reports sixty galleys and *fusta*s at Gallipoli, eleven galleys which had been seized during the war and nine *fusta*s at Avlonya, and eight heavy galleys and thirteen light galleys at Volissa on the west side of Chios.[38]

2.1.3 Ottoman Policy of Naval Development and Struggle in the 16th Century

At the beginning of the 16th century Ottomans had a fully-equipped navy including different types of commercial and corsair vessels which could be disbanded at any time. Especially in the peacetime periods Ottomans used their fleets against the piracy, or to organize corsair raids which was prevalent in the 16th century, and to secure trade activities. Palmira Brummett states about issue of the 16th –century navies that the Ottoman use of vessels in patrolling shows the vision of a ‘‘single navy’’ is inadequate to explain the nature of the Ottoman and global naval activities.[39] In fact, the 16th century expresses a period in which the Ottomans, as a developed naval force, used widely their armed vessels in piracy, patrolling and escorting trade ships. These sides of the Empire’s naval services were seen widely during the peacetime period between 1503 and 1517 which also coincides the final stages of the Bayezid II’s and the first years of Selim I's reigns. Ottomans did not launch any major conflict, especially against the Venetians, during that period. There were some reasons for the Ottomans to continue peacetime. The most significant one among these that the Ottoman perspective regarding the Venetians as a state which held a vassal status. Another important consideration was the Ottoman awareness on the issue that both the Porte and Signoria operated in the Mediterranean with mutual affinities as well.

Rather than waging conflict against the Venetians, Bayezid II turned southern frontier again and set himself to follow the current developments in the Red Sea and Indian Ocean. At the beginning of the 16th century Mamluks were in preparation for the conflict in the naval area with Portuguese. Building 4 galleons and 4 fustas following

[37] A small, single masted galley with a lateen rig, light and narrow deck. 12 or 18 oarsmen were propelling 6 or 9 oars.

[38] Palmira Brummett, *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, p.93.

[39] Ibid, p.95.

the order of Qansuh al- Ghuri in 1505 was an indicator for the Mamluk plan of a naval combat.[40] After the series of visiting between 1488 and 1489 to collect information on the trade routes of Asia, Portuguese have reached as far as to Hormuz and began to obtain from the Island in 1507.[41] Following these developments, Bayezid II decided to aid Memluks to prevent Portuguese activities in the Red Sea and Indian Ocean. He sent ship building materials like copper for cannon foundry with equipped crews to Alexandria[42]. It is seen that these aids to the Mamluks were by the way of investments in the future. With these aids, Sultan probably planned bilateral policy. First, by helping a Muslim state which expected to prevent Portuguese attacks in the Red Sea and the Indian Ocean, Bayezid II would show himself and his Empire as unique factors which would protect the Muslim heartlands and Caliphate from the Christian harassment and the sole nominee would fill power vacuum in the area. Then, Bayezid II would also keep his fleet near the hotspot to show a physical presence. So long as the situation of the area, where the Sultan was on the lookout for a suitable opportunity to intervene in became more serious, helps of Bayezid II seems to go beyond the ammunition support. In 1507 Selman Reis, who was an admiral at the Ottoman naval service, sailed from Suez in company with the Mamluk admiral Husain-al Kurdi. Although the Ottoman-assisted Mamluk and Gujarat fleets reached Chaul and even won a clash there, they were totally hammered by a Portuguese fleet off Diu in 1508[43]. Two years later, Portuguese under the command of Alfonso Albuquerque took Goa in 1510. Furthermore, they sailed again to Hormuz in 1515 and made the Island centre of Portuguese existence in Asia until 1622[44]

[40] Palmira Brummett, *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, p.112.

[41] Salih Özbaran, *Ottoman Expansion Towards the Indian Ocean in the 16th Century* (Şişli, İstanbul: İstanbul Bilgi University Press, 2009, p. 40.

[42] Palmira Brummett, *Ottoman Seapower and Levantine Diplomacy in the Age of Discovery*, p. 114.

[43] Ibid, p. 115.

[44] Salih Özbaran, *Ottoman Expansion Towards the Indian Ocean in the 16th Century. Ş*işli, İstanbul: İstanbul Bilgi University Press, 2009, 40-41.

Bayezid II's successor Selim I continued his father's policy of being the arbiter in the Suez question. However, Selim I seems to have a mind to transform the advantageous position over the Mamluks, which inherited from his father's reign, into a solid Ottoman presence not only over the Suez or over the Indian Ocean, but also all over the Eastern frontiers of the Empire. Establishing a new fleet constituted an important leg of the Selim I's plans. Hence, right after his accession and the Safavid storm was at the door, Selim I ordered expansion of the Imperial Arsenal in Istanbul as so it consisted a hundred compartment which would contain two hundred galleys[45]. Construction of the new compartments along the Golden Horn continued before and after the Chaldiran War. When Selim I came to İstanbul after he arose triumphant from the Iranian Expedition in 1514 and secured the Eastern Anatolian frontier, new vessels were building not only in the Imperial Arsenal but also in other shipyards like Bartın, İzmit, Amasra, Sozopol and Kastamonu. With the shipbuilding activities in different shipyards sixty galleys, ten cannon ships, and approximately thirty barges joined the Ottoman fleet in 1515[46]. Before departing from İstanbul for the expedition towards the Memluk lands, Selim I ordered again a large fleet which would be used during the campaign. It was the eighth month of the expedition Selim I demanded from Piri Pasha to send the fleet to Damascus on 12 December 1516. However, the fleet could not set sail because of the severe icing over the Golden Horn.[47] Nevertheless, Ottoman fleet under the command of Cafer Ağa sailed to Alexandria only after Selim I completed the conquest of Egypt. The conquest of Egypt in 1517 had meaning for the Ottoman Empire beyond being a social and cultural power in the Muslim world. With the conquest, the Empire now settled on a lucrative trade lines which had established with the Ming naval expeditions into the Arabic Sea in 1405, which had receded in 1433,

[45] İdris Bostan,'' İmparatorluk Donanmasına Doğru: Tersâne-i Âmire'nin Kuruluşu ve Denizlerde Açılım'', in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, p. 121.

[46] Ibid, p.123.

[47] İdris Bostan,'' İmparatorluk Donanmasına Doğru: Tersâne-i Âmire'nin Kuruluşu ve Denizlerde Açılım'', in *Türk Denizcilik Tarihi 1*,ed. İ. Bostan, S. Özbaran, İstanbul: Boyut Yayıncılık, 2009, p.125.

and had enjoyed by the Memluks.[48] On the line between the new conquered maritime trade centers in the southern frontier and the trade centers which were present in the Empire's western and northern frontiers, Rhodes corsairs posed a danger with their piracy attacks even in the critical terms for the Ottomans like Mamluk Wars in 1516 and 1517.

The conquest of Rhodes could be possible in the early years of the Selim I's son Suleyman's reign. Actually, Selim I had planned to launch a campaign on the Rhodes in the last terms of his life, but his wish could not come true. Ottomans could attain that goal in Suleyman I's reign in 1522 which is accepted as a peak point for the Ottoman maritime history. Suleyman inherited a large imperial fleet from his father's reign which had been growing tremendously and shipbuilding centers which had spread several corners in the Empire. There were 110 naval yards and arsenals constructed among the Golden Horn, Gallipoli, İzmit, Gemlik, Sinop, Varna, Selçuk, Bodrum, Antalya, Rhodes, Yalova, Birecik, and other parts of the Empire.[49]

2.2. Changing Maritime Arena in the 16th and 17th Centuries

2.2.1. Changes in the Mediterranean Maritime Architecture, Sailing Techniques, and Armament

Maritime history constitutes a significant area among the other research branches of history. Its significance comes from the necessity of conducting meticulous and comprehensive research by considering many of interdependent aspects like social, organizational, technological and economic ones involving the area. In Turkey, interestingly enough, extensive studies discussing comprehensively shipbuilding activities, shipyard organizations and technological developments in the Ottoman navy were not published until the early 1990s. It is convenient to note here that İdris

[48] Andrew C. Hess, "The Ottoman Conquest of Egypt (1517) and the Beginning of the Sixteenth-Century World War," *International Journal of Middle East Studies*, 4, no. 1 (1973): p.57.

[49] Jonathan Grant, "Rethinking the Ottoman 'Decline': Military Technology Diffusion in the Ottoman Empire, Fifteenth to Eighteenth Centuries," *Journal of World History*, 10, no. 1 (1999): 184.

Bostan, who is a pioneering figure among the Ottoman maritime researchers, started a new period of writing Ottoman maritime history by considering mainly organizational, technological and political aspects in his studies[50]. Eventually, the novel historiography on the area has started to focus generally on technological developments in the 18th century- Ottoman navy[51]. By following interdisciplinary method and with the constant stress of science and technology factors, new studies on the Ottoman maritime history try to interpret the Ottoman naval presence in the universal framework[52]. In that sense, this part of the chapter will discuss the general changes in shipping architecture and military technology which were experienced by the Mediterranean and Atlantic sea powers in the 16th and 17th centuries to construe the Ottoman naval development level in a big picture.

It is now a well-known fact that the Ottoman Empire achieved being a sea power as from the 16th century. Undoubtedly, following contemporary competitor's maritime activities, as well as benefitting from them, contributed the Empire to have that position. In fact, since the early 13th century Turks benefitted from the Latin and Greek sailors and naval engineers in respect of shipbuilding techniques or tactics. Peculiar to the 16th century, there were two main reasons for the Ottomans to follow and adopt the Venetian nautical development. One of them was constant struggles in the seas between the Republic and Empire during the 16th century. Especially changes in the structure of the Venetian navy became a crucial issue for the Porte to maintain struggle successfully. It is not an exaggeration to note that following the Venetian shipbuilding activities in the 16th century meant chasing global changes in naval technology not only for the Ottomans but also for any contemporary states. Only by considering their state shipyards, Venetians shown not only as a legend commercial power but also a

[50] İdris Bostan, *Osmanlı Bahriye Teşkilatı: XVII. Yüzyılda Tersane-i Amire*. Ankara: TTK Basımevi, 1992, *Osmanlılar ve Deniz: Deniz Politikaları, Teşkiat, Gemiler*. İstanbul: Küre Yayınları, 2007 and İdris Bostan, *Kürekli ve Yelkenli Osmanlı Gemileri*, İstanbul: Bilge Yayım Habercilik, 2005.

[51] Yusuf Alperen Aydın, *Sultanın Kalyonları: Osmanlı Donanmasının Yelkenli Savaş Gemileri (1701-1770),* Tuncay Zorlu, *Innovation and Empire in Turkey: Sultan Selim III and the Modernisation of the Ottoman Navy*, 1st ed. London: I.B.Tauris, 2008.

[52] Tuncay Zorlu, *Innovation and Empire in Turkey: Sultan Selim III and the Modernisation of the Ottoman Navy*, p.15.

dauntless defender of Christian Europe by the contemporaries.[53] Furthermore, as a second reason for the Empire, Ottomans were fighting in several naval fronts to become both military and economic power.

With their diversified amount of ship types standing for any kind of orders, Venetians were the chief naval power of European armies since the Late Middle Ages. It can be argued that Venetian development in organizing navies went parallel with establishing mercantile fleets. This situation gave frequently the Republic a competitive edge over its opponents. Furthermore, capability to adopt new sailing or shipbuilding techniques and dexterity to set proper types of vessels into marine space for any kind of purposes (war, trade or carrying) contributed the Republic for being both pacemaker and menacing naval power. As a continuation of Mediterranean nautical custom, Venetians were using mainly two types of vessels for commercial and military purposes, long and round ships. The representatives of round and long ships observed in the 13th-century chronicles showing that Venetians had substantial number of long and round ships in 1264[54]. Among the various types of long and round ships, galleys were the most preferred vessels in cases of war for their speed, manoeuvrability, and suitability for safe commercial trips. It seems that especially light galleys which displayed the main features of Viking longboats and later formed like Roman triremes, were began to use in the Venetian military inventory since the dawn of Republic's presence. The typical Venetian galleys had usually one mast, one deck, fifteen feet-beam, a fighting space in the bow, large and high stern castle, and rowing space with twenty-five or thirty benches. Every oarsmen sitting on the each benches three by three had their own oars which were slanted through the gunwales[55].

[53] Robert C. Davis, *Shipbuilders of the Venetian Arsenal: Workers and Workplace in the Preindustrial City*. Baltimore: Johns Hopkins University Press, 2007, p.2.

[54] Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance*. Baltimore&London: Johns Hopkins University Press, 1992, p.4.

[55]Ibid, pp. 9-10.

In the early 14th century, Venetians arranged their production of galleys and built great galleys for long distance voyages and commerce. At the very beginning of their emergence there were no conspicuous differences between great galleys and the light ones. Indeed, although great galleys had higher and rounded prows as well as sterns which were wider than the light galleys, they did not show the characteristics of round ships as they lacked high forecastles and stern castles.[56] The period in which the use of the great galleys were at vertex, that was the 15th century, coincides the period when Northern and Southern shipbuilding traditions merged. In the 15th century, Southern and Northern European shipbuilders combined the main features of their traditional ships. It is clear that growing commercial relations between the states seen in the 15th century urged them to arrange their shipbuilding activities according to mutual commercial benefits. Only in the 16th century, Venetians adopted merchant galleys for war which called *Galeazza* (galleasse), a streamlined type of great galley and equipped with heavier cannons at bow and stern and guns along the sides, became main war ship of the Republic. In the same century, the Republic abandoned the rowing system called *galee alla sensile*, in which all of the oarsmen approximately on 28 benches pulled his own oar, and a new system *al scaloccio* adopted based on the principle of pulling a single oar with multiple oarsmen. This system provided an extension in the size of oars and increase in the speed of galleys[57]. Unsurprisingly, Venetians reaped the benefit of their policy which projected extending the size of warships and adopting new sailing systems in Lepanto in 1571.[58]

There were some changes also in the armament of 16th century-galleys. The changes involved diversification in the cannon types, weights of projectiles and raw materials of the munitions. In the third decade of 16th century, a Spanish galleon could carry

[56] Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance*. Baltimore&London: Johns Hopkins University Press, 1992, p.15.

[57] John H. Pryor, *Geography, Technology, and War: Studies in the Maritime History of the Mediterranean, 649-1571*. Cambridge : New York: Cambridge University Press, 1992, p. 67.

[58] John Francis Guilmartin, *Gunpowder and Galleys: Changing Technology and Mediterranean Warfare at Sea in the 16th Century*. 2nd edition (London: Conway Maritime Press Ltd, 2003, p.221.

basilisks, *medios cannones*, *sacre*s, and *falconete*s together.[59] The basilisks were the main large main centre-line bow guns which could throw iron balls from their long muzzles. *Medios cannones* were the muzzle-loader guns which have different characteristics. They could fire their scatter shots or stone balls. The *sacre*s were the most commonly known cannons by the Mediterranean fleets. They were named as *saker* in English, as *sagre* in the Venetian, and *şayka topu* in the Ottoman inventories.[60] *Falconete*s seem to be different from all these guns because they were breech-loading types firing swivel balls. Before the proliferation of using cannons in maritime operations, the naval battles resembled the battles of two land platforms on the sea that were brought closer to each other. After the ships approached each other, the success or failure of their actual clashes depended on the dexterity of the soldiers deployed on the ship. Particularly in the 16th century Venetian *galezza*s, which were converted from the 13thcentury merchant ship *galea mercanzia*, there was a remarkable artillery capacity and diversification in their types. For example, a Venetian *galeazza* was able to carry 12 *kolonburna* (culverin) and *bacaluşka* (basilisk) of 50-60 pounds, 89 big balls of 14-30 pounds, and 58 small balls.[61]

Although the variety and number of cannons in galleys were seen as the essential components by different states, especially the Spanish shipbuilders also worked on the development of fighting platforms in their galleys. In the 16th century, larger fighting and aiming platforms where musketeers and arquebusiers were placed emerged. This expansion meant, of course, the extra weight on the rowers. However, it seems that these ships were built more often than ever when the effectiveness of musketeers and arquebusiers was more important. It is known that the Ottomans and Venetians did not use this structure in their ships in the same century.[62]

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[59] John F. Guilmartin Jr (1973) The Early Provısıon of Artıllery Armament on Medıterranean War Galleys, *The Mariner's Mirror,* 59:3, p. 264.

[60] John F. Guilmartin Jr (1973) The Early Provısıon of Artıllery Armament on Medıterranean War Galleys, *The Mariner's Mirror,* 59:3, p.265.

[61] Emrah Safa Gürkan, *Sultanın Korsanları Osmanlı Akdeniz'inde Yağma ve Esaret 1500-1700,* İstanbul: Kronik, 2018. p.126.

[62] John F. Guilmartin Jr (1973), p.267.

The 17th century, on the other hand, was the period in which no fundamental changes were made in the galleys. This century was a century in which the Mediterranean forces fought corsairs and used piracy against each other. Although galleons are preferred for these piracy activities, it can be said that the 17th century galleys continue to be as active as the 16th century. For the 17th century Mediterranean sailing ships, it could not be mentioned that they had a definite superiority to the ships sailing with the power of oars. Therefore, in this process, the Ottoman belatedness to adopt galleon technology was not in question. This was the case also for the Venetians and Spanish. The galleon types which made a difference in the 17th century were not Spanish type galleons familiar to the Ottoman and Venetian and other Mediterranean maritime forces. However, it would be a mistake to state that Mediterranean galleon construction is not affected by the Atlantic shipbuilding, that it has not undergone changes over time, and that it has sometimes failed to become a frightening force in the Mediterranean in its effective use.

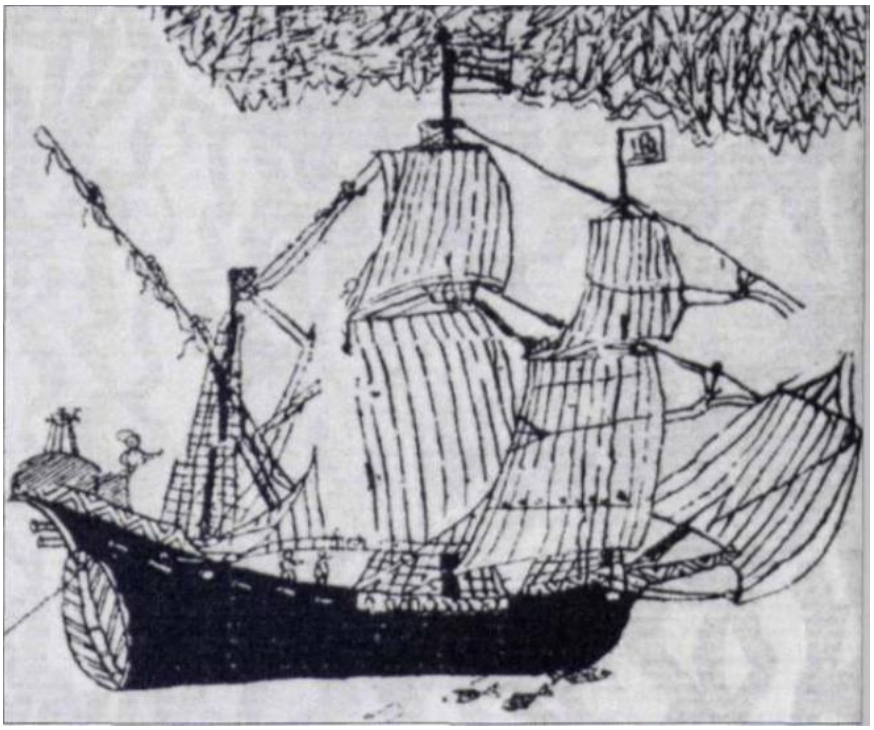

Figure 1: A 16th- Century Spanish Galleon[63]

[63] Angus Konstam, *Spanish Galleon, 1530-1690*. Oxford, Osprey Publishing, 2004, p.6.

There is no mention of a particular state that could be described as the "inventor" of galleons. However, it is known that the round ships, which were mainly used for commercial or transportation purposes by the Venetians since the 12th and 13th centuries, designed as well-equipped warships as from the 16th century. Instead of using *Roccaforte*, a large ship about 500 tons in both transportation, Venetians preferred full-rigged great round ships which arose as primary war vessels in the 16th century.[64] As a result of the Republic's tendency towards building larger and full-rigged vessels at military service, the first galleon constructed by the Venetians between 1526 and 1530.[65] The 16th century-galleons were the successors of *galeoni*, a hybrid type which was neither long nor round ships, was used in river battles in the early 15th century.[66] On the other hand, it is also known that the Spaniards were forced to arm their unarmed sailing ships because of the intense French and British pressure and united them under the name of *Armada del Mar Océano*.[67] The most fundamental change in the 16th century galleons was the opening of port lids. Especially in the carracks, like the early types of galleys, cannons were placed on the fore or stern castles. With the opening of the port lids, the period of gunfire from the part of the ships which close to the water has begun. There were two main reasons for the excessive use of cannons in galleons. First, the galleons had to repel attacks with remote shots as they were built to prevent attacks on the merchant fleets. Secondly, galleons were not built as ships which were capable of carrying more soldiers just as galleys. The predecessors of galleons were either low-crew navigator vessels or high-tonnage merchandise. There was no fighting platform built to put soldiers on these ships. Since the galleons were ships which were transformed from merchant ships, a particular galleon called as the "warship" in the Spanish accounts then could be called

[64] Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance*, pp. 35–50.

[65] Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance*, p.50.

[66] Ibid, p. 51.

[67] Blanca Margarita Rodríguez Mendoza, *Standardization Of Spanish Shipbuilding: Ordenanzas Para La Fábrica De Navíos De Guerra Y Mercante – 1607, 1613, 1618*, Master of Arts, Texas, 2008, p. 57.

as the merchant ship types like carrack and *nao*.[68] Nevertheless, the battleship class known as galleon today was originally developed by the Spanish in the 16th century. By the 1580s, it was seen that the galleons were built exclusively as war ships by taking into account the length and weight measurements.

As a continuation of the Mediterranean tradition, as for galleys, there was an increase in weapon carrying capacity and in size for the 17th-century galleons. *The Nuestra Señora de Atocha*, a Spanish galleon with 500-*tonelada*, could carry more than 40 guns of all sizes in 1618.[69] Almost 60 years before this date, in 1556, a Spanish galley weighed approximately 334 *toneladas*.[70] However, the only development in the 17th century- Mediterranean galleons was limited to the increase in cannon carrying capacities and in sizes. The main reason for this issue was the economic contraction that affected shipbuilding activities for all Mediterranean maritime forces. From 1590 onwards, there was a sharp decline in the production rate in the Venetian *Arsenal* and Spanish dockyards. In this period, it is clear that Venice attached importance to repair and maintenance activities, while Spain gave priority to the production of cargo transport vessels at the shipyards of the Atlantic coasts. In *Table 1*, the distribution of skilled workers working in *Arsenal* in 1560 and 1591 is given as percentages. These data confirm that Venice attaches more importance to repair and maintenance of galleons on the eve of the 17th century.

Table 1: Distribution of Skilled Workforce in the Venetian *Arsenal* (Percentage)[71]

Year	**Carpenters**	**Caulkers**	**Oar Makers**
1560	51%	43%	6%
1591	31%	57%	12%

[68] Muharrem Sinan Dereli, *Galleon Technology in the 18th Century and Galleons of the Ottoman Empire*, İstanbul, 2010, p.90.

[69] Angus Konstam, *Spanish Galleon*, p.17.

[70] Sinan Dereli, p.89.

[71] Eyüp Özveren, Shipbuilding, 1590-1790. "Review, a Journal of the Fernand Braudel Center", XXIII, (2000), p.21.

This distress at the end of the century was also true for the Portuguese. The Portuguese had long been using the *nao*s for their naval operations, on the Indian trade. The *nao*s, which essentially retained the physical characteristics of the Spanish carracks, reached high tonnages over time to respond to increased Portuguese trade volume. The 17th-century *nao*s became weighty ships, often used to transport commodities, and avoided to be damaged. Even the cost of repairing, let alone making a new *nao* again, was quite expensive for Portugal whose shipyards were managed by a highly centralized bureaucracy.[72]

On the Mediterranean scale, the changes that deeply affected 16th-century maritime technology consisted of developments in galleys. Traditionally, shipyard structures and skilled workforces of the Ottomans and Venetians were historically familiar with building rowing ships. The great victories which had been won were thanks to the effective use of galleys or the presence of more advanced galleys. The 16th century was a century in which Venice, the Ottomans and Spain, which had specialized in galley making for a long time, followed each other's technologies and did not delay to adapt to these technologies when necessary. The Mediterranean galleons were the ship class which represented by Spain in general sense. In the 16th and 17th - century Mediterranean war galleons were generally embodied by the arming of sailing ships which were used for commercial purposes. The development and activities of these Mediterranean - type galleons were of course followed by Venice and the Ottomans. In fact, their properties were apparently known to the all Mediterranean maritime forces. Specific to the 17th century, there were some reasons why Mediterranean galleons were not used as widely as galleys or, in other words, not used as primary war ships by the Mediterranean maritime states. First, the galleons of no maritime state in the Mediterranean, including Spanish, had long been used as official primary war ships in this region. This has led to the lack of group of worker and soldier specialized in the construction and the management of galleons for military operations as in the Northwestern European maritime states. Secondly, the economic and financial crises of the 17th century prevented more shipbuilding, even if there was an

[72] Eyüp Özveren, Shipbuilding, 1590-1790. "Review, a Journal of the Fernand Braudel Center", XXIII, (2000), p.25.

increase in the size and cannon carrying capacity of galleons and galleys following the spread of artillery technology. Finally, it seems that there is not yet a certain galleon design on the Mediterranean scale that would have a definite advantage over the galleys. From the beginning of the 17th century onwards, the Northwestern European countries would bring the galleons to the Mediterranean with technical changes in their technical structure and more effective fire power.

2.2.2. The Northern Front: Contributions of the New Sea Powers to the Maritime Technology

The maritime traditions of the British and Dutch, which increased their activities in the Mediterranean by the end of the 16th century, were neither completely disconnected nor fully overlapping with the Mediterranean tradition. It is clear that the geography, demography and existing laws of the Atlantic and Mediterranean seaborne states had an impact on the differentiation in shipbuilding and management procedures. The most obvious example of the fact that the Mediterranean and Atlantic shipbuilding has not developed independently and without interaction was the widespread use of the Mediterranean carvel planking technique by Atlantic shipwrights from the 16th century onwards. The clinker planking technique used by the Atlantic shipbuilding tradition was based on the principle that the main timbers were assembled in a way to overlap each other before the construction of skeleton. The main reason why this technique has been replaced by the carvel planking technique, which is based on the principle of covering the previously formed skeleton with main timbers, seems to be increasing ship tonnages. The necessity of carrying more cargo for the ships, which appeared in the middle of the 16th century, naturally reduced the durability of the overlapped timbers. Two or three layers of coating, which was proposed to increase durability, would make ships bulky.[73] Thus, it can be said that the most significant advantage of the British galleons, which intensified their

[73] Muharrem Sinan Dereli, pp. 20 and 36.

activities in the Mediterranean as of the mid-16th century, was that they have begun to be made with the new planking technique.

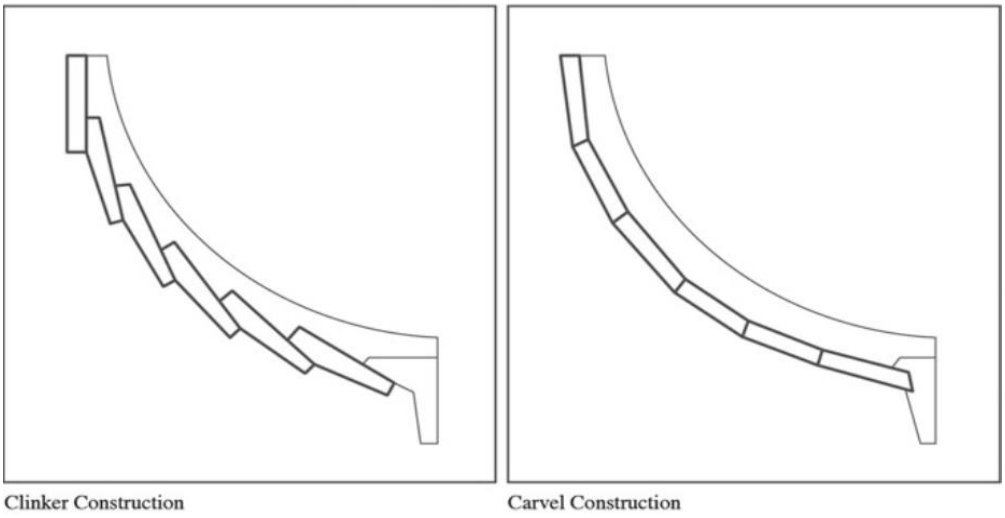

Figure 2: Clinker and Carvel Planking[74]

In addition to the interaction of planking techniques, it is worth to mention that in the mid-16th century, the Henry VIII period, the British used Mediterranean galleys to plunder the Scottish coasts. King Henry VIII, who sowed the seeds of the Royal Navy, ordered six "swift galleys" to be built in 1540, and even sent three shipwrights to Italy with the money he paid from the treasury to make them expert in construction of the Mediterranean galley.[75] Yet, of course, there were also different ship types and techniques that the Atlantic tradition proposed independently from the Mediterranean tradition. In simple terms, they were sailing ships that the “Northerners" adopted mainly as warships and changed the courses of trade and war by the 17th century. Specifically to the British, one of the main reasons why they could use their sailing ships as an effective combat force was that they decided to build them only as warships from the mid-16th century onwards. The Mediterranean principle of converting sailing merchant ships to the battleship during wartimes, which was not an Ottoman

[74] Quartara A.Stanojevic D., “Material: Digital in Action” , Computational and Manufacturing Strategies in Architectural Design and Technology. Singapore:Springer, 2018, p.69.

[75] E.R.Adair, “English Galleys in the Sixteenth Century”, *The English Historical Review* Vol. 35, No. 140 (October,1920), p.408.

preference completely, was not appylied by the British as from that period. The new form given to the galleons by the British was revolutionary. Still, to call that change "revolutionary" is also a controversial issue because the formula, *Vhull ≈ 1.34 x √Lwl (metres),* which demonstrates the correlation between the length of waterline and the speed of hull, was not known in that time.[76]

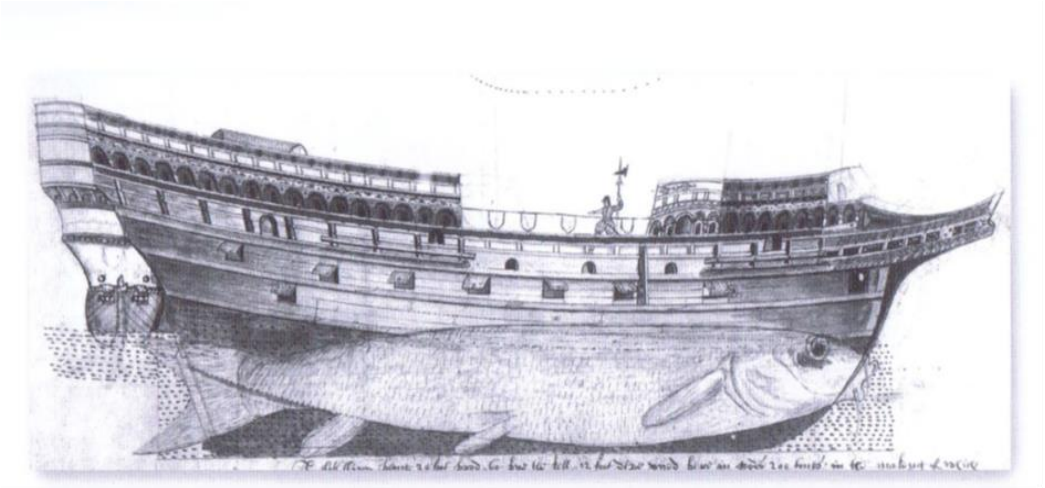

Figure 3: Matthew Baker's (1530-1613) Drawing of an Early Race-Built Warship[77]

In 1570, the British managed to make more maneuverable galleons with a plan which suggested to reduce the height of forecastle and to keep after castle high. This new type of galleon designed by John Hawkins himself and called as *race-built.*[78] It was basically an adaptation of the changes that had previously seen in the Venetian *galeazza*s. To further elaborate, *race-built* galleons were formed by hybridizing the *galeazza*s' slender hulls and the full rigged feature of the Spanish galleons. However,

[76] Daniel Zwick, "Conceptual Evolution in Ancient Shipbuilding: An Attempt to Reinvigorate a Shunned Theoretical Framework", in Jonathan Adams and Johan Rönnby (ed) *Interpreting Shipwrecks Maritime Archeological Approaches.* Southampton: The Highfield Press, p.46.

[77] Angus Konstam, Tudor Warships (2): Elizabeth I's Navy, Oxford, Osprey Publishing, 2008, p.26.

* Underwater part of the galleon's hull has been portrayed as a mackarel by Matthew Baker to express the similarity between the mackarel's body and race-built's hull.

[78] Donald Johnson, The History of Seafaring: Navigating the World's Oceans, London: Conway Maritime Press, 2007,p.189.

as it is seen in the Spanish galleons, there was not a broad fighting platform which had been settled on the high forecastles, to emplace more soldiers. In order to describe the acceleration force of race built ships, the admiral of the Portuguese galleons in the battle of Armada in 1588 noted the "British *race-built* galleons could tack 4-5 times in the same time as it took his ships to tack just once."[79] What makes race-built ships special is that their almost revolutionary design which was discovered only by trial and error. They were one of the first ships penetrated the Mediterranean during the increasing British demand for trade goods. Perhaps more importantly, it was observed firstly in the Mediterranean that a sailing vessel could have as much maneuverability as the rowing vessels, as seen in 1588. Yet, of course, they were not the only *race-built*s in the British wide range of galleon class. One of the British contributions to shipping terminology was the classification of galleon types according to their capacity of weapons, troops and tonnage. Class names which were given to galleons differed in centuries. Specific to the 17th century, galleons were mainly divided into three main categories: *Race-builts*, great ships and ships of the line. At the beginning of the 16th century, before the spread of *race-builts*, the British naval mastery also seemed to prefer high-tonnage and high-cannon-bearing vessels, similar to the Spanish carracks. In fact, the term "great ship" was not a phrase which was used only for the British galleons. In the light of the information provided by Modelski, the term "great ship" also appeared to be used for well-equipped Portuguese naos.[80] It is not clear whether the great ship galleons were pre-built types of the race-built galleons, or they were just heavier ships emerged after the proliferation of race-built galleons in the British Navy. However, it seems that the term "great" was used for large galleons, not just by British, which did not carry less than 40 cannons on average in the 16th century. Even in the 17th, century, the seaborne states had a heterogeneous structure. Although the idea of establishing a navy only for military operations at the time of Henry VIII was laid, the increasing demand for trade goods had increased the number of vessels to be employed in British commercial fleets on the eve of the 17th century.

[79] Geoffrey Parker, "The Dreadnought Revolution of Tudor England", *The Mariner's Mirror*, 82:3, 1996, p.281.

[80] George Modelski and William R. Thompson, "Seapower in Global Politics" , *Seapower in Global Politics 1494–1993*, London: Mc Millian Press, 1988, pp.159 and 160.

In fact, considering the types of ships it possessed in the 17th century, most of the ships in the Dutch navy were also warships converted from merchant ships. However, the British desire to establish a navy for military purposes seems to be continued in the 17th century. In the middle of the 17th century, the ships designated by the British for this new navy were faster and heavily armed frigates.

In the mid-17th century the frigates, which were sailing vessels with a lower and longer hull and were built to accompany the merchant fleets, became two-decker great ships with up to 60 guns. One of the milestones in maritime history was that the Parliament officially ordered the construction of frigates in 1649, carrying at least 20 guns, to fight in *line of battle* tactic. What distinguishes this arrangement is that it proposes the use of designed ships (*Ship of the line),* in the *line of battle* tactic that has already been used since the 16th century.[81] The ships in the *line of battle* tactic took their formation in a way that one of the ships' bow followed the stern of following ship. Of course, this tactic had both advantages and disadvantages. Offensively, it was a disadvantage when a ship in the line had to maneuver to the opposite direction from usual formation. In that circumstance, the ship had to fire guns on the stern and bow. Because the 17th-century ship of the lines had less guns on their bows and sterns, this could be a possible problem. However, if both sides were aligned parallel to each other, the ships of the line could bruise the opponent's hulls. The defensive advantage of the *line of battle* was the structure of battle formation which was suggested by the tactic itself. There were two main ways to eliminate ships on this line. The first was to begin to break the line by keeping one of the ships, either at the beginning or end of the line, under a heavy fire. The second possibility was to target middle of the enemy's line with a frontal attack. However, the second option required a meticulous organization of the attacker ships. In the case of a possible communication problem, which was quite possible in that century, the attack could be unsuccessful. As well as having effective guns, line of battle tactic required experimented sailors and highly professional officers. What was even more important than the number of weapons possessed in the 17th century was also the continuity of shipbuilding. The continuity of shipbuilding

[81] Jonathan R. Dull, The Age of Ships of the Line, The British and French Navies 1650-1815, Lincoln and London: University of Nebraska Press, 2009, p.2.

activities requires a management which does not grapple with financial or economic problems and makes related legal arrangements. The British had both of these advantages. In the British shipbuilding industry, the most important factor that relieved the central treasury was the development of civil sector. Only 34 of the 197 ships in 1588 belonged to the Queen, and the rest belonged to the ship owners.[82] Of course, this situation cannot be explained only by the farsightedness of those who have a say in the rule of Commonwealth. The main reason was the increasing volume of trade and the increasingly concentrated activities of commercial companies.

Figure 4: A 17th century- Fluyt Ship with Narrow Upper and Top Deck[83]

The 17th century was a turning point in maritime history because of the competition of waxing trade powers each of them claimed to dominate Far Eastern and African trades. In fact, the demands of British Levant and East India Company shaped the

[82] Eyüp Özveren, Shipbuilding, p.25.

[83] Wendy van Duivenvoorde, Dutch East India Company Shipbuilding: The Archaeological Study of Batavia and Other Seventeenth-Century VOC Ships, Texas:Texas A&M University Press,2015, p.13.

structure of naval area of the 17th century. The Dutch Republic was the main competitor of the Commonwealth. It was not a coincidence that the Dutch Republic became an ambitious commercial and military force after the establishment of the Dutch East India Company in 1602. Just as seen in Britain, the Dutch Republic took legal steps to establish large fleets. By setting up the *Chamber of Assurance* in 1598, The Dutch Republic had formed a legal basis for establishing the Dutch East India Company. The increasing need for cargo transport for the Dutch from the 17th century onwards commenced a period of new shipbuilding technique called *verlanger*. In fact, the term *verlanger* referred to both the technique based on the principle of extending the length of current ships and the new class of ships built by lengthening.[84] The primogenitus of the *verlanger* period was *fluyt*s. They were the symbolic vessels of Dutch shipbuilding in the 17th century. Their number increased rapidly in the first quarter of the 17th century. The hull of a typical *fluyt* was in shape like a pear. That is, the ship had narrow upper and top sterns, but had a round tuck. As it is seen from their physical structure, they were designed to have maximum cargo capacity and minimum crew and weapon capacity. *Fluyt*s were also most economical and the most commonly used Dutch vessels for trade in the Far East and Africa. These ships were not built to be transformed into warships during wartime. *Fluyt*s were important because they affected all the fleets of mercantile states. After their proliferation in the world seas, all the mercantile fleets had to be enhanced both in quantitative and qualitative manners. Competition of building more trade ships as the Dutch did also caused the increasing number of warships with high fire arm capacities tasked with protecting commercial fleets. Their presence on the certain trade routes, like African and East Indian, was a rising threat for the competitors of Dutch Republic. Of course, the increase in the number of *fluyt*s in the 17th century also led the Dutch Republic to take measures to protect its fleets.

After the beginning of the first long distance trade expeditions, the Dutch Republic began to design new warships at the end of the 16th century. In the 17th century, the military power of the Dutch Republic was made up of yachts and Dutch *Indiamen*,

[84] Wendy van Duivenvoorde, *Dutch East India Company Shipbuilding: The Archaeological Study of Batavia and Other Seventeenth-Century VOC Ships*, Texas:Texas A&M University Press,2015, p.13.

which were similar to galleons. In the early republican period, battle ships were usually two full-decked and fast sailboats with less than 50 guns capacity. In the Dutch navy, just as in the British navy, ships with more cannon carrying capacity emerged in the second half of the 17th century. The Dutch navy could be divided into the old navy (up to 1652) and the new navy (after 1652). The first Anglo-Dutch war in 1652 was an important milestone in the development of Dutch and British navies. As of this date, the military navies was professionalized and their capacity of guns increased. The two wars, which lasted almost a quarter of a century, taught the Mediterranean and Northern European maritime states two different things. The struggle of the Ottomans and Venice for the sovereignty of Crete between 1645 and 1669 taught these two states the necessity of the use of developed galleons in the Mediterranean. The Anglo-Dutch war between 1652 and 1674 taught that the necessity of high cannon capacity galleons led by a professionalized crew.

CHAPTER 3

A‘‘BELATEDNESS’’? ADAPTATION OF THE GALLEON TECHNOLOGY BY THE OTTOMANS

It is now an irrefutable fact that the Britain, as a subject which designed the final and most effective forms of 17th century galleons, and the Dutch Republic have become rising new sea powers on the world seas evidentially. However, evaluating the Ottoman unwillingness to give galleons primary role in the navy as an incapability of the Empire to follow recent nautical technologies would be a mistake. Ottomans have always been informed about existence of sailing vessels, as well as their weak and strong sides, just as their contemporary rivals. Specifically to the 16th and 17th centuries, there were probably some prominent causes which made Ottomans decisive in using galleys as *primum* vessels. Although the military expeditions, which most of them ended with “heroic victories”, were seen as the most leading cause, thinking after changing viewpoints can be eye-opening. If there was an Ottoman unwillingness or an inability to follow and adopt galleon technology, then one question must come to mind firstly: Which galleons? That means, of course, there were no single type for galleons. They were just the member of an extended sailing vessel family. However, comparing some evidences from different works, provides a picture showing the original type of galleons. At this juncture, a crucial point should be stated. Using the phrase “galleon type”[85] may cause supposing galleons as if they all in one shape. A person who is familiar with the maritime studies would not object to that kind of usage of that term. Yet, using the term “class”, instead of “type” would be more appropriate. In this way, both familiar and unfamiliar people with maritime studies can easily understand that there is a “galleon class” which consists of different types of galleons. To return to the subject, although there is an argument supporting that it is a false

[85] Sarah Thomas, *On Altıncı Yüzyılda Osmanlı Donanmasının Denizcilikteki Yeni Gelişmeleri Uygulamadaki İsteksizliğinin Siyasi, Askeri ve Ekonomik Nedenleri*, (Master Thesis). Ankara, 2014, p.17.

identification coming from name similarity[86], the 16th century-galleons were probably the successors of *galeonis*[87]. At that time, two different states, Spain and Britain, were the representatives of galleon building in different traditional maritime areas. Struggle between these two naval powers for the claim to be sole "the ruler of the waves" have accelerated developments in the galleon building technology. Spanish choice of building heavier galleons, gave one of the specific shapes to the late 16th-century galleons. It was the former Spanish carracks with less ability of maneuver and cruising speed, but heavily armed. However, the British front had another sight in building galleons which put forward the majestic progenitors of "The Age of Galleon" on the horizon. They were the race-built or *raz(é)e* galleons. In a sense, the victory of the British race-built galleons over Spanish *Armada* in 1588, determined future structure of the ship population in the Mediterranean. According to Dereli, Venetians called these British race-built ships as "*burtun*"[88]. It is known that Ottomans also use "*burtun"* to identify this type of galleon. The term "*burtun*" is also written in different forms in different works. İnalcık uses the term "*bretoni*" and notes that these types of ships which heavily armed with bronze and iron guns made the Venetian ships easy targets[89]. Differently, David Abulafia uses the term "*bertoni*" to identify the powerful ships of the British navy. According to Abulafia, Venetian navy possessed "*bertoni*" after the Republic begged for a help from Britain and Dutch Republic while struggling with Habsburgs[90]. By comparing these information with another additional ones, it is possible to come up with some new ideas on using of race built ships by the Ottomans and Venetians. While narrating Cretan War in his popular work, Katip Çelebi

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[86] Carla Rahn Phillips, *Conway's History of the Ship: Cogs, Caravel and Galleons The Sailing Ship 1000 – 1650*, (London: Conway Maritime Press ,1994), p. 98 and Muharrem Sinan Dereli, *Galleon Technology in the 18th Century and Galleons of the Ottoman Empire* (İstanbul, 2010), p. 82.

[87] The primitive version of 16th- century galleons. They were constructed to fight in the river operations.

[88] Muharrem Sinan Dereli, *Galleon Technology in the 18th Century and Galleons of the Ottoman Empire* (Master Thesis), İstanbul, 2010, p.126

[89] Halil İnalcık, *An Economic and Social History of the Ottoman Empire, 1300–1914*, vol 1, ed. by Halil Inalcik, with Donald Quataert. Cambridge University Press, Cambridge, 1994, p.366.

[90] David Abulafia, *The Great Sea: A Human History of the Mediterranean,* Oxford University Press, Oxford, 2011, p.461.

distinguishes the ships which were called as *burtun* from the other galleons[91]. He emphasizes that there are several types of galleons. They are in different shapes from *polika*[92] to Spanish carracks. However, according to Katip Çelebi the Ottoman navy used only *burtun* type in the galleon class[93]. This distinction of Katip Çelebi shows that the Ottomans saw *burtun* (British) different from the other galleon types (Mediterranean). If it is considered that Venetians chartered British and Dutch ships and they gave the Ottomans hardest times of Cretan War with these ships, they should have been the British race built ships, namely, *burtun*s which are discussed in the Ottoman consultancy councils (*Meclisleri*) in the middle of the 17th century. In fact, Ottomans had built a *burtun* just a year before the Cretan War, in 1644, but that did not continue as a permanent production plan[94].

All these information shows that Ottomans felt any need to give any types of galleon a primary role in their imperial navy except *burtun* until the 17th century. That is because they had already known the galleon types in Mediterranean tradition. However, when it comes to the 17th century, it seems like they saw race built galleon's superiority over the galleys by experiencing in the war. It would be superficial to explain this situation just as an "unwillingness". It is necessary to answer some questions before discussing terms. So, what were the main causes which had made Ottomans indifferent to use galleons as primary ships in their navies before the 17th century? Further parts of this chapter will discuss two main dynamics as reasons behind that issue.

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[91] Kâtip Çelebi, *Deniz Savaşları Hakkında Büyüklere Armağan: Tuhfetü'l -Kibâr Fî Esfâri'l-Bihâr*, Kabalcı Yayınevi, İstanbul: Kabalcı, 2007, pp. 149 and 182.

[92] A type of Mediterranean sailing vessel. They were probably "polacca"s in English, three-masted sailing ships with lateen rig on the foremast.

[93] Kâtip Çelebi, *Deniz Savaşları Hakkında Büyüklere Armağan: Tuhfetü'l -Kibâr Fî Esfâri'l-Bihâr*, Kabalcı Yayınevi, İstanbul: 2007, p.182.

[94] İdris Bostan, "Kadırgadan Kalyona*"* in Journal of Ottoman Studies, vol: XXIV, İstanbul, 2004, p.70.

3.1 Empire's Memory

By using term "memory", it is not aimed to praise Ottoman "heroic" naval warfare to the skies. Here, the term "memory" consists main cornerstones in the naval history which had affected Ottoman strategic choices in naval economy, politics and military before the 17th century. In the same way, this part will not include any epic narrative of Ottoman seamen. This subchapter will just try to answer some questions by empathizing with Ottomans. By doing this, certain historical events and actors will not take place in detail. Because these events and actors were the main topics of several works, this subchapter will only include significant turning points. It will be the aim of this subchapter to show how certain actors and events have formed the Ottoman attitude towards adopting recent naval technologies.

3.1.1 Khayr-al Din and Effects of Corsairs

It seems that considering activities of former important seamen was crucial for the Ottoman decision makers in planning current and further structure of their navies in the 17th century. In fact, Ottomans relied heavily on their naval military memory while they were discussing on recent naval developments in their consultancy councils *(meşveret meclisleri).* Respecting successful experiences of the former sea captains, he was Khayr al-Din who celebrated as the most prominent captain for the Ottomans. However, it would be a mistake to examine the cherished memory of Khayr al-Din by neglecting the first actions of Oruç Reis as the founder of a naval tradition and the piracy as a fact for the Ottoman Empire. At least, he was Oruç Reis, Khyar al-Din's elder brother, who sent his officer envoy Muhiyiddin Reis with gifts for Sultan Selim the Grid, and provided the first communication between the corsairs and the Ottoman capital in 1515[95]. Although an argument claims that it could be possible because of the absence or halt of the Spanish operations[96], Oruç seems the first actor who could

[95] Emrah Safa Gürkan, *Ottoman Corsairs in the Western Mediterranean and Their Place in the Ottoman-Habsburg Rivalry (1505-1535),* (Master Thesis), Ankara, 2006, p.48.

[96] Ibid, p.47.

manage to unite Ottoman corsairs and conduct military operations against the Spanish presence in Northern Africa. There were some remarkable common attitudes of corsairs. If all the conditions were suitable, they did not see any drawback for being a *protégé* of any ruler. This shows that they are not just illegal furious looters who were targets for the states. They were also profit seeking actors just like any statesmen or economic organizations. Furthermore, corsairs were good at detecting one administration's weak or strong sides and turning them into their own advantages. Decisions for the military or economic interventions were taken according to recent situation. In this frame, Oruç was one of the finest operators of these characteristic corsair activities in his time and region. His strategic agreements, which depended on mutual profit criteria, with Northern African Muslim rulers provided him a radius of action in a sense. Even though his some military attempts which targeted Spanish presence in the region failed, his power became influential after certain successful military operations and political actions. Moreover, by supplying food to the nearby localities and acting as a mediatory in order to settle the conflict between rivalry tribes[97], he has shown his specialty of being political organizer. Thus, Oruç could actually manage to make a major breakthrough in the history of corsairs of the Western Mediterranean. His attempts had provided a basis for the future actions of corsairs in the region. From then on, there was a willpower of Oruç's organized corsairs to become permanent and waxing actor in the North African military and political areas. After his elder brother Oruç's death, he was accepted as a new chief Muslim corsairs. Two years after Oruç's death in 1518, the newly regnant Sultan Süleyman I attracted his court's attention to Mediterranean policy. The Ottoman decisive policy towards being a sole naval power in the whole Mediterranean coincided Khayr al- Din's rise as the new *reis*. The presence of Muslim corsairs in the North Africa, whose roots had constituted by Oruç, was a non-negligible and ready-to-use power for the Sultan. In 1529 two major events, affected profoundly Khayr al-Din's future and the Ottoman Mediterranean policy, occurred. With the Khayr-al Din's complete conquest of Peñon of Algiers in May 1529 and with the Siege of Vienna in late fall of the same year, Ottomans declared a direct confrontation to the former indirect rival, Habsburgs. In

[97] Emrah Safa Gürkan, *Ottoman Corsairs in the Western Mediterranean and Their Place in the Ottoman-Habsburg Rivalry (1505-1535)*, (Master Thesis), Ankara, 2006, p.50.

fact, the agile Sultan had thought that now he had a substantial power in the North Africa to engage Habsburgs closely. For the first time in the Ottoman history, Muslim corsairs became more essential than ever before. Thus, Khayr al-Din also became a first *reis* (chief mariner), who military presence in his region is constituted the vital half part of the whole Ottoman war making policy. That was of course not because of his military power and successful operations in the important frontier. He appointed as Grand Admiral in 1534. This progress actually reveals logical preference of Sultan Süleyman. By giving him a place in *Divan*, where all the official Ottoman policies were made, Sultan also intended to show that Khayr al-Din's political power was recognized officially by him. In fact, Khayr-al Din played role as the liberator and organizer of Moors[98].

It was not a surprise in these circumstances that Katip Çelebi's book included a broad narrative of Khayr al-Din in comparison to other Ottoman seamen. He was accepted as a new school, a turning point and a new Ottoman strategic intent over the seas by the Ottoman dignitaries. However, it would be more accurate to note that corsair tradition in the 16th century, as a whole, had left a mark on the further Ottoman maritime operations. The reason why Khayr al-Din constituted a significant position is because he was an actor in the Ottoman *divan* who the Ottoman capital waited for his words quite a while. Khayr-al Din, as a typical corsair, might felt need to develop new tactics constantly in his hunting area. His primary goal, which was to maintain speed and charge superiority in his area, must have pushed Khayr-al Din to use certain types of ships. Although there were a Spanish predominant use of galleys, they also used their Atlantic galleons in the Mediterranean. In this case, corsairs had to have vessels which can outmaneuver both of these. By referring the Spanish archival records, Tabakoğlu notes that Ottoman corsairs were using lighter and faster galleys than Spanish galleys in second half of the 16th century[99]. In his account on the life of

[98] Federico Cresti, "Algiers in the Ottoman Period" in *The City in the Islamic World*, Salma K. Jayyusi, general ed. Renata Holod, Attilio Petruccioli, and André Raymond, special eds. (Boston and Leiden: Brill, 2008)

[99] Hüseyin Serdar Tabakoğlu, *Akdeniz'de Savaş: Osmanlı-İspanya Mücadelesi*, Kronik Kitap, İstanbul: 2019, pp.135 and 136.

Khayr-al Din, Seyyid Murad states also that the generality of corsair ships in the time of Khayr-al Din were lighter galleys (*kalyete*) from 18 up to 24 benches[100].

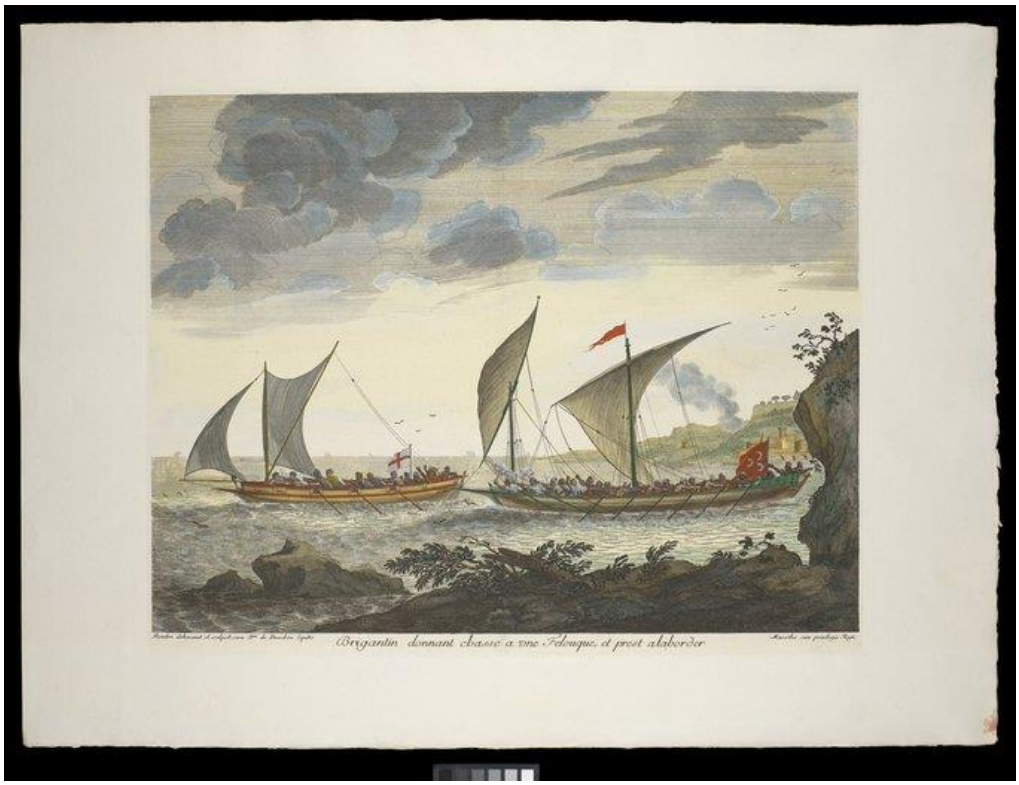

Figure 5: Henri Sbonski de Passebo's Painting on the Scene an Ottoman Corsair Brigantine Chases a Genoese Felucca.[101]

There seems to be an obscurity in describing physical differences and in classification of galley types. Contemporary observers, such as the Venetian bailo Giovanni Moro (in 1590) and Pantero Pantera (in 1614), described different corsair galleys as *galeotta*[102]. In any way, Khayr-al Din's and the whole corsairs' logical preference of

[100] Seyyid Murad, *Gazavât- ı Hayreddin Paşa,* Haz. Mustafa Yıldız.Aachen: Verlag Shaker, 1993, p.165.

[101] In Plan De Plusieurs Bâtimens De Mer Avec Leur Proportions Et Les Pavillons Et Les Enseignes, Que Chaque Nation Porte À La Mer (Unnumbered-page book), 1690.

[102] Emrah Safa Gürkan, *Sultanın Korsanları Osmanlı Akdenizi'nde Yağma ve Esaret 1500-1700,* İstanbul: Kronik, 2018, pp.129 and 130.

ship types were galleys in different types. The Ottoman strategy of expansion got support from the corsairs who were hunting in the Mediterranean. In fact, they were also decision makers in the time of belligerences. Their maritime tactics and effective using of their preferred vessels provided benefits for the Ottoman Empire. In the same way, they were delighted because they acquired an official leave for actions in their areas. Considering all these, Katip Çelebi's advice to Shaykh al-Islam Abdürrahim Efendi on using galleys like Khayr-al Din[103] does not reflect a conservative resistance of the Ottoman intellectuals. The Ottoman maritime or even land expansion strategies, like in the time of first hot conflicts with Habsburg, had been adjusting with the cooperation or full authorities of several corsair recruited seamen. In fact, the penultimate chapter of Çelebi's account whose title is *"Advices to Corsairs on the Naval Affairs",* starts with an advice as follows: "*If the Admiral is not a corsair, he should ask for advice from the corsairs who are conversant in maritime affairs and conflicts. Those who were a law unto themselves were always regretful*".*[104]* In his last advice, the 40th one, he also remarks that the present decision makers should examine the maritime actions of former admiral's and sultans'.[105] It would not be true to think that Katip Çelebi's words reflect the general attitude of the Ottoman 17th-century intellectuals towards the structure of imperial navy. In fact, the first orders in the direction of building galleons until the next spring were sent to imperial dockyards in July 1650. These orders symbolizes the beginning of the transition period to galleon technology. However, it can be claimed that the consuetudinary structure of the Ottoman navy, which had been constituted and had been operating by corsairs for a long time period, seems to be accepted as a key fact by a certain part of the Ottoman intellectuals.

[103] İdris Bostan, *Kadırgadan Kalyona*, p.71.

[104] Kâtip Çelebi, 191.

[105] Ibid, 196.

3.1.2 Battle of Lepanto and Resurgence of the Ottoman Navy

Writing on the debacles is an issue which requires extra attention for the historians. That is because debacles in history may have the potential to be seen as definite breakpoints in favor of the winners. In that case, the event can be examined beyond its reality. There is no doubt that the Ottoman navy was almost completely crashed and burnt by the allied Christian navies in Lepanto. However, seeing the battle as a termination of the Ottoman expansion into the Mediterranean and maintenance of western dominance[106] can be problematic. This approach causes to appreciate Holy League as a barricade in the way of Ottoman expansion constructed by European forces interconnected with an oath of fraternity. However, it is easy to note that the political frame in the last quarter of the 16th century was not like that. Philip II of Spain, in accordance with *raison d'État*, signed two alliance agreement with the Ottomans between 1580 and 1590.[107] The aspect of this war that concerns this thesis is the post war resurgence period of the Ottoman navy. The quick resurgence of the Ottoman navy after such a total defeat and awareness which created by the war itself will be subjects of following subchapter to understand the causes for Ottoman ongoing persistence to build certain ship types.

In 1569, Ottoman court, in fact the party lead by Grand Vizier Sokullu Mehmed Pasha, decided to attack Cyprus Island and declared war against Venice. This meant the termination of ceasefire signed in 1567. Ottomans prepared a navy consisting 180 galleys, 10 *mavna*s (Ottoman *galeazza*) and 170 *barza* (*barça*) for the expedition against Venetian-controlled Island and left Istanbul in spring 1570[108]. In July 1571, Ottomans completed the conquest of Cyprus with the capturing of final resistance point, the Castle of Famagusta. 2 months before Famagusta's fall, in May 1571, a Holy League agreement which based on the mutual ship and soldier assistance, was

[106] Davis, Paul K. 100 *Decisive Battles: From Ancient Times to Present*. New York: Oxford University Press,1999, p.194.

[107] Evrim Türkçelik, Jacques Savary de Lancosme'nin İstanbul'dan Roma'ya Mektupları (1590-1592). Kebikeç, vol.40, 2015, p.295.

[108] Tabakoğlu, *Akdeniz'de Savaş*, 241.

established between Venice, Spain and Papacy. Although there is an obscurity about the number of ships which Holy League prepared to confront Ottomans, it is estimated that they had 207-208 galleys and 6 grand *galeazza*s until September 1571.[109] On the enemy's side, Ottomans had 220 galleys and 60 g*aleotta*s. After two navies designated their order of battle and began to close combat, they were six Venetian *galeazza*s changed the course of war in favor of the League. With the capability of bombarding from their higher boards and more available cannon payload capacity than Ottoman galleys, Venetian *galeazza*s, if it is considered that only Uluç Reis on the left wing could escape from the battlefield with his successful maneuvers, seem to have collapsed especially the Ottoman center line and right wing.

True, the victory of Lepanto was cherished by the Holy League as a certain victory and it was a total defeat for their Turkish counterparts. Moreover, it was natural that the Porte was shocked by the Ottoman navy's an almost total destruction. Yet, it seems the Battle opened a way for a new understanding in shipbuilding for Ottomans. After such a debacle, which caused 30.000 soldiers (*cengci levend)* causality and almost 200 ships lost, a new period can be called as the first realization of the importance of high broadsided vessels, started for Ottomans. In fact, Grand Vizier Sokullu Mehmed Pasha ordered 2 *mavun*a (Ottoman denomination of *galeazza*) to Sinop dockyard in December 1571[110]. The ship type known by Ottomans as *mavuna* was actually *galea grossa.* These ships were actually the transformed form of *galea da mercanzia,* which were designed as huge galleys to carry pilgrims. However, *galeazza*s in Lepanto, which were bigger than *galea grossa*s especially for their height of broadside, have been named with the same name by Ottomans as *mavuna.* It is hard to claim that the *galeazza*s, which wrecked Ottoman battle order in Lepanto and later adopted by the Ottomans, were the foremost maritime war power in that period. Probably, the reason lying behind their certain success during combats in Lepanto was that they stunned

[109] Tabakoğlu, Akdeniz'de Savaş, p.249.

[110] Daniel Panzac, *Osmanlı Donanması, 1572-1923*, İstanbul: Türkiye İş Bankası Yayınları, 2018, p.13.

the Ottoman right and center with their pointed and incessant gun fires from high broadsides.

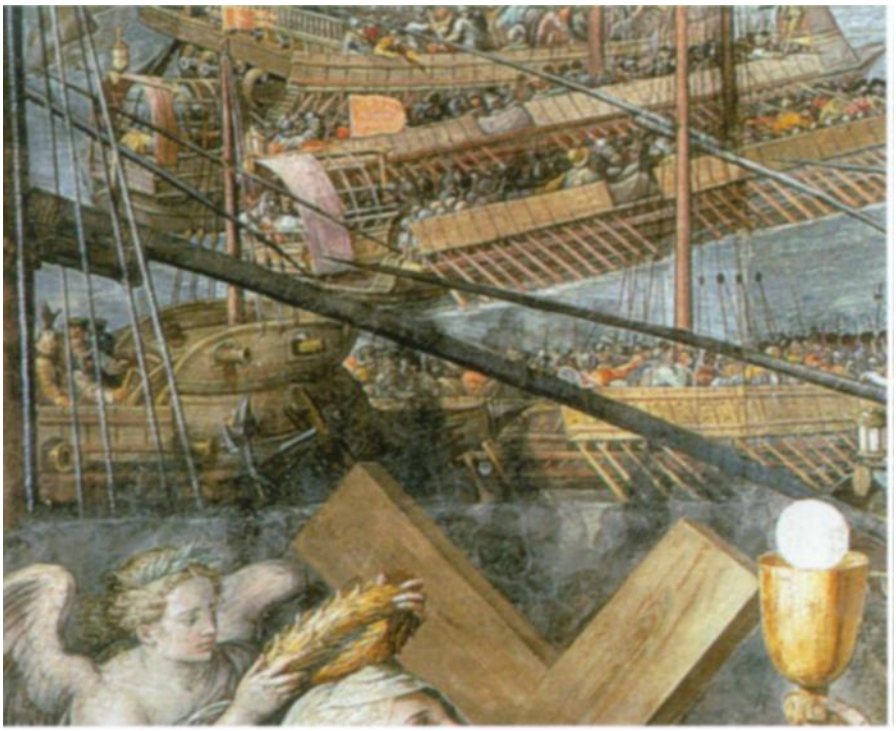

Figure 6: Giorgio Vasari's (1511-1574) Fresco Shows a Venetian Galeazza's Size in Comparison with Galleys[111]

Another important feature of these ships was that they could carry far more cannons than galleys and could fire from their all four sides. It would also be mistake to claim that the Venetian *galeazza*s had the advantage of maneuver provided by rows as much as galleys. In fact, it was a risk that the six Venetian *galeazza*s deployed at the forefront of the battle order. In the case of lighter Ottoman galleys, using traditionally their rows for agility in maneuvers, could intrude in Holy League's lines, the course of battle would be changed in favor of the Ottoman navy. It was not only the necessity of building *mavuna,* (now the Ottomans began to use that name for *galezza*) which had taken as a lesson from Lepanto defeat. In his notes, which was written down in the middle of the 17th century, Katip Çelebi states that one of the main reasons why the

[111] Rick Scorza, "À me pare, che siano fatte con diligenza": Cosimo Bartoli, Giorgio Vasari, and an Extraordinary Venetian Drawing", *Master Drawings*, Vol. 48, No. 3 (AUTUMN, 2010), p.348.

Ottoman navy lost in Lepanto was the appointing of Müezzinzade Ali Pasha as Grand Admiral. In his view, the result was inevitable because Müezzinzade Ali Pasha was not a man who had a good grasp of corsair acquirement.[112] The battle of Lepanto had left a legacy like a combination of two main lessons derived from the defeat by the Ottomans. The first one was the obligation to build larger galleys with more cannons, and the second one to appoint admirals who are acquainted with corsair affairs. In fact, the Ottoman navy could appear in front of La Goletta with 250 galleys, 13 *mavuna*s and 30 *galeotta*s under the command of Uluj Ali Reis in 1574.[113] Ottomans could resurge their navies and even completed the conquest of Cyprus and retake Tunis between 1571 and 1574. One the of reasons behind that resurgence of navy in a short time span was an Ottoman routine in building their galleys and lighter types without having troubles of fiscal distress and logistic disruption. Jonathan Grant refers the Venetian bailo Morosini's account written in 1585 claiming the sea power of the Ottoman sultan was the biggest one in the world and the Sultan Murad III had galleys in a great number whose need of munition could be afforded abundantly. It is seen that the Ottomans maintained to produce galleys, as an occupation that they were skillful in doing for a long time. In his account dated in 8 May 1572, the French ambassador notes that the Ottomans had built 150 galleys in five months.[114] At the dawn of the 17th century, Ottoman Empire saw the necessity to build greater galleys. They could see the necessity to build greater vessels with higher broadsides and more cannons. Yet, by continuing their insistence on using galleys, they resorted to build only greater galleys than their counterparts. They could successfully use the galleys in certain operations even in the 17th century. This also improved their insistence in the use of galleys.

[112] Kâtip Çelebi, Tuhfetül Kibar, p.115.

[113] Daniel Panzac, Osmanlı Donanması 1572-1923, p.44.

[114] Jonathan Grant, "Rethinking the Ottoman 'Decline': Military Technology Diffusion in the Ottoman Empire, Fifteenth to Eighteenth Centuries," Journal of World History, vol.10, no. 1, 1999, p.185.

3.1.3 Efficiencies of the Ottoman Corsairs and *Derya Beyleri* in the 17th Century

As from the last quarter of the 16th century, the period of making great naval expeditions had gave its place to minor-scaled corsair activities in the Mediterranean. After the Battle of Lepanto there was an alleged period of peace between the Muslim Turks and Christian Europe. The main characteristic of naval warfare for the major powers of the Mediterranean was generally in the way of fighting with the corsair activities and organizing their own corsair attacks against counterparts. Of course, these corsair activities cannot be seen as the totality of unmethodical operations directed by free headed pirates. These were actually the new type of struggle which were adopted by naval powers putting in a claim for domination in the Mediterranean. In this subchapter, corsair and anti-corsair activities of the Ottoman Empire will be discussed to comprehend why the Ottomans maintained their persistent attitude towards using galleys.

The corsair attacks targeting the Ottoman ships or coastal regions were sometimes organized by the corsairs' themselves freely from the administrations of the Ottoman counterparts. Yet, they sometimes got support especially from the Spanish and Genoese navies.[115] Even the Spain had been experiencing one the hardest times of its history before the 17th century. In the period between 1588 and 1598, Philip II faced with a social and military conjuncture in which several European forces were positioned in front of Spain. After the defeat of Spanish *Armada* by the British navy, Philip II's conquest plan of Britain failed and the Spain found itself in the fierce struggles of *Bellum Omnium Contra Omnes* period.[116] In this case, it was so natural that the Spain could not attempt to organize a major expedition. On the Ottoman side, long-term land wars with Safavids and Austria together with *Celali* uprisings were wearing out the Ottoman finance and military power as whole. Therefore, Ottomans

[115] Mikail Acıpınar, *Gazi Akademik Bakış Dergisi*, Güney Anadolu Kıyılarında Hristiyan Korsanlar (1604-1608), Vol.11, No. 21,(Winter, 2017), p.184.

[116] An Hobbesian term means "The war of all against all", Evrim Türkçelik, p.294.

sought to preserve the imperial navy and to respond corsair raids with their traditional maritime combat tactics and ships.

In the 17th century, the Ottomans avoided two things because of financial difficulties. The first one was to build high-cost ships, and the second one was to embark long-term wars. This prevented the Ottomans from organizing long-term expeditions to some areas where looter pirates positioned. In fact, Köprülüzade Fazıl Ahmed Pasha wanted to take over Tinos, where the base of pirates supported by the Venice, he canceled his siege plan because he was afraid of the long-term war.[117] The Ottoman central navy could not always respond to the pirates who were able to hide with the advantage of geography and attack both in summer and winter. Therefore, the rulers of *sanjak*s in the Province of the Archipelago called as *derya beyleri* were responsible for the security of coastal areas in the 16th and 17th centuries. The main task of the *derya beyleri* was to provide security in coastal areas, as well as to reinforce ships to the central navy in the time of major expeditions. In the 17th century, *derya beyleri* had to be present at the Imperial Dockyard 10-15 years before the every year- naval expeditions. Each of the ships belonging to each of *derya beyleri*, could carry 150 fighters (cengci levend).[118]

It is seen that the Ottomans were using galleys, which were built by the orders of Grand Admiral from *derya beyleri*, to encounter corsair attacks and the Christian corsairs, on the other side, were generally using galleons for their raiding activities.[119] The efficiencies of galleys, which were used by *derya beyleri* during the period of corsair activities can be seen in the first decade of the 17th century. Especially, Grand Admiral Halil Pasha was famous for his successful operations against corsairs. In the first year of his duty, Halil Pasha could capture the famous corsair galleon with 7

[117] Yusuf Alperen Aydın, 18. Yüzyılda Osmanlı Devleti'nin Ege (Adalar) Denizi ve Doğu Akdeniz'e Yönelik Güvenlik Parametreleri, *Osmanlı Araştırmaları / The Journal of Ottoman Studies*, XLV (2015), p.164.

[118] İdris Bostan, "Derya Beyi" in *Türkiye Diyanet Vakfı İslam Ansiklopedisi* (DİA), IX, İstanbul,1994, p.201.

[119] Mikail Acıpınar, *Gazi Akademik Bakış Dergisi*, Güney Anadolu Kıyılarında Hristiyan Korsanlar (1604-1608), Vol.11, No. 21,(Winter, 2017),, 190.

decks and more than 90 guns known as *"kara cehennem"* (dark hell) by the Ottomans after a long-running chasing near Paphos Dock in south western Cyprus.[120] Although the commander of this attack was Halil Pasha, Ghazi Murad Rais (*Morato Arráez* in the Spanish chronicles) played the vital role in capturing corsair galleons. The key factor of his successful operation was that his intentness on keeping the essential distance between the targeted galleons and his galleys.[121] Ghazi Murad Rais was also an important figure for the Ottomans for his raid attacks on the Spanish coastal regions. In one of his essay, Francisco Velasco Hernández shows that *Morato Arráez* organized corsair attacks on the Eastern shores of Spain, with the effective cannon fires from his 26- bench galleys.[122]

The corsair activities of the Ottomans were not limited with the Mediterranean operations. After the long-lasting expeditions in the last quarter of the 16th century, it seems that the Ottomans were still willing to control maritime commercial traffic. Although in the peace agreement which was signed in 1574 with Venice, Ottomans guaranteed that they would not send any fleet to the Aegean Sea,[123] the Ottoman corsairs, which deployed especially in Vlorë (Avlonya), Durrës (Draç), Nova (in Bosnia), Lefkas (Ayamavra), and Preveza, were looting Venetian trade ships constantly. It is even more important that Ottoman corsairs, in that region were usually frigates, which were even lighter and smaller in size than the basic Ottoman galleys, to benefit from these vessels' capability of maneuver.[124] Even towards the end of the 17th century, it was seen that the Ottomans used f*irkate*, which were mostly light boats

[120] Mikail Acıpınar, Osmanlı Kronikleri Işığında Kaptan-I Derya Halil Paşa'nın Akdeniz Seferleri (1609-1623), *Tarih İncelemeleri Dergisi*, XXVII/1, 2013, p.10.

[121] Mikail Acıpınar, "Gâzi Murad Reis: Hayatı, Son Seferleri Ve Adına Yazılan Halk Şiirleri", 2nd International Symposium Of Turgut Reis And Turkish Maritime History, 1:534. Bodrum, 2013.

[122] Francisco Velasco Hernández, "La Razzia del Corsario Morato Arráez en la Costa Murciana en Agosto de 1602", Murgetana, Número 125, Año LXII (2011),p.89.

[123] Maurice Aymard, XVI. Yüzyıln Sonunda Akdeniz'de Korsanlık ve Venedik, İstanbul Üniversitesi İktisat Fakültesi Mecmuası, İstanbul:1963, p.223.

[124] İdris Bostan, Adriyatik'te Korsanlık: Osmanlılar, Uskoklar, Venedikliler 1575-1620. İstanbul: Timaş, 2009, p.43.

with 10-15 oars, for coastal security. According to a document dated 1685, the duty of *firkateciyan* (*firkate* captains) was to provide security against the pirates in Archipelago, to obtain intelligence from the prisoners and to transmit this intelligence to the relevant authorities immediately.[125] Even in the 18th century when the Ottoman Empire fully adopted galleon technology, frigates and galleys were used against pirate attacks by sailing ships.[126]

In summary, one of the reasons that enabled the Ottomans to continue to use galleys and lighter vessels in the 17th century was the continuous of pirate attacks in the Mediterranean. During this period, in fact, like all Mediterranean maritime states, the Ottomans sought to protect the central navy and to protect the coastal areas against pirate attacks. In this way, they took the advantage of ruling (*derya beyleri*) and paramilitary forces *(firkateciyan)* that used galleys and frigates. The effective counter attacks of these ships against corsair attacks enabled the Ottomans to maintain their presence in the sea in the 17th century.

3.2. Fiscal Condition as a Principle Determinant

As mentioned previously, the Ottoman Empire did not adopt galleons immediately as main battle ships for some certain reasons. In the previous chapter, some of the political and military events, as well as characters or groups that shaped the maritime history of the Empire until the 17th century, were given as the factors which had formed the Empire's insistent attitude towards using galleys. A complete transition to a specific technology requires a new organization and a sufficient fiscal capacity. Specific to the 17th century, Ottomans did not have both of these advantages. However, they were not the Ottomans who suffered from the fiscal difficulties as from the late 16th century. Although France and Spain had been used galleons and galleys together as common warships for a long time, they were affected by the economic crisis that hit the Mediterranean countries at the beginning of the 17th century. The destructive

[125] Yusuf Alperen Aydın, 18. Yüzyılda Osmanlı Devleti'nin Ege (Adalar) Denizi ve Doğu Akdeniz'e Yönelik Güvenlik Parametreleri, *Osmanlı Araştırmaları / The Journal of Ottoman Studies*, XLV (2015), p.174.

[126] Ibid, 176.

effect of the rising inflation could easily be seen in the shipbuilding industry. Spain converted merchant ships into warships and France, on the other hand, carried out Atlantic trade almost entirely dependent on the Dutch and British.[127] The precocity of the Dutch and British in building sailing ships were almost entirely related with their well economic conditions. However, the fiscal situation for the Ottoman Empire was not suitable for making large sailing ships when the Northern Europeans were seen in the Mediterranean. The Ottomans had just came out a war with the Venice and Spain. Although they could build a new navy after Lepanto, which had strengthened their insistence on the use of galleys, the cost of the large sailing ships might be too high for the Empire. In this chapter, there will be a comparisons between a record in the *Maliyeden Müdevver Defterler* (Catalog of Ottoman Fiscal Records) and certain studies on the Ottoman budgets and economic situation to reveal the fiscal difficulties for the Ottomans to build large sailing ships in the 16th century. This comparison is made because there is no certain document on the total costs of a fully equipped galleon and galley in the Ottoman archives, which is another setback in writing thesis. The devaluation of 1585-1586 ruined balance of the Ottoman budget. Although the Ottoman Empire suffered from serious fiscal difficulties, it was necessary to build a navy that would survive especially after the death of Uluj Ali Rais in 1587. The idea proposed by Cigalazade Sinan Pasha to Mehmed III, which suggested to order rural dignitaries to build 23 galleys each cost 300,000 *akçes*, could not be implemented. According to the calculation, the total costs for 223 galleys was 66.9 million *akçes.* By referring to the annual incomes and expenses of the Ottoman Empire between 1592 and 1593, Panzac points out that this was already a stillborn idea. The total income of the years 1592 and 1593 was 293.4 million *akçes.* This shows that the planned cost of galley construction was equivalent to almost one fourth of the Empire's annual income.[128] In the 17th century, it seems that the 6-month construction and post-construction expenditures of a single galley increased to 1,280,000 *akçe*s.[129] There

[127] Eyüp Özveren, *Shipbuilding,* p.24.

[128] Daniel Panzac, Osmanlı Donanması, pp.70-71.

[129] Rhoads Murphey (1993): The Ottoman Resurgence in the Seventeenth-Century Mediterranean: The Gamble and its Results, *Mediterranean Historical Review,* 8:2, 1993, p.189.

was almost no year in which the Ottoman Empire did not have budget deficit during the 17th century. The Empire was might be less eager to build large ships within the budget deficit which increased sharply towards end of the 17th century. However, the period of Cretan War between 1645 and 1669 was an exception in this regard. During the period between 1648 and 1654 in the Cretan War, the Venetians blocked Dardanelles with their galleons, some of them were rented from the British, and wrecked the Ottoman fleet substantially. As seen in *Table 2*, the Ottomans constructed 11 and repaired 17 galleons between 1652 and 1656. However, Ottomans could not maintain building or even repairing activities under the pressure of the financial difficulties of a long war. In fact, there was a significant decline in galley construction and repair activities six years before the end of war (see *Table 2*). This might be because the Empire waged land wars against the Habsburgs and Tsardom of Russia. In fact, it is also seen from the Ottoman incomes and expenditures tables that the budgetary deficit of the Empire rose regularly and reached to almost 250.000.000 *akçe*s in the last decade of the 17th century. [130] One of the Ottoman archival documents, *Tersane-i Amire Muhasebe Defterleri* (Account Books of the Imperial Dockyard) within the *Maliyeden Müdevver Defterler* (Ottoman Books of Finance) catalogue provide information on the construction and repair costs practiced in the Imperial Shipyard within certain years. After the shipbuilding activities were moved from the Gallipoli Shipyard to Constantinople in 1515, the central shipbuilding activities of the Empire continued at the shipyard established in Galata. In the same period the imperial attention directed to the maritime activities. Therefore, a need for an institutionalized imperial dockyard occurred especially in the Suleiman I reign. Of course, it was very important to keep the income-expense accounts for an institutionalized dockyard.

[130] Ahmet Tabakoğlu, XVII ve XVIII Yüzyıl Osmanlı Bütçeleri, *İstanbul Üniversitesi İktisat Fakültesi Mecmuası*, vol.41, no. 1-2, 1985, p.396.

Table 2: Construction and Repairing Activities in the Imperial Dockyard[131]

Year	Galleon		Bastard		Galley	
	Construction	**Repair**	**Construction**	**Repair**	**Construction**	**Repair**
1610	-	-	4	-	4	--
1615	-	-	6	13	8	36
1620	-	-	7	13	3	17
1631	-	-	2	7	7	13
1649	-	-	1	3	4	64
1652	3	10	2	2	10	29
1656	8	7	1	2	19	32
1661	-	6	3	1	56	2
1663	-	-	4	1	7	20
1691	-	11	-	-	-	-
1698	-	34	-	1	-	-

The income and expense records of the Imperial Dockyard have been kept by the *Defter Emini* (record official) under the management of *Tersane Emini* (chief official of finance). In an account book of 1661, the cost of each large galleys (probably *mavunas)* was shown approximately as 350,000 *akçes*.[132] In another account book written in 1661 and 1662 in which all the Imperial Dockyard's expenses were kept show that the grand total of shipbuilding equipment, salaries, clothing and food expenses amount to 35,956,068 *akçes*.[133] Although the Ottomans did not build any galleons in that period, it is clear when the total expense of the Imperial Dockyard's is considered that the possible construction of galleons would be cumbersome for the Empire.

It is also important to look at the factors that made galleon production possible for certain countries while the Ottoman Empire was faced with its own financial difficulties. The increase in shipbuilding activities in Britain and the Dutch Republic since the beginning of the 17th century can also be explained by the fact that the trade of shipbuilding materials was in their hands. The rise in timber prices was the primary

[131] İdris Bostan, *Osmanlı Bahriye Teşkilatı: XVII. Yüzyılda Tersane-i Amire,* p.99

[132] Cengiz Toraman, Batuhan Güvemli, ve Fatih Bayramoğlu. "Imperial Shipyard (Tersane-i Amire) in the Ottoman Empire in 17th Century: Management and Accounting", 207. Paris-France, 2010.

[133] BOA. MAD. 996.

factor that hit shipbuilding activities in the Mediterranean. Timber was a *sine qua non* component for shipbuilding in all periods before the invention of steamships. For the Mediterranean maritime states, there were two main reasons behind the timber crisis on the eve of the 17th century. The first was the depletion of forests in the Mediterranean where timber was supplied. This led to an increase in the distance between shipyards and timber forests. Therefore, an extra cost of logistic appeared in the late 16th century. [134] The reason for the deepening of the timber crisis in the Ottoman Empire may be due to the fact that the Empire was not in close geography with the Baltic and northern European countries and cannot conduct timber trade closely with these countries. At the same time, the Ottomans did not have any other colony in which they could carry timber production activities. In fact, Spain had sought a cure for shipbuilding in the colonies. At the beginning of the 17th century, the most deficient material in the Iberian Peninsula was timber. As a result of the initiatives of generals and shipmasters, Spain decided to maintain shipbuilding activities in the timber-rich Havana in the early 17th century. Production in Havana was to be realized with the investments of private entrepreneurs who signed a contract (*asiento*) between them.[135] This was important both to reduce the financial burden of the central treasury and to reach the timber in the most difficult times. On the other hand, even though the laws prevented the purchase of timber from foreign countries, the Venetians changed these laws and began to import oak timber from the Dutch Republic.[136] The Ottomans had a serious domestic shortage of timber production. Deforestation, especially in the Kocaeli region, shows that the Ottomans lacked close timber resources.[137]

[134] Eyüp Özveren, *Shipbuilding*, p.53.

[135] Lawrence Anthony Clayton, Ships and Empire: The Case of Spain. *Mariner's Mirror* 62: pp.246-248.

[136] Frederic Lane, Venetian Shipping During the Age of Commercial Revolution, *The American Historical Review*, Vol. 38, No. 2 (January,1933), p.235.

[137] Jonathan Grant, "Rethinking the Ottoman 'Decline': Military Technology Diffusion in the Ottoman Empire, Fifteenth to Eighteenth Centuries," *Journal of World History*, vol.10, no. 1, 1999, p.186.

During the Cretan War, Ottomans probably began to urgent produce of galleons in a small number with timber brought from cities along the Black Sea coasts. However, as seen in the *Table 2*, they could not maintain their galleon building activities because of the long-term wars which were endemics in the 17th century. It should also be also considered that the Ottomans could embark long-term expeditions after a serious period of mobility. In fact, the Ottomans declared mobilization in 1682 before the Second Siege of Vienna in 1683. Rhoads Murphey states that the cost for the galleon building was probably five times greater than the galley building because of the post war inflation in 1683.[138] However, İdris Bostan shows that the Ottomans could built 10 galleons just after the Vienna War. The reason why this construction activity, which seems impossible at first sight, could be possible is that the responsibility of building galleons was given to *pashas* and *derya beyleri*. [139] It seems that the Ottoman second experience of building galleons was not sufficient to build a galleon navy for the Empire struggling in financial troubles.

In any case, building galleons and galleys was not enough for a state to develop in maritime activities. Maintenance of the ships was the most important factor which all the maritime states considered after building fleets. Throughout the 17th century, the Ottomans had no financial means to ensure the maintenance of galleons. The most important factor that ensures the continuity of ship production and maintenance of the ships is the legal regulation that should be made in this direction. In fact, in 1701, Ottomans took the legal steps to adopt galleons as primary warships. Navy Law (*Bahriye Kanunnamesi*) has been issued in order to make galleon building the Imperial mode of production. As of the 18th century, the Ottoman Empire began to make all fiscal and organizational arrangements for galleon production.

[138] Rhoads Murphey, "The Ottoman Resurgence in the Seventeenth-Century Mediterranean: The Gamble and Its Results." *Mediterranean Historical Review 8*, no. 2, 1993, p.190.

[139] İdris Bostan, *Kadırgadan Kalyona,* p.80.

CHAPTER 4

CONCLUSION

This thesis examined mainly the Ottoman adaptation of maritime technologies over the centuries by focusing on the certain milestones which have made not only Ottomans but also Mediterranean and oceanic sea powers obliged to regulate their navies according to recent developments. The ultimate objective of this thesis was to present possible causes for the Ottomans which had made them decisive to give a prior role for galleys in their fleets rather than sailing vessels until the 18th century. Thus, the thesis began with an examination of three former centuries before the 17th century to present a frame for the Ottoman maritime developments. The aim for that examination was to facilitate the followability of certain developments in these centuries which pawed ways for the Ottomans to adopt different maritime technologies. In fact, it is argued in this thesis that the maritime history of the 17th century cannot be examined without comprehending the former developments in maritime arena which had experienced by different sea powers until the age of sails. Therefore, it was necessary to start by including the first attempts for the Ottoman maritime organization and by defining maritime arena of the 14th century in which they tried to move.

It was seen in the thesis that the political area of the 14th century, in which the Ottomans were trying to get involved determinedly, had no homogenous relation networks. First of all, there were coastal Anatolian Turkish principalities with their economic and political relations with the Byzantine Empire and Latins. The Byzantine Empire was another actor who had a political stance of benefitting from the relations with coastal Turks and caring for relations with the Latins. Besides all these, the Latin forces, especially the Venice and Genoa, were effective economic and military forces in all the seas surrounding Anatolia. After presenting that political environment of the Western Anatolia in the 14th century, the thesis claimed that the Ottomans could expand towards the West and could grow in the seas thanks to careful examination of

that heterogeneous network of relations. Just in the mid-14th century Ottomans saw the importance of maritime activities and decided to expand their field of activity in this direction. The thesis shown that the Ottomans could gain a strategic naval base by the capturing of Gallipoli in 1354, which made them a real well-esteemed actor in the maritime arena. This development also provided a basis for political actions of the Ottomans. By remaining close to one of the Latin forces, like giving the first economic privileges to Genoese, Ottomans could target another one from then on. Building a dockyard in Gallipoli in 1390, the Ottoman permanent existence in the seas became definite. Having one of the kingpins of the Mediterranean, Ottomans could now control the Latin activities ranging from the western Mediterranean to the Black Sea. The conquest of Constantinople was another cornerstone which foreshadowed the beginning of a new era in the maritime adventure of the Ottomans. The conquest of Constantinople in 1453 had multiple effects on maritime development of the Ottomans. Firstly, Ottomans reinforced their presence on the seas by taking the second key point between the Mediterranean and Black Sea. Secondly, Ottomans now became prescriptive actor instead of exertive subject who tried to penetrate settled political and commercial relation networks. Thirdly, and may be the most important one, they also inherited naval intelligence of the former rule. In fact, Sultan Mehmed II brought Greek and Latin shipmasters and benefitted from their mastership by employing them to reactivate shipyard located on Golden Horn.

The new period which started with the Ottoman seizure of important maritime trade routes coincides the period when the use of firearms in ships became widespread. The thesis pointed that the proliferation of using firearms in ships necessitated more professionalized shipbuilding activities for all maritime states as from the mid-15th century. In this respect, Bayezid II was the first ruler of the Ottomans who intended to organize his fleets from this point of view. In fact, he ordered a fleet composed of greater galleys and the other types of vessels. Sultan Bayezid II's attempts to establish a new and professionalized navy were for two things. He wanted to establish a navy which had the equal capacity of strength with the Venetian and Portuguese ones. Moreover he also desired a navy which was able to repel corsair attacks. The thesis claimed frequently that some certain maritime wars were so educatory for each

counterparts. Although the Ottomans could capture some points on the Peloponnesian coasts after the Veneto-Ottoman naval war between 1499 and 1503, they saw the importance of a navy consisting developed vessels. In fact, the resurgent Ottoman navy under the rule of Bayezid II provided an insight for the further sultans. Furthermore, thanks to the struggle with Portuguese in the Indian Ocean and Red Sea, Ottomans could find a chance to meet oceanic vessels.

Navies of all the Mediterranean maritime states had no single mission as of the 16th century. The navies of the maritime states had to fight both the central navies of their enemies and corsair attacks. This necessity triggered two new developments. First, the Mediterranean navies started to build larger and well-equipped vessels, and to organize their shipyard organizations in this way. Secondly, they had to organize their maritime activities by considering corsair presence. This situation led the Ottomans to adopt a two-way shipbuilding model early in the 16th century. On the one hand, there was the need to build fully rigged greater galleys, especially considering the recent developments in Venice. On the other hand, there was the need to produce lighter ships with a considerable maneuver ability to repel corsair attacks. In the first quarter of the 16th century, Ottomans already had a well-equipped navy consisting large and light galleys as well as sailing ships in a small number. However, although the quantitative superiority of the navies was important, continuity of ship production became crucial in the maritime arena of the 16th century. Necessary reforms for the continuity of ship production were made during the Selim I and Suleiman I periods. In Selim I period, the production docks of the Ottoman Galata Dockyard were increased which led a rapid increase in the production of ships ready for war at any moment. Undoubtedly, the Ottomans saw that reform as vital steps which have to be taken in order to form a navy capable to compete with counterparts in the Mediterranean. However, there is an opinion claims that the Ottoman Empire was reluctant to adapt some of the maritime developments in the 16th century and to produce developed ships equal to Venice.[140] Yet, the thesis shown that all the maritime

[140] Sarah Thomas, *On Altıncı Yüzyılda Osmanlı Donanmasının Denizcilikteki Yeni Gelişmeleri Uygulamadaki İsteksizliğinin Siyasi, Askeri ve Ekonomik Nedenleri*, (Master Thesis), Ankara, 2014, p.40.

developments in the Ottoman navy during the reigns of Bayezid II and Selim I were the product of the Veneto-Ottoman struggle.

The thesis tried to examine maritime history of the Ottoman Empire by leaving aside the belatedness or backwardness perspectives. In this sense, the thesis focused on the changes in the maritime technologies occurred in different Mediterranean and Atlantic maritime states in the 16th and 17th centuries. The aim of this examination was to reveal the Ottoman position in the maritime arena of the 16th and 17th centuries formed by the changes in the shipbuilding and shipping activities. The most important developments in the Mediterranean maritime history occurred in the middle of the 16th century. These developments affected the mobility and sizes of the Mediterranean ships. One of those developments was the change in the rowing system of the galleys. Inventing in the mid-16th century, Venetians adopted *al scaloccio* method based on the principle of rowing a single oar by the multiple oarsmen. With this method, the need for qualified rowers decreased and a significant increase was achieved in the speed of galleys. Another change in the 16th - century Mediterranean ships was the increase in diameters and proliferation of the sailing merchant ships which were transformed into warship. In fact, Venetians built *galeazza*s, the transformed version of *galea de mercanzia*, and the Spain preferred to use mercantile carracks as warships throughout the century. However, volume of the shipbuilding activities decreased towards end of the 16th century in the Mediterranean states with the disruptive effect of the inflations arising from the Price Revolution. In the 17th century there were almost no development in maritime technologies of the Mediterranean. With the effects of crises that hit the Mediterranean shipbuilding activities and the increasing corsair activities, Mediterranean states followed the policy of protecting their current navies and organizing counter corsair attacks.

In the Atlantic front of the seas there were another changes in the shipbuilding activities with the contribution of the British and Dutch ship mastering. The Atlantic tradition of shipbuilding had been depended on the building round ships over the centuries. Peculiar to the late 16th century, the increasing demand for the raw materials and other luxury tradable goods obliged the Dutch Republic and Commonwealth to

organize their navies according to commercial activities. The necessity of protecting commercial fleets led to an increase in both the sizes and the fire powers of sailing ships. With the initiatives of King Henry VIII, the Commonwealth built a navy only for the military operations at the end of the 16th century. However the new British navy did not only consist large galleons that had been transformed into warship. The revolutionary contribution of the British naval mastery into maritime developments was the building of *race built* galleons. These galleons had both high maneuver capability and average firepower. They were these type of ships which penetrated into the Mediterranean and engaged the attention of the Venetians and Ottomans early in the 17th century. Towards the end of the 17th century the firearm capacities of the British galleons (*ship of the line*) that fight in the *line of battle* increased significantly. The increasing size and firearm capacities of the galleons in British navy was the consequence of the Anglo-Dutch competition over the trade routes. The augmentation of the great ships was fed by the continuity in the British and Dutch shipbuilding activities. The Commonwealth and the Dutch Republic made series of arrangements to ensure the continuity of shipbuilding in the late 16th century. These regulations aimed to reduce the financial burden on the central treasury and to increase the trade volume. The civil sector in Britain became new actors in the shipbuilding activities. Establishment of the British Levant Company in 1592, and the British East India Company in 1600 also affected the Dutch Republic in the sense of organizing maritime activities to compete with commercial counterparts. The Dutch Republic was swift to respond to the developments occurred in the Britain. Setting up the chamber of assurance in 1598, The Republic had formed a basis for the further activities of merchant companies on the eve of the 17th century. Establishment of the Dutch East India Company in 1602 incited the fierce competitions with the Commonwealth. The symbolic cargo ships of the Dutch Republic were *fluyt*s. Considering their physical structure, *fluyt*s seem to have been constructed only for the cargo transportation. On contrary to British preference of establishing a navy only for the military operations, The Dutch Republic followed the policy of converting trade ships into warships. In that sense, *fluyt*s were used both with commercial and military activities. In the 17th century, *fluyt*s became the most visible cargo ships in the seas. The reason behind the growth of *fluyt*s was that their costs were very low. The importance of the *fluyt*s was

recognized in the second half of the 17th century. The financial comfort provided by the *fluyt*s gave the chance to The Dutch Republic to establish a military navy that could stand out against the British navy during the Anglo-Dutch Wars.

What was the position of the Ottoman Empire in this scene where several developments in maritime technologies took place? Of course, this question needs to be answered before claiming the Ottomans were late to adopt the maritime technologies. It was argued in the thesis that the Ottomans did not see any logical reason to give galleons a primary role in their navies until the mid-17th century. Certain cornerstones, which created a naval tradition in their maritime history, made them insistent to use galleys for a long time. One of these developments was the merging corsair naval intelligence with the prosperity of central navy. Ottomans had reached the peak of their military power during Suleiman I reign. For the first time in the Suleiman I reign Ottomans declared a direct confrontation to Habsburgs. Suleiman I was aware that the expedition against the Habsburg should have two-legged. Therefore, Suleiman I gave the command of the sea front to Khayr-al Din, who was an experienced corsair known by his struggle against the Spanish Habsburgs, and appointed him as Grand Admiral in the Imperial Council (*Divan*). During the Khayr-al Din period, the Ottoman Empire had become the most effective maritime state using boarding and ramming tactics. By using light galleys, or even frigates, he could embark successful expeditions against the Spanish presence in the Western Mediterranean. It seems that the successful operations of Khayr-al Din had left a remarkable impression on the 17th century- intellectual. While Katip Çelebi was expressing his opinion on the adaptation of galleon technology, he stated that the navy should confront enemy with galleys like Khayr-al Din[141]. Of course the opinion of the Çelebi does not reflect a conservative attitude towards adopting current technological developments. There were additional reasons for the Ottomans to use galleys as the main force of navy. It was not only the effectiveness of galleys against sailing vessels as a fact for the Ottomans to be insistent on using them in the battles. Ottomans had

[141] Kâtip Çelebi, *Deniz Savaşları Hakkında Büyüklere Armağan: Tuhfetü'l -Kibâr Fî Esfâri'l-Bihâr*, Kabalcı Yayınevi, İstanbul: 2007, p.49.

also been accustomed to build or repair galleys for a long time. Their shipyard organization and material flow had been substantially organized according to construction of galleys and other oar ships. The Ottomans saw the advantage of this situation after the Battle of Lepanto. After a battle in which nearly the total navy was lost, the Ottomans could rebuild a new navy in three years. Another thing that the Battle of Lepanto taught the Ottomans was the necessity of building great galleys. In fact, the Venetian *galeazz*as were the ships which ruined and destroyed the Ottoman lines. It is seen in the Katip Çelebi's account that the Ottomans were using *mavun*as which had similar structural and military features with the Venetian *galeazz*as.[142] Although Carlo Cipolla claims that the Battle of Lepanto was an anachronistic battle in which the outdated vessels and tactics were used[143], this claim seems to have some errors. The penetration of the Northern European navies was not yet occurred in that period. Moreover, as Grant argued, galleys were still the most effective vessel in the Mediterranean. Even in the 18th century their effectiveness were seen by the Russians in their expeditions against Swedish Baltic.[144] In parallel with the Grant's argument on the issue, there are also some evidences that the thesis have shown in the subchapter on the *Effectiveness of the corsairs and Derya Beyleri.* In that chapter it was seen that the Ottomans could still surpass enemy galleons with their oar ships. In fact, they even needed to establish a coastal security unit which used usually lighter oar ships, *firkat*es with 10-15 oars.

In addition to showing the political and military reasons which made Ottomans decisive to use galleys in their naval operations, the thesis also focused on the fiscal reasons made the galleon building unfeasible. In the *Fiscal Conditions as a Principle Determinant* chapter the thesis compared studies analyzing the fiscal conditions of the Ottoman Empire in the 17th century with an archival account in the *Maliyeden*

[142] Kâtip Çelebi, pp.151,152 and 155.

[143] Carlo Cipolla, Guns, Sails, and Empires: Technological Innovation and the Early Phases of European Expansion, 1400- 1700, New York: Pantheon Books, 1965 p.101.

[144] Jonathan Grant, "Rethinking the Ottoman 'Decline': Military Technology Diffusion in the Ottoman Empire, Fifteenth to Eighteenth Centuries," Journal of World History, vol.10, no. 1, 1999, p.186.

Müdevver Defterler catalogue. It was seen after the comparison of the information that the Ottomans were nearly incapable of building galleons in the 17th century. By comparing information derived from the archival records on the budgets and shipbuilding activities of the Imperial Shipyard, it was also understood that the Ottomans had high budget deficit although they could not build any galleons in 1661. In conclusion, this thesis aimed to provide an insight to the studies of Ottoman maritime history which is free from the decline or incapability lenses. In that sense, the thesis mainly suggested to examine the Ottoman history of maritime technology by considering the entire nautical arena in the 14th to 17th centuries in which the flow of information was not too slow as estimated. In fact, the Ottomans, and the other maritime states were always keeping on following each other's developments in the maritime arena for centuries. One of the main contribution of this thesis to the maritime studies was to point the Ottoman position in technologically developing world. Examining the Ottoman maritime history by considering the contemporary developments have shown that the Ottomans were not unwilling or conservative to follow recent developments in maritime technologies.

The thesis also called attention to an illusion which had affected historiography on the maritime studies. The debacles or just losing battles were not the absolute breaking points taking states away disintegration periods. There should be careful examinations while examining the histories in which the elements are always in a state of flux. Maritime history can be seen as an example for that issue. It was so natural for the states to lost battles in the seas. Here, the development in certain technologies cannot be measured by considering the consequences of battles. There should be a vision which seeks for the reflexes to adopt learned changes. The thesis have revealed that all the maritime states learned so many things from each other after the battles. In fact, the thesis shown that all the maritime states from both Mediterranean and Atlantic traditions arranged their fleets after certain wars.

Another contribution of the thesis was to present possible causes for the Ottomans which might make them decisive to use oar ships rather than galleon types. Two main reasons were indicated that affected the Ottoman opinion towards adaptation of

galleon technology. One of them was the military and political developments that made the Ottomans a developed galley force. In the first quarter of the 16th century Ottomans merged their naval intelligence and prosperity with the Muslim corsair tradition. The thesis demonstrated the effects of corsair tradition on the Ottoman naval organization by examining the secondary and archival sources. It was understood by the Çelebi's and Seyyid Murad's accounts[145] that the corsair tradition contributed the Ottomans to become an effective galley force enough to fight Spain and Venice together.

By analyzing the recent studies on the 17th century- maritime operations of the Ottomans, the thesis also provided an insight to the literature. It is seen in the thesis that the Ottomans were effective galley force even in the 17th century as galleys were still effective vessels to conflict with the Mediterranean galleons. However, when the Ottomans met developed galleon types which could surpass oar ships during the Cretan war, they did not hesitate to build galleons even in the financial difficulties. In that sense, the thesis provided another viewpoint which considers fiscal reasons as restricting fact in front of the building galleons. Setting the "belatedness" and "incapability" lenses aside provided a clear view to understand the main reason for the Ottoman prudence towards building galleons.

[145] Kâtip Çelebi, Deniz Savaşları Hakkında Büyüklere Armağan: Tuhfetü'l -Kibâr Fî Esfâri'l- Bihâr, Kabalcı Yayınevi, İstanbul: Kabalcı, 2007 and Seyyid Murad, *Gazavât- ı Hayreddin Paşa,* Haz. Mustafa Yıldız. Aachen: Verlag Shaker, 1993.

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APPENDICES

A. TURKISH SUMMARY/ TÜRKÇE ÖZET

Bu tez, Osmanlı İmparatorluğu'nun 16. ve 17. yüzyıl denizcilik teknolojilerine adaptasyon süreçlerini etkileyen bazı askeri, politik ve mali gelişmeleri ele almıştır. Tarih boyunca bütün devletler için denizcilik teknolojisi üretimi ya da edinimi önemli bir politika olagelmiştir. Kara yolu ulaşımının mümkün olmadığı yerlere seyahat etmek için 20. Yüzyıl ortalarına kadar yalnızca deniz taşıtlarının kullanılabildiği gerçeğini göz önünde bulundurmak dahi denizcilik tarihi çalışmalarının önemini gözler önüne serer. Nasıl ki modern devletler havacılık ve uzay teknolojisinde lider konumda olmak için bir yarış içerisindeyseler, özellikle 16. ve 17. yüzyıllarda bazı devletler bu yarışı denizcilik teknolojisi için sürdürüyorlardı. Tezin odak dönem olarak aldığı bu iki yüzyıl içerisinde, tıpkı şu an havacılık ve uzay sistemlerine sahip olmanın bazı devletlere sağladığı gibi, denizcilik teknolojilerinde ilerlemek büyük bir askeri ve ekonomik güç olmanın kapılarını açıyordu.

Özellikle 17. yüzyıl, kimi devletlerin denizcilikteki gelişme düzeyleri üzerine çokça yorumların yapıldığı bir dönemi temsil eder. Bu dönem yelkenli gemilerin ve buna yönelik gelişen teknolojinin giderek ön plana çıktığı bir dönemdir. Bu dönem hakkında yapılan ve Osmanlı'nın da dâhil edildiği tartışmalar, yelkenli gemilere geçme-geçebilme ve bu teknolojiyi zamanında uyarlayabilme üzerinden ilerlemiştir. Çok yakın zamana kadar, Erken Modern Çağ denizci devletlerinin denizcilik teknolojilerindeki gelişme serüvenleri üzerine yapılan çalışmalarda bir "kazanan" ve "kaybeden" tayin etme eğilimi kendini göstermiştir. 17. yüzyıl ekonomik, teknolojik, ticari, askeri ve sosyal birçok değişimin bazı devletlerin lehine yaşandığı bir dönem olduğu için, diğer devletler "kaybeden" olarak nitelendirilmiştir. Durum böyle olunca, bu "kaybeden" devletler için zamanla bir eksik ya da geç kalan algısı oluşmuştur. Bu tezde ilk olarak Osmanlı İmparatorluğu'nun 16. ve 17. yüzyıllarda denizcilik teknolojilerinde yaşanan bazı gelişmelere ayak uydurmada "geç kalan" bir aktör olmadığı savunulmuştur. Bunu yaparken, bu savunmaya neden olan bazı argümanlara

giriş bölümünde yer verilmiş ve ilerleyen bölümlerde karşı argümanlar üretilmiştir. Tezde, geç kalmışlık bakış açısından kaynaklanan tarih yazımında yapılan bir hata da tespit edilmiştir. Tez, bu hatanın bir devletin denizcilik tarihini yazarken belirli dönemlerin o devletin denizcilik tarihinde olumsuz anlamda bir kopuş noktası oluşturduğunu değerlendirmek olduğunu ileri sürmüştür. Tezde aynı zamanda 16. ve 17. yüzyıllarda Osmanlı'nın bazı denizcilik teknolojilerini benimsemesinde rol oynayan kriterlerini daha iyi kavramak için kuruluş döneminden itibaren Osmanlı'nın denizlerdeki serüveni incelenmiştir. Buradaki amaç, Osmanlı'nın denizlerdeki ilerlemesinde etkili olan bazı dönüm noktası sayılabilecek gelişmeleri tespit edebilmektir.

Osmanlı denizcilik tarihi yazımında, bu tezin tespit ettiği önyargılı ya da kusurlu tarih yazımının ortaya çıkmasında belirli bir dönemin etkisi vardır. Bu dönem, 1980'ler öncesi Türkiye'sinde Osmanlı denizcilik tarihine dair kapsamlı araştırmaların yapılmaya henüz başlanmadığı, özellikle kurumsal denizcilik tarihi üzerine olan Osmanlı arşiv kaynaklarının kapsamlı olarak çalışılmadığı dönemdir. Osmanlı denizcilik tarihi araştırmalarında kullanılan Osmanlı arşiv kaynaklarının kapsamlı olarak kullanılmaya başlandığı dönem ise 1980'ler itibariyle başlamıştır. Özellikle Osmanlı denizcilik teşkilatı ve kullanılan gemi tipleri üzerine Osmanlı kaynaklarını etkili bir biçimde kullanan İdris Bostan'ın çalışmaları Türkiye'deki denizcilik tarihi araştırmalarına bu dönem itibariyle öncü olmuştur. 1980'lerde çalışılmaya başlanmış ve etkileri 1990'lar ve erken 2000'lerde basılmalarıyla ortaya çıkan eserlerin bir diğer tetiklediği husus ise Osmanlı denizcilik tarihinin kapsamlı denizcilik tarihi eserlerinde yer almasıydı. Türkiye'deki Osmanlı denizcilik tarihi çalışmaları, erken 2000'lerin ilk on yılında konuyu çalışma konuları edinmiş genç katkılarıyla seviye atlamış görünmektedir. Özellikle Tuncay Zorlu, Yusuf Alperen Aydın ve Emrah Safa Gürkan'ın Osmanlı denizcilik tarihine çeşitlendirdikleri sorularla yaklaşımları şu an içerisinde bulunduğumuz zamanda Avrupa arşivleri kaynaklarını kullanma ve zorunluluğunu gözler önüne sermiştir. Yakın zamandaki çalışmalar bu doğrultuda yapılmaya başlamış görünmektedir.

Tez ilk olarak Osmanlı'nın yüzyıllar içerisindeki denizcilik teknolojisinin dış dünyadan kopuk, habersiz ve etkileşimiz gelişmediğini göstermek adına Osmanlı'nın tarih sahnesine çıktığı dönemdeki Batı Anadolu siyasi yapısını incelemiştir. Gerçekten de, Osmanlı'nın bir beylik olarak kurulduğu ve kısa zamanda denizlerde etkinliğini artırmaya yönelik politikalar izlemeye başladığı dönemde Batı Anadolu siyasi yapısı homojen ilişkiler ağından ibaret değildi. Bir taraftan özellikle Venedik ve Cenevizliler' in temsil ettiği Latin denizci kuvvetler, bir taraftan Doğu Roma ve bir taraftan da Batı Anadolu kıyılarında birer denizci kuvvet haline gelen Türk beylikleri bazen birbirlerine karşı mücadele ediyor, bazen de belirli durumlarda ittifak içerisinde bulunabiliyorlardı. Tezin bu bölümünde Osmanlı'nın bu ilişkiler ağı içerisinde kendini var edebilmek adına bu farklı üç cenahtan da deniz politikaları bilgisini edindiği, sonraki dönemlerde de uyguladığı anlaşılmaktadır. Bu bölümde ayrıca Osmanlı'nın denizcilik politikalarında ve teknolojilerindeki gelişimini etkileyen bazı dönüm noktalarının olduğu vurgulanmıştır. Bunlardan ilki, 1354 yılında Gelibolu'nun Orhan Bey'in oğlu Süleyman Paşa tarafından alınması olmuştur. Gelibolu'nun bu tarihte Osmanlılar tarafından kontrol edilmesi başlangıçta tam anlamıyla bir deniz üssü olarak kullanılması anlamına gelmese de, ilerleyen dönemlerde Osmanlı'nın Adalar Denizi'nden Konstantiniyye'ye ve Karadeniz'e giden yolların trafiğini kontrol altında tutmasını sağlamıştır. Gelibolu Yarımadası 14. yüzyılın büyük bölümünde daha çok balkanlara yapılan kara seferlerinin başlangıç noktası olmuş olsa da, yarımada üzerine inşa edilen kalenin tahkim edilmesi ve 1390 yılında Gelibolu Tersanesi'nin inşa edilişiyle Osmanlı ilk deniz üssü ve ilk kapsamlı gemi üretim merkezine kavuşmuştur. Daha sonra, İkinci Mehmed döneminde Kilitbahir Kalesi'nin inşası da bölgedeki ve deniz ticaretindeki kontrolün pekişmesine yönelik bir adım niteliğindedir. Tezin bu bölümünün tespit etiği Osmanlı denizcilik tarihindeki dönüm noktalarından bir diğeri ise 1453 yılında Konstantiniyye'nin fethedilmesi olmuştur. Fetih'in çokça bilinen siyasi sonuçlarına fazlaca değinmeden, tez bu gelişmeyi Osmanlı'nın Bizans denizcilik geleneği mirasını devraldığı dönüm noktalarından biri olarak değerlendirmektedir. Sultan İkinci Mehmed çok geçmeden daha önce gemi yapım faaliyetlerinde bulunan Rum gemi yapım ustalarına İmparatorluk hizmetinde çalışmaları çağrısında bulunmuştur.

Tez, Osmanlıların denizci bir güç olarak ortaya çıktığı andan itibaren denizlerdeki en büyük rakibi olarak gördüğü Venedik ile olan mücadelelerinin daha sonraki dönemlerde imparatorluk denizcilik faaliyetlerine ve politikalarının belirlenmesine önemli katkılar sağladığı tespitinde bulunmuştur. Öyle ki, önemli bir gelişme olarak, Sultan İkinci Bayezid döneminde imparatorluk donanmasının yenilenmesi atılımı Osmanlı-Venedik mücadelesinin bir sonucudur. 15. yüzyılın son çeyreğinde yoğunlaşan Osmanlı-Venedik mücadelesi, Osmanlı'nın daha büyük çapta ve yenilenmiş bir donanmayı, 16. yüzyılın hemen başına kadar hazır hale getirmesini sağlamıştır. 16. yüzyıl, denizci devletlerin sahip oldukları donanmalarının görevlerinin çeşitlendiği bir dönem olmuştur. Bu duruma, etkinliği artmaya başlayan korsanlık faaliyetlerinin doğrudan etkisi bulunmaktadır. Osmanlılar 15. yüzyılın sonlarına doğru Venedik ile olan mücadelelerini imzaladıkları bir barış antlaşması ve verdikleri bir ahidname ile geçici olarak durdurmuş görünüyorlardı. Ne var ki, 16. yüzyılın başında hazır olan donanmanın,yeni açılan bir cephede, Süveyş Cephesi'nde Portekizliler ile bir mücadeleye girmesi kaçınılmazdı. Tez, Portekiz mücadelesinin de Osmanlılar için bir ders niteliğinde olduğu tespitinde bulunmuştur. 1507 yılında Selman Reis komutasındaki Osmanlı donanmasının Diu'da aldığı ağır yenilginin tekrardan başlayacak olan donanmanın yenilenmesi ve tamir faaliyetlerine sebep olduğu yorumu yapılabilir. Tezin işret ettiği Osmanlı denizcilik tarihindeki bir diğer dönüm noktalarından biri olarak yorumlanabilecek bu atılım 1515 yılında yaşanmıştır. Daha önce İkinci Mehmed saltanatı döneminde Konstantiniyye'nin alınmasının ardından temelleri atılmış olan, İkinci Bayezid döneminde bazı eklemelerle üretim faaliyetlerine devam eden yapı, "Tersane-i Âmire" ismiyle imparatorluk tersanesi olarak Birinci Selim döneminde faaliyetlerine başlamıştır. Tezde, Birinci Selim'in saltanatının ilk yıllarında Doğu sınırında Safeviler'le mücadeleye girişmesi söz konusu olsa da, denizlerdeki hâkimiyeti göz ardı etmediği ve 1515 yılında Tersane-i Âmire'de değişik tipte ve çok sayıda gemilerin inşa edildiğinden bahsedilmiştir.

Birinci Süleyman döneminde, Osmanlı donanması içerisinde farklı görevler ifa edebilen çeşitli tipte ve çok sayıda gemi mevcuttu. Özellikle Tersane-i Âmire'nin kurumsal bir imparatorluk tersanesi olarak üretim faaliyetlerine başlaması ve Birinci Selim'in denizlerde hâkim kuvvet olma politikası oluşturulan donanmanın oğlu

Süleyman'a miras olarak kalmasında etkili olmuştur. Tezde, Birinci Süleyman'ın hükümdarlığı sırasında denizlerde meydana gelen gelişmeler daha geniş olarak ele alınmak üzere üçüncü bölüme bırakılmıştır. Bu tercih, Osmanlı dışındaki dünyada 16. ve 17. yüzyıllar boyunca denizcilik teknolojisi ve politikalarında gerçekleşen bir dizi gelişmeleri tespit edip Osmanlı'nın Birinci Süleyman döneminden itibaren bu gelişmelerin değiştirdiği dünyadaki pozisyonunu saptayabilmek için yapılmıştır. Bu tercih doğrultusunda, ilk olarak 16. ve 17. yüzyıllarda gemi inşası, idaresi ve teçhiz edilmesi alanlarında meydana gelen değişikliklere odaklanılmıştır. Osmanlıların önemli bir deniz gücü haline geldiği 16. yüzyılda, dünya denizcilik tarihine yön veren bir dizi gelişme yaşanmıştır. Bunlardan ilki, Venediklilerin kürek gücünü dayalı kadırgalarının seyrinde meydana gelen değişiklikti. Daha önceleri kadırga kürekçilerinden her birinin kendi küreğini çektiği *galee alla sensile* sistemi, yerini bir küreği birden fazla kürekçinin çektiği *al scaloccio* sistemine bırakmıştı. Bu sistem hem kadırgaların hızlanma kabiliyetini artırıyor, hem de profesyonel kürekçi ihtiyacı azalmış oluyordu. Venedikliler, gemi seyrinde yaptıkları bu değişikliğe ek olarak top kapasitesi ve genel ebat açısından daha da büyük çektiri sınıfı gemiler inşa etmişlerdir. *Galezza*lar bu yönde yapılmış en etkili çektiri sınıfı harp gemileridir. Osmanlıların *mavuna* ismi verdiği bu büyük kadırgalar, özellikle İnebahtı Savaşı sırasındaki etkili savaş performansları sayesinde Osmanlılara yenilgiyi yaşatan birincil özneler olmuşlardır. Tezde, 16. yüzyıl kürekli gemilerinin seyirlerinde ve ebatlarında meydana gelen değişikliklerin yanı sıra, bu gemilere yüklenen mühimmatların da çeşitlendiği gösterilmiştir. Söz konusu değişiklik, gemilere yüklenen topların, mermilerinin ve bu mermilerin ham maddelerindeki çeşitlenmedir. Bu değişim, elbette ki 16. yüzyıl kürekli gemilerinin ebatlarında görülen büyümenin ve buna bağlı olarak savaş kapasitelerinin yükseltilmesi amacının bir sonucuydu. Özellikle İspanyol kadırgalarında bu değişikliğin izlerin rastlamak mümkündür. Bu yüzyılda bir İspanyol kadırgası geriden ve namludan doldurmalı büyüklü küçüklü mermiler ve toplar fırlatabilen değişik tipteki silahları taşıyorlardı. Aynı silahlar veya toplar, farklı devletlerde farklı isimler almışlardı. Örneğin, Osmanlı'da *şayka* topu olarak bilinen top İngilizlerin *saker,* Venediklilerin *sagre* olarak isimlendirdikleri toplardı. 16. yüzyıl kürekli gemilerinin yapısal anlamda da bazı değişikliklere uğradığını tezde tespit etmek mümkündür. Özellikle İspanyol kadırgalarında daha geniş savaşma ve nişan

alma platformları tercih edildiği görünmektedir. Bu, daha çok sayıda ve ağırlıkta topların yüklenmesi prensibine dayanan Venedik kadırga yapımı anlayışının aksine, İspanyolların arkebüz ve tüfekçi etkinliğine daha fazla önem verdiğini göstermektedir. 17. yüzyıl ise kadırgalarda temel değişikliklerin yaşanmadığı bir dönem olmuştur. Aynı zamanda 17. yüzyıl, korsanlık faaliyetlerinin daha da yoğunlaştığı, devletlerin kendi korsan faaliyetlerini de birbirlerine yönlendirdikleri bir yüzyıl olmuştur. Her ne kadar Atlantik gemi yapım tekniğinin ürünleri olan Kuzeyli kalyonlar 17. yüzyıla damgalarını vurmuş olsalar da, Akdeniz ölçeğinde Akdeniz tipi kalyonlar kadırgalara karşı rekabet oluşturmaktan uzaktı. Akdeniz devletleri içerisinde "kalyonun mucidi" olarak tanımlanabilecek bir devlet tayin etmek de oldukça güçtür. Fakat daha çok "uzun gemi" olarak adlandırılan kürekli gemiler üretme tarzıyla bilinen Akdeniz tipi gemi üretim modelinin "yuvarlak gemi" olarak bilinen Atlantik tipi üretim geleneğiyle tamamen etkileşimsiz olduğu da söylenemez. Nitekim Venediklilerin 16. yüzyıl ortasında yuvarlak gemi modeliyle tam teçhizatlı kalyonlar ürettiği, tam teçhizatlı ve yalnızca savaş için büyük gemiler üretme fikrini bu dönemde benimsedikleri söylenebilir. İspanyol cephesinde durum biraz daha farklıydı. İspanyollar hem Akdeniz üretim modelinin simge gemilerinden kadırga, hem de sahip oldukları coğrafya ve kolonilere ulaşma gerekliliği sebebiyle yelkenli gemileri fazlaca kullanmaktaydılar. İspanyollar, ticari faaliyetler için kullandıkları yelkenli gemileri (karakalar) savaş zamanında birer savaş gemisine dönüştürüyorlardı. Akdeniz yelkenlilerinin yalnızca savaş amacıyla üretilmesine ve bu gemilerden savaş filoları oluşturulması ise geç 16. yüzyılda İspanyollar tarafından başlatılmıştır. Bu duruma özellikle İspanyol donanmasının 1588 yılında İngilizler karşısında aldığı ağır yenilginin de etkisi olmuştur. Akdeniz yelkenlilerin birer savaş makinesine dönüşmesine lombar kapaklarının icadı da etkili olmuştur. Bunun yanında özellikle İspanyol kalyonlarında 17. yüzyılda görülen genişlemiş tüfekçi ve savaş platformlarının eklendiği de söylenebilir.

17. yüzyılın arifesinde, Akdeniz yelkenlileri ve küreklilerinin ebat ve silah açısından büyümesi trendi görülüyorken, yüzyılın hemen başında Akdeniz gemi üretim faaliyetlerini etkileyen enflasyonist dönem yaşanmıştır. Tezde, özellikle Venedik Arsenali'nde görülen üretim faaliyetlerinin kısıtlanması ikinci el kaynakların sunmuş

olduğu verilerle gösterilmiştir. Üretim maliyetlerinin yüksekliği özellikle yelkenli ticaret gemilerinin (savaş durumlarında savaş gemilerine çevrilen) riske atılmaması fikrini doğurmuştu. Bu durumun Akdeniz denizci devletlerinin birbirleriyle olan mücadelelerinde yalnızca kalyonlardan oluşmuş donanmalarını ön plana çıkarmalarını engellediği yorumu yapılabilir. Bu noktada, tezde Osmanlıların kalyon teknolojisini benimsemesi bahsinde bir saptama da yapılmıştır. Osmanlılar, zaten Akdeniz'de kalyonlar üzerinden verilen mücadelenin olmadığı bir ortamda kalyon yapımını benimsemekte bir gerek duymamışlardır. Tezin en son bölümünde de görüldüğü üzere, yalnızca Osmanlılar için geçerli olmayan, kalyon üretiminin aşırı maliyetli olması da söz konusudur. Bunun yanı sıra, Osmanlılar'ın kalyon üretimi ve kullanımı konusunda diğer rakip Akdeniz denizci devletleri ile hemen hemen aynı fikirde olduğu yorumu da yapılabilir. Yalnızca kalyonlardan oluşan, ya da en azından kalyonların birincil savaş gücü olduğu donanmaların oluşturulması hiçbir Akdeniz denizci devleti için kolayca uyarlanabilecek bir durum değildi. Bunun için yalnızca savaşçı yelkenli gemi yapımı için uzmanlaşmış bir üretim kadrosu, bu gemilerde savaşabilecek eğitimli personel ve bu gemilerin yapılabilmesi için yeterli kaynak ve organizasyonun varlığı gerekliydi.

17. yüzyıl itibariyle sahip oldukları ticari yelkenlilere ek olarak savaş için tasarlanmış kalyonları ile de yüzyıla damgasını vuran devletler ise Avrupa'nın "Kuzeyliler"i, İngilizler ve Hollandalılar olmuşlardı. Tezin, İngiliz ve Hollandalıların deniz teknolojilerine katkısına yer verildiği bölümünde ilk olarak gemi yapım tekniği ve sahip olunan gemiler açısından Atlantik ve Akdeniz geleneklerinin birbirlerinden tamamen kopuk gelenekler olmadığına değinilmiştir. Bu hususta ilk olarak Akdeniz ve Atlantik gemi yapım gelenekleriyle özdeşleşmiş teknikler olan armuz ve bindirme kaplama tekniklerine değinilmiştir. Gemi gövdesi yapımında daha çok Atlantik'te kullanılan, kullanılan kerestelerin birbirleri üzerine bindirilmesi prensibine dayanan bindirme kaplama metodunun yanında, 17. yüzyıl itibariyle Kuzeyli devletler tarafından Akdeniz armuz kaplama metodunun da kullanılmaya başladığı görülmüştür. Gövde yapımında kullanılan kerestelerin uç uca ve yan yana getirilerek birleştirilmesi esasına dayanan armuz kaplama metodu, gerçekten de Kuzeyliler tarafından artan gemi tonajlarının zamanla mümkün kılmadığı bindirme metoduna

tercih edilmeye başlamıştır. Tez, Atlantik ve Akdeniz denizci gelenekleri arasındaki etkileşimi yalnızca kullanılan gemi yapım teknikleri üzerinden örneklememiştir. 16. yüzyılın ortasında, İngiliz Kralı Sekizinci Henry döneminde İskoçlarla olan mücadele dolayısıyla İngiliz gemi yapım ustalarının Venedik'e hızlı kadırga yapımını öğrenmeleri için gönderilmesi örneği tezde yer almıştır. Fakat bu örnekler elbette ki Kuzeylilerin kendilerine özgü gemi yapım metotları olmadığı ve denizcilik teknolojilerine özgün katkılar vermedikleri anlamına gelmiyordu. İlk bakışta Akdeniz ve Atlantik gemiciliği arasında görülen en belirgin fark, Atlantik gemiciliğinin çok büyük oranda yelkenli gemiler üretme ve kullanma geleneğinin olduğudur. Şüphesiz bu durumda Atlantik ülkelerinin, özellikle de İngilizlerin, yelkenli gemi teknolojisinin gelişmesinde muazzam katkıları vardır. Tez, bu katkıların başında *race built* gemilerin icadını görür. Daha önceki bölümlerde de bahsedildiği üzere, ticaret ve savaş görevlerini ifa eden gemileri farklı olarak tasarlama eğiliminde olan İngiltere'de, 17. yüzyılın hemen öncesinde savaş için tasarlanan ve daha fazla manevra kabiliyeti olabilecek *race built* gemileri icat edilmiştir. Kalyonun pruva (baş) kısmının yüksekliğinin azaltılıp, kıç tarafının ise yüksek tutulması prensibiyle üretilmesi fikri alınan eşit miktardaki rüzgârda daha hızlı ve manevra kabiliyeti yüksek gemiler inşa edilmesini sağlamıştır. Tez, İngiltere ve Hollanda'nın denizcilik teknolojilerine olan katkılarının artan ticaret hacmine cevap verebilecek gemiler üretme zorunlulukları olduğundan dolayı kaçınılmaz bir gelişme olarak görmüştür. Nitekim İngiliz ve Hollanda ticaret şirketlerinin birbirleri ile olan ticaret yarışının bu ülkeleri hem daha efektif ticaret gemileri hem de askeri açıdan güçlendirilmiş gemiler yapmaya ittiğine dair bulgular tezde yer almıştır. Maliyet açısından daha az maliyetli ve hızlı üretilebilen gemiler yapma zorunluluğu, aynı zamanda bu ülkeler için de geçerliydi. Öyle ki Hollanda *fluytları* bu zorunluluk üzerine üretilen ve 17. yüzyıla damgasını vuran ticaret gemileri olmuşlardır.

Tezin son bölümü, 16. yüzyılın ortalarında başlayıp 17. yüzyılda devam eden bu gelişmelerin yaşandığı dünyada Osmanlı'nın konumunu belirlemek ve kalyon teknolojisine geçişte bir "gecikme" olup olmadığı sorunsalına cevap vermek için yazılmıştır. Bu bölümde tezin esas olarak odaklandığı mesele olarak, kalyona geçiş hususunda Osmanlı'yı bu teknolojinin benimsenmesinde tedbirli kılan bazı

gelişmelerden bahsedilmiştir. Bu bölüm esas olarak Osmanlı'nın denizlerde yaşanan politik, askeri ya da teknolojik hiçbir gelişmeden Osmanlı'nın haberdar olmaması gibi bir durumun söz konusu olamayacağını; Osmanlı'nın geçmişinden aldığı siyasi ve askeri mirasın kadırgalar konusundaki ısrarını pekiştirdiği, 17. yüzyılın ortasında kalyona geçişin Osmanlı'da tartışılmaya başlandığı, fakat başat bir etken olarak mali daralmanın bu geçişi etkileyen bir durum olduğu iddia edilmiştir. Osmanlı'nın kadırgalara birincil savaş gemileri olarak donanmalarında yer vermeleri, 16. yüzyılın ortalarına doğru Kuzey Afrika ve bütün Akdeniz'de göz ardı edilemeyecek bir deniz kuvveti haline gelen korsanların İmparatorluk donanmasında her zaman olduğundan daha fazla söz sahibi ve başarılı oldukları dönemden beri gelen bir tercih gibi görünmektedir. Öyle ki Girit Savaşı esnasında, donanmanın durumunun meşveret meclislerinde tartışıldığı bir ortamda genel eğilim kalyonlara kaymış olsa bile, Barbaros Hayreddin'in ve sonraki korsanların kadırga geleneğinin Osmanlı'ya çoklukla kazandırdığı fikri de ortaya atılmıştır. Tezin bu bölümünde, korsan geleneğinin başarılı kadırga operasyonlarının Osmanlı'da kadırgalarla devam etme fikri yaratsa bile, bu fikri taşıyan yöneticilerin muhafazakâr bir direnişinin olmadığı da vurgulanmıştır. Nitekim 1571 yılında yaşanan İnebahtı Bozgunu Osmanlıları 16. yüzyılın sonuna doğru daha büyük ve silah açısından daha donanımlı gemiler yapmaya zorlamıştır. Yenilik fikrine daima açık olan Osmanlı yönetiminin 17. yüzyılın ortasına kadar tercihini daha büyük gemiler yapılacaksa yine de kürekli gemiler (mavuna) yapma yolunda kullandığı da görülüyor. Elbette bu kararlılığı pekiştiren başkaca gelişmeler de yaşanmıştı. Daha önce de bahsedildiği gibi, 17. yüzyıl korsanlık faaliyetlerinin arttığı ve farklı devletlerinin kendi korsanlık faaliyetlerini rakip devletlere yönlendirdiği bir yüzyıl olmuştu. Bu dönemde çoğu hafif çektiri gemileriyle korsan kalyonlarına karşı verdikleri başarılı mücadelelerle ön plana çıkan derya beylerinin faaliyetleri, tezin bu bölümünde Osmanlı'yı kalyonların tehdit olarak algılamamasına yol açabilecek bir husus olarak gösterilmiştir. Tezin son bölümün son alt bölümünde ise Osmanlı'nın kalyon teknolojisine geçişinin göreceli olarak geç yaşanmasının esas sebebi olarak mali daralmanın olduğu vurgulanmıştır. Osmanlı'da kalyona geçme fikri iki dönemde gündeme gelmiş, tam geçiş ise 17. yüzyılın sonu, 18. yüzyıl itibariyle sağlanmıştır. Osmanlı'nın daha önce Akdeniz ölçeğinde bir tehdit unsuru olarak görmediği kalyonlar, özellikle Kuzeyli denizci

devletler İngiltere ve Hollanda'nın Akdeniz'e hızlı girişiyle ve savaş kapasiteleri olanlarının Osmanlı coğrafyasında yaygın bir biçimde görünmeye başlamasıyla İmparatorluk kesin olarak yelkenli gemi teknolojisini uyarlama konusunda kararlı duruma gelmişti. Ne var ki tam da bu kararlılığın arttığı dönemde mali sıkıntılar baş göstermişti. Aslında 17. yüzyıl, bir bütün olarak Akdeniz devletleri açısından bir enflasyonist dönem olmuştur. Tezin bu bölümünde bir Osmanlı arşiv kaynağı ve ikinci el veriler kullanılarak 17. yüzyıl Osmanlı gemi yapımının daha çok kadırga yapımı ve tamirine, az da olsa kalyon inşası ve tamirine odaklanabildiği gösterilmiştir. Özellikle kara savaşlarının yaşandığı dönemde Osmanlı bütçesi büyük açıklar vermekteydi. Arşiv kaynağından edinilen bir bilgiye göre yüksek bütçe açığının verildiği bir dönemde kadırga inşasının bile maliyetli olduğu göz önüne alınırsa kalyon inşasının oldukça ağır maliyeti olabileceği vurgulanmıştır. Bu durumun yalnızca Osmanlı için geçerli olmadığı, özellikle Venedik ve İspanya'nın hem enflasyonist dönem etkisiyle hem de yaşanan kereste kriziyle yelkenli gemi üretme faaliyetlerinin olumsuz yönde etkilendiği gösterilmiştir.

Sonuç olarak bu tezde Osmanlı'nın 16. ve 17. yüzyıllarda gelişen denizcilik teknolojilerine ayak uydurma serüveni incelenmiştir. İncelemenin bu yönde olmasını sağlayan neden, Osmanlı'nın bu serüvende bir geç kalan ve teknolojik gelişmeleri uyarlamada kaybeden bir özne olarak görülmesidir. Tezin giriş bölümünde bu yöndeki argümanlara yer verilerek, Osmanlı'nın denizlerde tecrübe ettiği hiçbir gelişmenin olumsuz anlamda bir kopuş yaratmadığı belirtilmiştir. Bunun için Osmanlı'nın denizlerde ilk olarak kuvvet haline gelebildiği dönemden başlayarak bir inceleme yapılmıştır. 14. yüzyıldan 16. yüzyıla kadar yapılan ilk incelemede Osmanlı'nın denizlerdeki gelişmeleri takip etmekte olagelen bir devlet olduğu gösterilmiştir. Sonraki bölümlerde ise 16. ve 17. yüzyıllarda hem Akdeniz'de hem de Atlantik'te kürekli ve yelkenli üretiminde yaşanan gelişmelerin olduğu bir dünyada Osmanlı'nın konumu belirlenmeye çalışılmıştır. Bu bölümlerde Osmanlı'nın denizcilik teknolojilerini ve denizlerdeki politik ve askeri alanda yaşanan gelişmeleri takip etmeyen bir devlet olmadığı gösterilmeye çalışılmıştır. Bu noktada, Osmanlı'nın kürekli gemi kullanımını 17. yüzyılın sonuna kadar birincil olarak kullanmasının bazı siyasi askeri ve mali nedenlerinin olduğu vurgulanmıştır.

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