Darzanà

İki Tersane, Bir Vasıta

Two Arsenals, One Vessel

Reporting From *Darzaná*: Seven Episodes Of The Golden Horn Arsenal

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Reporting From *Darzaná*: Seven Episodes Of The Golden Horn Arsenal

... those who operate the maritime world and those who grant cultural significance to its artifacts still belong to two separate cultures ... which, apparently, continue to have little to say to one another. JOSEF KONVITZ

The historic arsenal of Istanbul is located along the northern shores of the famed estuary of the Bosphorus Strait known as the Golden Horn or Haliç. In the present state fragmented into two major areas, the Arsenal is a multi-layered site inhabiting the traces of successive episodes of naval shipbuilding facilities, the most prominent being the Ottoman imperial naval shipyard, *Tersâne-i Âmire*. The history of the location is part of the Golden Horn's long durée function as the major harbor of Byzantion-Constantinopolis-Istanbul from 7th century BC to the 1980s. The Golden Horn is an eight kilometers long estuary that has a complex hydraulic nature transforming through its curvature from a high sea to a calm deep harbor and a lagoon. Protected from the northern and southern winds by the ridges on the two sides, it has been an ideal maritime shelter, precisely as the Ottoman name *halîc* connotes. Genuinely the strands of the harbor is deep, here even large vessels could land directly from the prow by means of basic wooden landing platforms called *scala* or *iskele*. Even so the seafront of the Golden Horn has been a challenging site for architectural constructions where landfills have been particularly difficult not only because of depth but also due to the currents washing away the seabed. When the Golden Horn side of Constantinople was fortified in the Late Antiquity or the limits of the city sector Galata on the other side was drawn in the 14th century, the walls were to be constructed at a distance to the sea, practically defining a threshold. This liminal space in between the landing stages and the city gates would later function as the quays of Ottoman Istanbul; here, quotidian structures facilitated

the provisioning of one of the greatest cities of the Early Modern period. The harbor zones were confined within these lines until the late 19th century. As it is, the Golden Horn waterfront, including the site of the Arsenal, has been historically portrayed more as a creation of nature than a manmade infrastructure.

In the twentieth century, when the Golden Horn was transformed into an industrial zone, the praised maritime nature of the estuary had been consumed to its environmental limits creating an ecologically terminal space within the greater city. Since 1980s, the greater municipality started a project for the rehabilitation of the Golden Horn's ecology; the industrial functions and port facilities were majorly removed and the disposition of urban waste was technically solved. This project advertised the nostalgia for "the blue and green" of the natural harbor. Unfortunately, it was defective in comprehending the historical spatiality of the Istanbul waterfront in a vision that valued the picturesque architecture of kiosks and meadows but undermined the quotidian culture of a working harbor. Among industrial structures the historic waterfront architecture was cleared with the exception of several monumental edifices. Currently, dominated by waterfront parkways, the Golden Horn is blue and green as it had never been. Since Istanbul has reemerged to be the global city of the Eastern Mediterranean and the Near East, the attempts to revitalize the estuary into an urban area reserved for cultural and educational facilities continue in and around the few conserved edifices along parkways.

The Golden Horn Arsenal was transformed into several shipyards after the mid 20th century through a process largely erasing its historic remnants. Until recently, the Arsenal being partially a military zone, has been left outside of the Golden Horn rehabilitation projects. Since the transformation of the western and larger section of the shipyards is now in the agenda, there is the opportunity for an urban project that reevaluates all the existing *strata* of the maritime architecture confronting at the same place and time the demands of a global metropolis like Istanbul. The immanent multilayeredness of the Golden Horn Arsenal is not only an important ground for these recent projects; it further presents a precedent *par excellence* for the history of architectures reporting from one of the primordial frontiers that is the waterfront.

This essay displays the architectural history of the Golden Horn Arsenal as a special manifestation of the Mediterranean maritime frontier in multiple terms. First, this place is a threshold of the naval history of the Mediterranean shaped and transformed by the multiple technological encounters concerning naval warfare and shipbuilding. The specificity of the Golden Horn Arsenal is that it bares traces of the three major stages of the Mediterranean naval history at the same place: a shipyard for long oared ships (galleys), a dockland for the great sailed ships (galleons) and an industrial facility for the steam ships and metal vessels generically known as cruisers. The major military encounters of the naval history and the changes in naval technology can be observed as hallmarks in the story of the Golden Horn Arsenal, but as significant as these are the minor interventions of adaptation and reuse exemplifying piecemeal processes of transformation; these immanent restructurings multiply the number of the episodes.

Secondly, the Golden Horn Arsenal is a frontier of maritime architecture in the mirror of other Mediterranean cities like Alexandria, Algiers, Marseilles, Piraeus and specifically Venice. The quest here is to search for a common maritime architectural history in likeness to the bridge and vessel language called *lingua franca*, which had been developed among the mariners of the Mediterranean on navigation, ship types and the forces of nature. The proposition is that an architecture functioning as a bridge or a vessel between different cultures can also be defined on the maritime frontiers of the Middle Sea (*Bahr-i Mutavassıt* in Arabic, meaning the sea acting as a vessel), specifically along its harbor structures. In analogy to the *lingua franca*, this architectural history can be phrased as an *architectura franca* with shared typologies and their local variations. The history of the Golden Horn Arsenal displays building types essentially common to the Mediterranean, but in the later centuries, there were also encounters with other waterfronts like that of the Atlantic and the Baltic Sea. Where *architectura franca* of naval shipyards involves shipsheds, slipways, dry docks, magazines, ateliers, factories, barracks and admiralties, it is the composition of these in different stages that forms the spatiality of the displayed case. However, the interwoven architectural histories of the Mediterranean should not be confused with the generic waterfront architecture of recent globalism, which imagines similar landscapes without minding the peculiarities of each place.

Lastly, specifically for the Ottoman period, the site of the Arsenal is part of Istanbul waterfront in continuation with the

other sections of the harbor displaying common site-specific urban features. *Tersâne* had been surely a different place than the capital city; it acquired its own administration, its own artisans and its own working population known as "the arsenal populace" (*tersâne halkı*). Nevertheless, the Arsenal completed the spatiality of Istanbul's harbor. Resembling the harbor zone of Istanbul defined by strands in front of the fortifications, the naval shipyard was formed as a linear city of two kilometers in front of its own enclosure. This liminal space communicated with the vicinity at certain points of access; the Arsenal had its gates through the harbor, as did the walled city of Istanbul. Moreover, in likeness to the other parts of the Golden Horn, the Arsenal presented a maritime façade open to the harbor throughout its extend. Although the access to *Tersâne* was jealously prevented as in the other Mediterranean naval shipyards, it was unique in being visually accessible. In this respect the Arsenal displayed panoramic views similar to the other parts of the Istanbul waterfront. As such the Golden Horn Arsenal has been a janus-faced site: both closed and open, separate and connected, visible and invisible; a place within the metropolis of the Eastern Mediterranean located between peace and war, between territorialization and deterritorialization.

Consolidating the idea that waterfront is a liminal space that potentially mirrors other maritime frontiers in various scales including all the other sides from that of an estuary, to the connected littoral areas and to the greater seas and oceans; the following architectural history survey focuses solely on the Golden Horn Naval Arsenal to display the maritime frontiers of the Mediterranean. The text is structured according to the major seven episodes of the Arsenal from Byzantine Constantinople's naval facilities and the foundation of Ottoman imperial naval shipyard to the present day. Each episode begins with a short section in the format of dispatches (*dispatio*) listing chronologically the major historical events and technological changes in naval industry and concludes with a view of the Arsenal in reference to one or two original visual sources, which resumes the bigger picture, the *tableau d'ensemble,* of the area for the mentioned era. In between, the major bulk of each episode concerns the building types and edifices in the Golden Horn Arsenal as well as their successive transformations.

Episode 1. Legacy: Naval Arsenal of the XIII Quarter (5th century AD-1453)

Constantinople was founded as a capital city on the waterfront at a time when the Mediterranean was the sea of the Roman Empire and a major medium of its unity. After the late 6th century the Middle Sea was split into several confronting political entities. Then the maritime defense became a major concern for Constantinople (the capital of the Eastern Roman or the Byzantine Empire), which would face several maritime sieges. Against such assaults a monumental chain was devised to occasionally enclose the Golden Horn, which became the main base of the Byzantine naval shipyards. By the eleventh century a new era of maritime encounters started in the Mediterranean between the East and the West: the Byzantines gave concessions to the Italian maritime states like Venice. Shortly after started the two centuries long Crusades, during the fourth of which, in 1204, the Byzantine capital city fell to the Latins. For the following sixty years the Venetians possessed the harbor zone of Constantinople, as well as its naval shipyards. The Byzantines retook the city in 1261 and found their naval base outside of the Golden Horn. The lack of concrete historical data concerning the architecture of Byzantine Constantinople's naval arsenals sums the millennial legacy of these structures into one episode, which can here be represented more in general designations than concrete terms.

Navalia/ Exartysis: Shipyards with Shipsheds

The historic shipyard of Byzantion was within the enclosed harbor Neorion entitled after dockyard in ancient Greek, which was located at the southern entrance of the Golden Horn (*Keras*). After the foundation of Constantinople this dockland functioned partially as an imperial shipyard, while another was formed in Sycae, the XIII and the only quarter of the city to be located on the other side of the estuary. This is the naval arsenal (*navalia*) mentioned in the fifth century urban censor *Notitia*. Some scholars locate this naval arsenal, later referred to as *Exartysis*, within the western suburbs of Sycae, on a smaller inlet named after the stream flowing into it, the Sweet Waters, *Pegai*. Then, *navalia/exartysis* might constitute the primary strata of the Golden Horn Arsenal.

The naval arsenals of Antiquity whether *neoria* or *exartysis* of Greeks and Byzantines, or the *navalia* of the Romans shared

a similar building unit that is utilized for the construction, maintenance and storage of naval vessels: the shipshed. Shipshed is an elongated building placed perpendicular to the sea; its longitudinal sides are defined by columns, piers or walls, over which the pitched or arched roof structure rest on. The middle ground is formed as a slipway to device the landing and launching of the ships. Frequently the shipsheds are constructed in a row pattern where the structural elements are shared with the adjacent units. The precedents of the monumental naval arsenals formed of shipsheds emerged in the Antiquity majorly as the architectural companion of the long rowing navy ships, or galleys (*dromon* in Greek meaning runner), and continued to dominate the Mediterranean waterfronts until the 18th century. In the conditions of the undetermined winds of the Middle Sea, the galley, even when hybridized with sails, was an efficient vessel during military campaigns for centuries. These long wooden vessels were uncontested on the move but vulnerable on the station; they had to be, preferably, landed and sheltered at stay after the being rigged. The *navalia* of Imperial Rome in the district of *Emporium*, as well as the *navalia* in its seaport Portus near Ostia, which constituted elongated waterfront buildings formed of rows of shipsheds, can be mentioned among the precedents of this kind of antique galley arsenals. However, for the case of Byzantine Constantinople, there is no comparable archaeological evidence but designations like the *navalia* or *exartysis* in Sycae that may be reminiscent of a similar disposition. How much the legacy of the arsenals of Antiquity continued through the Middle Ages is another question.

Arzana, Vetus Tersana: The Ancient Arsenal

During the Latin Empire (1204-1261), the Venetians had acquired the possession of almost the whole Golden Horn shores; as it is noted in the edicts, their gains included *arzana di Constantinopoli*, or the arsenal of Constantinople, located probably in Pegai across the Monastery of Christ the Benefactor (*Gül Cami* in the present day) by the Pegas Gate. It is another topic of scholarly debate whether this mentioned *arzana* was located at the same site with the former naval shipyard near Sycae. In any case, at the time when in Venice the first stage of the communal Arsenal was formed near Castello, the Venetians in Constantinople also possessed its *arzana* by the Golden Horn for almost sixty years. Unfortunately, there is no evidence to form any comparison between the mentioned stages of the two arsenals. However, the experts on the Venetian Arsenal state that it is rather the naval facilities of Medieval Levant and Egypt that had an impact on the architecture and terminology of the Italian city-state shipyards than Constantinople; the use of various variations of Arabic *dara's sina'a* (place of industry) for naval arsenals rather than Byzantine and Latin *exartysis* or *navalia* is a testimony for this thesis.

After the Byzantines retook the capital city in 1261 and the former concessions with the Latin maritime states were restored, the Byzantine naval arsenal was taken out of the Golden Horn to a former enclosed harbor on the shores of the Marmara Sea (*Propontis*), Kontoskalion. Meanwhile the former naval shipyard on the suburbs of Sycae/ Galata was referred to as the "ancient arsenal" (*palaia exartysis*), which was probably partially in ruins. In early 14th century the site of Sycae/ Galata was given to the Genoese as a concession quarter including a shipyard near "the ancient arsenal", *vetus tersana*. At the same time the Venetians had acquired once again their quarter around the other old naval arsenal of the city, Neorion. Back at home the Venetians had begun an extensive addition to the Arsenal, *Arsenale Nuovo*, against their confrontation with the Genoese for the dominance of the Mediterranean trade. One front of this antagonism was within Constantinople, which even had led occasionally to actual maritime battles fought within the Golden Horn destroying some of its waterfront structures.

View of 1422: The Buondelmonti Map

The map of Cristoforo Buondelmonti, a Florentine traveller and the writer of The Book of the Islands of Archipelago constitutes the sole original visual document depicting Late Byzantine Constantinople; there are many copies of this view from 1420's displaying different levels of information. Here, two points are noted as arsenal, or arzana*: the first is the Kontoskalion harbor, erroneously noted at another bay; and, the other is a rectangular enclosure on the eastern waterfront of Galata. The second one is the Castle of Galata (*Kastellion*), one of the suspension points of the famous floating chain sealing off the Golden Horn during maritime assaults; here, the arsenal may be referring to the docks of the vessels floating the chain or to a military depot. The chain would be used for the last time during the Ottoman siege in 1453. Then the Ottomans constructed small*

vessels and carried them on land towards the bay of Pegai*, which is shown in the Buondelmonti map as a stream with a mill and a monastery but not with a single notation for a shipyard.*

Episode 2. Ottoman Foundation: Arsenal of Galata (1453-1513)

For the fifty years following the fall of Constantinople in 1453 when the city was transformed into the Ottoman capital city, the main naval base of the empire was maintained in the shipyard of Gallipoli by the Dardanelles Strait at a strategic point against offences from the Aegean Sea. Meanwhile the two naval shipyards of the capital city were transformed in a piecemeal manner within the confines of the existing installations: the Late Byzantine naval shipyard of Kontoskalion and the Ancient Shipyard near Galata. The fifteenth century witnessed in the Mediterranean the coexistence of the oared and sailed ships. However in the emerging Ottoman Venetian naval confrontation after 1470s the oared ships would increasingly become the preferred vessel, which had their infrastructural requirements defining the architecture of the shipyards manifested at its best in the Arsenal of Venice. However, in the first decades of the Ottoman capital city these kind of infrastructural necessities would rather be sustained by modest means.

From *Vetus Tersana* to Arsenal of Galata

After the Ottoman conquest Galata was transformed into one of the three townlets of greater Istanbul, however, it continued to be a settlement populated majorly by non-muslim subjects and foreign merchants. The natural basin where the ancient arsenal was located on the western suburbs of Galata would form the initial core of a new Ottoman naval shipyard, which was then named as the Arsenal of Galata; indeed, administratively it was part of this city sector. Ironically, when the Ottoman shipyard in the Golden Horn acquired a larger area becoming the Imperial Naval Arsenal, this initial section from Galata to the sweet waters would once more be named as the Ancient Arsenal, *Tersâne-i Âtik*.

Divanhâne: The First Council House

The only architectural edifice that can be defined with some certainty from the first fifty years of the Galata Arsenal is an administrative building: the Council House, or *Divanhâne*, constructed in the time Mehmed the Conqueror (r. 1444-1446; 1451-1481). This building was depicted in visual sources of the later periods as a wooden kiosk with hipped roofs formed of several halls constructed on the shoreline, which constitutes one of the first known examples of the typical Ottoman waterfront kiosks known as *yalı*. Within the Council House, Sultan Mehmed also donated a prayer hall with a minaret. The building was destroyed by the early 19th century; in the present-day its location corresponds to the southern edge of the Third Dry Dock. Originally, the point of the first council house marked the eastern edge of the bay of the Galata Arsenal.

Boundaries of the Future Imperial Naval Arsenal

The first decades of the Ottoman rule is significant as several future markers of the Arsenal zone were defined at this stage: The Gate of the Marines (*Azapkapı*) and Landing Stage of the Deceased (*Meyyit İskelesi*) on the east and the Royal Garden on the west. The first gate of Galata from *Tersâne* was named after the marines, *azeb*, since the accommodations of these recruits were facilitated within the neighborhoods adjacent to the shipyard in various bachelor houses. At the same time, a Muslim cemetery was established on the western extra-mural slopes of Galata; as most of the deceased (*meyyit*) was carried over from the main city, on its shore a landing stage was formed. Azapkapı Meyyit İskelesi would mark the eastern end of the Naval Arsenal until the construction of a bridge at the same point by early 19th century.

A large estate, two kilometers to the west of Azapkapı, was designated as a royal garden (*hasbahçe*). During the siege of Constantinople, the main camp of Sultan Mehmed was set on a hill overlooking the Golden Horn. After the conquest the slopes down from this hill were formed into a royal garden where many cypress trees were planted in a regular order. Near its commemorative function, this garden that would later define the western edge of the Arsenal was occupying a strategic location: it had a panoramic view of the Land Walls of Istanbul proper across the estuary against any assaults from this side.

View of the late 15th century: Slipways around the Sweet Waters

A revised version of the Buondelmonti map and the map of Vavassore, both dating from around 1480, depict in detail the Kadırga arsenal (former

*Kontoskalion) as an enclosed basin within the Late Antique fortifications accessed through an arched gateway with metal frame doors. Here, several galley sheds were clearly depicted on the quay. When it comes to the Arsenal of Galata, however, they show no major shipyard buildings but only beached galleys by the shores on a bay named as the Sweet Waters (*Aque Dulces*). This is the place noted to be "where most of the galleys stand"; if they did as depicted the galleys would be landed on basic wooden slipways without any architectural shelters. The small building on the point in some versions of the Vavassore map may be interpreted as a symbolic representation of the Council House. The view of the late 15th century is confined with these apart from the notation of the cemetery between Galata and the shipyard.*

Episode 3. Renaissance: Arsenal of Galleys (1513-1650)

The foundation of the Galata Arsenal as the major naval base of the Ottoman Empire was realized in 1510s by the order of Sultan Selim the Grim (r. 1512-1520). As Selim conquered the Levant and Egypt extending the Ottoman rule over all of the Eastern Mediterranean, the maritime base of this power would be formed at the capital city Istanbul. The construction of the imperial naval arsenal in Istanbul is concurrent with the final enlargement of the Venetian Arsenal, which had been transformed from the two centuries old state shipyard to a complete naval base for war galleys in this period. The Ottoman historians record that Sultan Selim's arsenal project was an ambitious one covering the whole northern shores of the Golden Horn for 300 hundred or even 500 hundred galleys. In the realized version by 1515 the number of the shipsheds at the Arsenal had reached a hundred. In the continuation of the century as the Ottoman Empire expanded to the western Mediterranean, the shipyard would be extended further, specifically after the great fire of 1539 and in 1570s, with new edifices and boundary structures: a novel council house acting as the Admiralty, magazines, a peripheral wall and gates, new neighborhoods formed around religious complexes. Until the late century the navy shipyard would cover the whole of the two kilometers long strand from Galata corner to the bay and the Royal Garden. Imperial Naval Arsenal would begin to produce larger vessels like the baştardas (great galleys with two sails) *and special cargo ships while smaller galleys would be constructed in the other shipyards in the provinces.*

Eyes of the Galleys: Shipsheds of the Golden Horn Arsenal

The key elements of the Ottoman Imperial Naval Arsenal from the 16th century to the late 18th century were shipsheds. Although very few traces of the original shipsheds remain in the present day, these structures have defined the historical link between different episodes of the Arsenal. Say it an anachronistic occurrence or a kind of renaissance of the antique military ingenuity, the Mediterranean witnessed in the 16th century the reemergence of the war galley and the naval arsenals with shipsheds, specifically, in accordance to the antagonism between the Ottomans and Venetians.

The Ottomans named the shipshed units as *göz* or *çeşm* both meaning eye in Turkish and Persian respectively. A number of shipsheds in row pattern would also be denoted as *tersâne* with the same word for the whole shipyard establishment. The archaeological and historical evidence for the Golden Horn Arsenal define shipsheds with thick masonry walls at the longitudinal sides pierced usually by regular arched openings. The dimensions were determined according to the scale of different galleys; the sheds were approximately 6.5, 8.5 or 11 m in width (8-11-15 *zira*s, Ottoman measure for length) and 42-50 m in length (55-65 *zira*s). There were additional storage spaces for the rigged equipment of the galleys in between bays as smaller sheds or behind as separate storerooms. The sheds were built on a smoothly inclined ground rising from the sea so as to facilitate the easy launching of the vessels; wooden slipways were constructed over this profile. The walls and the roofs followed the inclination of the ground line in the longitudinal section. The pitched roofs were covered with tiles; there were large gutters over the walls preferably made of lead. The front façades and sometimes the back façade were open with the exception of the pediment. In the Golden Horn Arsenal there were two different articulations for the shorter façades, may be denoting a difference in their construction times: ones with a wooden pediment and others with a masonry pedimented arch. The pedimented arch types were specifically seen on the western section of the Arsenal. There is no *in situ* evidence to suggest whether this kind of arched section was structurally repeated inside, as seen in some other early modern Mediterranean sheds known after vaults as *volti* in plural.

The number of the shipsheds in *Tersâne* varied between 110 and 150; these followed the natural shoreline. There were different ways

to adopt the shipshed groups at the curving sections of the strand: to change the orientations of sheds at a hinge point or to place the units as shifting groups. In some cases the sheds had parallelogram plans with slight angles to follow the narrow curves of the strand. As it is case for the Venetian Arsenal, some of the sheds were used as workshops reserved for carpenters, caulkers, cotton wasters, and metalworkers. The sameness of the shelters for galleys and workshops may be a reason for the incomprehensible total numbers in the sources. Compared to the ascertained functions of the different shipsheds in different basins of the Arsenal of Venice, the knowledge of the workshop locations are less known for Istanbul until the 18th century. The multi-functionality of the shipsheds as places of ship construction and bays for navy vessels is dependent on the conditions of the fleets in times of war and peace. The naval bases were structured to face the loss of a whole fleet in war and its immediate compensation. Then the whole arsenal with all of the shipsheds would turn into a construction yard. *Tersâne-i Âmire* faced such a condition after the Lepanto defeat in 1571 when in half a year a whole new fleet was constructed. In times of peace, however, the Arsenal was a place for the sheltering of the naval fleet and its maintenance. The multi-functionality of the shipsheds reflected this condition of the naval frontier between peacekeeping and war making.

The walls of the Arsenal

As depicted in the late 16th century visual sources, the space of the Imperial Naval Arsenal was almost a continuous strand formed of shipsheds. The depth of the eyes of the galleys defined the scale of the liminal space of the shipyard, which, as will be mentioned below, determined the spatial limits of other functions. At certain sections of the strand depth of the *Tersâne* was also forced by topographical edges such as ridges and hills. Nevertheless, there was a peripheral wall enclosing the back of the shipsheds. This demarcation was made of brick and wood but later reconstructed of rubble stone in the late 1540s by Sokollu Mehmed Pasha. At certain locations the fortification of the Arsenal was doubled by the walls of the adjacent enclosures related with the shipyard, such as the Imperial Prison area. There were several gates along the *Tersâne* walls from that of the Galata side to the Royal Garden. The landside of the Arsenal would be named in accordance with the neighboring functions and would be termed as “the back of”: *The back of the Storehouse* (*ambar arkası*) or *the back of the Dungeon* (*zindan arkası*). Consequently the seafront would be named according to fronting functions: *the front of the storehouse* (*ambarönü*), *the front of the mosque* (*camialtı*).

Neighborhoods: Religious Complexes along the Kasımpaşa Channel

The religious complexes with complementary service functions formed the core of Ottoman urbanism in the Early Modern period. In early 1530s a vizier of Sultan Suleiman the Lawgiver founded the first religious complex around the Arsenal that constituted the center of a new neighborhood after his name, Kasımpaşa. In the present day the site of the complex has been left inland due to the infill of the later ages. Originally it was right behind the Arsenal along the sweet waters, which would be labeled after this neighborhood (Kasımpaşa stream). The religious complex that is one of the earlier works of the celebrated architect Master Sinan was formed of a mosque with a wooden dome under a pitched roof, a law court, a madrasah, public baths and shops. A first glimpse of the original religious complex can be caught in the miniature of Matrakçı Nasuh (ca. 1536) at the back of the shipsheds of *Tersâne*. The religious edifice (also called *Cami-i Kebir*, the Great Mosque) standing today is a nineteenth century construction. Kasım Pasha further populated the new neighborhood with settlers from the Eastern provinces recently annexed to the Empire. This city sector would be one of the places inhabited by the Arsenal Populace.

The Kasımpaşa area at the back of the Arsenal would be communicated by the Golden Horn via the channel of the Kasımpaşa stream through the site of the shipyard. In the time of Piyale Pasha’s admiralty (1553-67) the channel was extended further north to connect the Arsenal with his newly constructed Friday mosque. The mosque of Piyale Pasha might have been built by the supervision of Master Architect Sinan but was outside of the canonic imperial architecture developed during his office. Six equal domes carried by two marble columns cover the prayer hall. The outer façades with the exception of the south wall are divided into two parties below the arches of the domes: the upper section consisted of a loggia; the lower section was formed of large arches with thick piers resembling the front façades of the shipsheds with arched pediments. Architectural historians have interpreted the

syncretic character of the mosque as an offspring of the shipyard building culture, which is shaped by the architectural encounters among its multi-ethnic population from the Empire and also the other places in the Mediterranean.

At the point where the Arsenal wall crossed the Kasımpaşa channel there was a bridge-gate building that provided the entrance to the western part of the shipyard, one of the three gates from the neighborhood. Over this bridge-gate was a prayer hall with a small minaret, entitled literally as the masjid over the gate, *Kapıüstü Mescidi*. This small edifice depicted in the visual sources of the mid 17th century was an architectural ensemble within the Kasımpaşa hub.

New Divanhâne: the Point of the Ottoman Admiralty

The construction of a new council house, *divanhâne*, at the western tip of the Kasımpaşa Bay is one of the achievements of Sultan Suleiman the Magnificent's long reign (r. 1520-1566). The new *divanhâne* would function for 400 years as the admiralty of the Ottoman Navy with successive buildings constructed at the same spot and forms the anchor of the Arsenal history. The council house was strategically located at a panoptical point witnessing the activities along the whole strand from the Kasımpaşa bay to the western extensions of the Arsenal; it inhabited the offices of some major shipyard personnel. Like the Old Council House this edifice was originally constructed along the shore on its two sides like a waterfront mansion. At the back it incorporated a mosque with a minaret, the prayer niche (*minber*) of which was a gift from Suleiman's legendary Admiral Barbarossa Hayreddin Pasha, who became the Great Admiral of the Arsenal for thirteen years between 1533 and 1546. The Admiralty acquired its own shipsheds, maybe housing the flagships; the three large sheds towards the west of the *divanhâne* are significantly marked in all the visual depictions until the early 19th century.

The Magazines: a Front of Naval Provisioning

The magazines (*mahzen* or *anbar*) formed the second major architectural element of the shipyard. These were rectangular buildings placed parallel to the waterfront along their longer sides with an enclosed open courtyard. They had a width similar to the length of the shipsheds. The outer walls were masonry, where wooden columns could have framed the courtyard arcades. Typologically the magazines of the Arsenal resembled the Ottoman commercial buildings with enclosed courtyards generically known as *khans*. There was a magazine for wood, the major construction material of galleys (*mahzen-i çub*) and a magazine for the metal fixtures of ships and other valuable minerals (*mahzen-i surb* also known as the Leaded Magazine; housing steel, nails, copper and lead plates, ropes, sails, anchors and cannons). The Leaded Magazine is included in the list of buildings of Master Sinan and might be constructed around 1573 with the *spolia* from the destructed inner fortifications of Galata. These two major warehouses were located side by side to the west of the Admiralty at a close distance to the administrative functions for practical purposes. In successive reconstructions they served at the same site as the imperial storehouses until the early 20th century; their waterfront was known as *Mahzenlerönü*, literally the front of the magazines.

There were two other storehouses situated at the innermost section of the Kasımpaşa bay immediately to the east of the canal probably constructed at an earlier date of the 16th century. The first was the gunpowder house (*baruthâne*), a tower building within a walled enclosure. The other was the Oar House (*küreklik*) for the rigged equipment of the galleys, which was a magazine with an enclosed courtyard similar to the other imperial storehouses. The provisions for these magazines were imported from all over the littoral zones of the Ottoman Empire, in specific cases like steel and tin, even from other western states. In this sense these magazines reflected the front of the empire concerning the provisioning of raw materials for naval shipbuilding.

Bagno or the Imperial Prison: the powerhouse of the galleys

The human power necessitated for the oared ships was mainly sufficed by the war captives and the Ottoman subjects who had been given penalties by the court. In times when they were not on board these people would also be used as work force within *Tersâne* or even in other construction sites within the capital city. The galley slaves were kept at the Imperial Prison at a back location to the west of the imperial magazines. This place was also called infamously as *bagno* literally meaning baths. The analogy of the bathhouse to the dungeon probably points to the congestion of this means of accommodation.

The *Bagno* was itself an enclosed compound attached to the Arsenal wall. It had an entrance courtyard with a monumental gate from the Arsenal side. The main prison was a walled building with a significantly large hipped roof, under which were three major sectors with separate gates to the courtyard for different types of captives. The first part was reserved for the prisoners skilled in ship building trades; known as the *Magistranza* it had separate cells for each captive. The second part, the *bagno* proper, was formed of a shared dormitory for the ordinary slaves constituting of multistoried bed alcoves, like pigeonholes. The third part was a hospital known as *All Santo Paolo* for the impaired in health. The prison had several facilities such as a bathhouse, taverns and shops. Near a church for the Christians, there was also a masjid for the Muslims donated by Sultan Bayezid the Second (r. 1481- 1512).

The Arsenal Palace and the Admiral's Mansion on the Hill

In the 16th century, a kiosk was built on the waterfront of the Royal Garden that was occasionally used for leisure fishing. However, it was during the reign of Sultan Ahmed I (r. 1603-1617) that this estate was assigned as a proper palace area, which meant the necessity of its adoration with buildings and facilities for the occasional habitation of the imperial court. This palace would be named as the Arsenal Palace, *Tersâne Sarayı*. During Sultan Ahmed's reign another important location was related to the Arsenal area that is the western hill overlooking to the Kasımpaşa bay. Here at the peak of the steep hill dominating the magazines of the shipyard a mansion for the great admirals was built. The steep slopes to the mansion were also enclosed with a wall from the Kasımpaşa to the Imperial Prison. The mansion on the hill and the Admiralty at its feet defined the two seats of captain pashas' power.

View of 1650s: Maps in 17th century versions of *Kitab-ı Bahriye*

Two mid 17th century copies of the Piri Reis map, the famous portalan atlas of the 16th century, display the most detailed accounts of the Imperial Naval Arsenal as a galley shipyard. Maybe in relation to the context of the navigation atlas, these maps depict the Arsenal in detail with the notation of the locations. From the east to the west the buildings of Tersâne-i Âmire were*: Meyyit İskelesi, shipsheds, the Old Council House, shipsheds, the Oar House, the Gunpowder Tower, the Kasımpaşa landing stage, Kasımpaşa channel with the Masjid over the Gate, shipsheds, Admiralty (new council house), three shipsheds, the admiral's mansion (on the hill), Magazine of Lead, Magazine of Wood, shipsheds, Bagno or the Imperial Prison, shipsheds, a group of eight shipsheds and the Arsenal Palace. What is not clearly mapped on these views is the working of the Arsenal over the Kasımpaşa Bay and the Golden Horn. Unlike the linear production and equipment system within the three basins of the Venetian Arsenal where one can imagine the stages of construction and the procedure of setting out to the sea, in Ottoman imperial naval arsenal a systematic scheme cannot be easily comprehended from the spatial distribution of the shipyard functions. In other words,* Tersâne-i Âmire *constitutes a non-linear production system along a linear space where the Golden Horn acted as a single basin. Even the Kasımpaşa bay can be considered as a basin by itself that does not present a functional whole different from the other sections. What is evident is the centrality of the Admiralty at an equal distance to the whole functions from the magazines to the shipyards.*

Episode 4. Intermezzo: from Galleys to Galleons (1650-1770)

*It was during the Fifth Ottoman-Venetian War (1645-69) and the campaign for the Island of Crete that Ottomans started to use man-of-wars, multi-deck sailed ships known as galleon (*kalyon *in Ottoman) among the main fleet formed of galleys. As in the case of Venetians, the transition to the galleon technology was piecemeal and slow. The sources from the end of the 17th century mention that some of the shipsheds in the Arsenal were in decay and empty. It was after the Sixth Ottoman-Venetian War (1684-99) when the Ottomans lost territory of Moraea and parts of Dalmatia, along with their dominance in the Eastern Mediterranean so that the necessity for a revision of the navy became evident. During the reign of Ahmed III (r.1703-1730) the* Tersâne *became a focus area of the state; however the changes in the Arsenal of the transition period is difficult to comprehend as mostly they took place within the existing structures. In the last of the Ottoman-Venetian wars (1714-18), the Ottomans managed to retake some of their former possessions. Although since by the mid 18th century considerable part of the Ottoman fleet consisted of galleons, the infrastructure and organization of the Arsenal was far from being sufficient for such vessels. In some respect galleons came to Istanbul before a proper galleon shipyard.*

Under the Mosque: the galleon yard of the Arsenal

Çorlulu Ali Pasha, the grand vizier of Sultan Ahmed from 1706-1710, had undertaken the partial restructuring of the *Tersâne-i Âmire*. On the waterfront of the Imperial Prison the grand vizier had a new mosque constructed as part of his pious endowment and laid the foundations for the shipyard area known later as *Camialtı*, literally "under the mosque". The mosque was a modest building with a pitched roof constituting of a prayer hall and a special section for the Sultan (*mahfil*). As most of the mosques in the harbor area were elevated letting the lower level for other purposes, here the ground floor was utilized as offices for the chief captains. It is possible that several shipsheds were demolished to open way for the mosque. In a similar manner, an open yard with slipways for the construction of galleons could have been established in place of several sheds towards the imperial warehouses.

Rope and Sailcloth Factories

The shift to the galleon technology is reflected to the establishment of a sailcloth (*kirpas*) factory around 1709, which was restored in the mid 18th century. The production of ropes was also important part of the sailed ship technology. The producers of ropes used some empty sheds around a place called *Darağacı*. Darağacı is a term for wooden tripod pulley machines and there were several of them in the shipyard. If the site of the factories of rope and sailcloth makers were permanent, these could be found at the backyard of the shipsheds from Camialtı towards the Arsenal Palace. In the late 18th century maps a significantly long building noted as *corderie* (rope house) is depicted at the back of the shipsheds from the Camialtı towards the west. This edifice recalls the *Corderie* of the Venetian Arsenal, a long hall for the production of ropes. The Rope and Sailcloth factories formed the core of the future industrial facilities within the İstanbul Arsenal.

Lengerhâne and *Tophâne*: Supply Industries outside the Arsenal

Another important structure of the first decades of the 18th century is the Anchor House or *Lengerhâne*, which is built as a supply industries facility outside the Arsenal, by the Hasköy neighborhood in the west. Although the name connotes "anchor", the function of this factory was to produce metal fixtures for the galleons. Founded on Byzantine remains, the Anchor House was constructed of brick and stone while its upper structure was formed of arches and domes. The establishment of the Anchor House outside the Arsenal area may point for a precaution against the threats of this industry for fires. The number and range of the cannons were important in galleon warfare. In fact, at this period near the Anchor House, the historic Cannon House (*Tophâne*) at the Bosphorus corner of Galata was reconstructed at a large scale. Both of these buildings display the architecture of industry in classical Ottoman lexicon; the multi-domed factories resemble enclosed market halls, *bedesten*.

Shipsheds as Granaries

Among significant interventions of the Sultan Ahmed III's reign is the assignment of several shipsheds for the storage of the grain reserves of the city. The Imperial Arsenal administration was responsible for the logistics of the grain provisioning of capital city Istanbul. With the emerging threats in the Black Sea and the Mediterranean as well as to control the taxation of this item, which constituted considerable revenues for the Treasury, a number of shipsheds were converted into state granaries. These were located at the Old Arsenal most probably on the two sides of the Old Council House. Their numbers were increased towards the middle of the 18th century. The site location of the arsenal granaries is related with their proximity to the official weighing and distribution center of grain in Unkapanı right across the Kasımpaşa bay; in times of shortage or when the storehouses were to be emptied for new provisions, the grain would be transferred from here to the wholesale market. In fact, the shipsheds and storehouses shared a similar typology; thus, the basic transition from the shipshed to a granary was realized by the enclosing of the front and back façades. The grain bins within these structures were constructed of wood above many piles inserted to the ground. In the latter period there are examples when the granaries were formed by the construction of additional masonry divisions within the sheds; the only surviving example of the granary converted from a shipshed, also known as Tuzanbarı, is of that type known as the stone storehouse.

View of 1720: Arsenal as a place of Parade and Spectacle

The Arsenal Palace, then also called as Aynalıkavak, constituted one of the major imperial sites of the

*second half of Ahmed III's reign entitled as the Tulip Period for the ambitions of the state elite to build lavish gardens with pavilions. The palace became the scene of an important public event in 1720 lasting 23 days: the circumcision ceremony of the crown princes. The festivities were realized at the Okmeydanı hill above the Palace and the Golden Horn. The spectacles over the sea, like a mechanic giant fish, were constructed at the Arsenal. The famous court painter Levni immortalized this occasion with his miniatures; maybe the most significant is the one depicting the Waterfront Pavilion, the landing stage and the shipsheds of the Arsenal as well as the foreign envoys, maybe also the Venetian ambassador, watching the event from their boats among the Istanbulites. The name of the palace, Aynalıkavak, can be a reference to the large mirrors presented by the Venetians adorning its pavilions or an attribute to the polished arrow poles of the field over the hill (*Okmeydanı*). This field was related with the Golden Horn by a landing stage called Şahkulu, near the gate of the Arsenal at this point.*

Episode 5. The New Order: Arsenal of Man-of-wars (1770-1850)

*The battle of Çeşme 1770 when a small Russian fleet annihilated major part of the Ottoman navy is a defining moment for the empire as well as its naval base in Istanbul. Immediately after, Admiral Algerian Hasan Pasha (r. 1770-1789) initiated the first reforms in the institutional structure and spatial organization of the imperial shipyard by appointing western experts. The modernization of the ship construction technology for great man-of-wars went parallel with the foundation of new functions within the Arsenal like the engineering school and barracks for marines. The Arsenal became one of the fronts of the state's restructuring in the model of western military institutions entitled during the reign of Sultan Selim III (r. 1789-1807) as the New Order (*Nizam-ı Cedid*). Selim's admiral Little Huseyin Pasha (r. 1792-1803) implemented further the modernization of the imperial shipyard by transforming the area of the Old Arsenal as well as appropriating the waterfront section of the Aynalıkavak Palace. The 1827 Navarino Defeat was a blow to the Ottoman navy followed by a new stage of transformation with the construction of purpose-built factories. In the 1830s, after a major fire the area around the Admiralty was rebuilt to form the image of the shipyard until the Crimean War. When Ottomans' long-term antagonist Venice has lost its independence in 1797, other western states emerged as partners and rivals. The Ottoman Arsenal caught up the technology of galleons late but in the early 19th century succeeded in launching the greatest of the man-of-wars. However, this view from the Arsenal should rather be seen as a major attempt for survival in a time when the empire was troubled in multiple fronts from territorial disputes with great powers to internal conflicts and wars.*

Engineering School within Old Shipsheds

In 1775 the Arsenal became the site of the first Ottoman school applying western scientific methodology: the House of the Geometry or *Hendesehâne*. The first location of this school was at the western edge of the shipyard within the eight attached shipsheds near the Aynalıkavak Palace. One has to imagine how Baron de Tott, Campbell Mustafa Ağa and Kermovan had given their classes in these bays, which were formed of masonary walls pierced with arched openings. Although the school was moved to a central place near the Imperial Prison by 1784 with its new title *Mühendishâne* (Engineering House), the *ecole* is noted at its first location in the maps until the mid 19th century. Later converted to other shipyard functions the traces of these bays are still standing in the Golden Horn Arsenal.

The Barracks of the Marines infilling the Kasımpaşa Bay

Responding to the necessity of expert galleon personnel, permanent corps of mariners was established as well as a specific place for their accommodation within the Arsenal. In 1784 the Barracks of the Galleon-men (*Kalyoncular Kışlası*) was constructed by Admiral Hasan Pasha on a large area at the end of the Kasımpaşa bay, which was partially acquired by the replacement of the former magazines and partially gained by infilling the sea. The building is still standing at a farther distance to the sea than the initial location that was siding embankments. The barracks are formed of a three story massive building with a central courtyard encircling the Mosque donated by Hasan Pasha. In the waterfront façade the edifice has a central entrance marked with a projecting room supported by two columns. As such, *Kalyoncular Kışlası* is among the precedents of monumental military barracks of the New Order. In the early 19th century a second barrack for marines were constructed near the Galata entrance of the *Tersâne* replacing the

existing shipsheds. This barrack was later demolished before the construction of the third dry dock.

Maçuna: the Giant Crane at the Camialtı Shipyard

After 1770, the Camialtı area continued to be an important construction yard for the galleons with several slipways to the east of the Mosque. Here the novel element was a huge crane entitled *maçuna* (a term converted from *machine* in French) first constructed in the time of Admiral Hasan Pasha and restored several times. A stone foundation on the waterfront was constructed for this device that constituted of a long truss narrowing at the top and giant wheels at its back operating for the loading of masts and other heavy equipment of the galleons. An engraving in Mehmed Raif Efendi's book perfectly illustrates the stages of galleon construction in the Camialtı shipyard: the vessels were constructed on slipways up to their upper boards, then they were launched into the sea, and finally at the Maçuna they were rigged out. Maçuna is the first of the industrial wonders of the Golden Horn Arsenal that has been depicted on the forefront of the shipyard until the mid 19th century; on the legacy of the first one, other mechanic cranes would replace it.

Dry Docks: an imported shipyard technology

The heaviness of the great man-of-wars made their beaching and launching difficult. Their lower hulls were covered by copper plates, which could be damaged by the weight of the ship during the launching from the slipways. At the earlier stage this problem was solved by the construction of upper decks of the galleons on the water, but the problem pertained for the ships needing repairs. The dry dock was a novelty introduced to the Golden Horn Arsenal offering a technical solution for the docking and launching of great ships. A dry dock is a constructed bay closed by a gate facilitating shipyard activities completely out of water. Originally these kinds of docks were constructed at seas with strong tides like the Atlantic whereas in seas like the Mediterranean that lacked tides the construction was a technical challenge. The Arsenal of Istanbul became the first shipyard in the Eastern Mediterranean to install this engineered dock technology, which was constructed by the expertise of the Swedish engineer Rhodé around 1797-1800. The site selected was within the Old Arsenal near the point of the Old Council House; several granaries on the spot were demolished during the construction. The total length was 85 m and the width on the ground level was 24 m. The retaining walls of the dock, of stone from quarries of Bosphorus (black unhewn and rough-hewn blocks) and *boçʟana* cement (*pozzoʟana*, a type of ash used in underwater constructions since Antiquity), are constructed in a cascading section suitable to serve ships in different sizes. There was a metal gate to hold the seawater when the dock was dry. The end of the dock was curved replicating the prows of ships; here higher retaining walls against the rising topography completed the form of the dock on the elevation. There were octagonal kiosks placed at the sides of the metal dock gates and two other on the back. These rooms as well as spaces underneath the retaining wall could have inhabited the mechanism for the drainage of water to dry up the dock. Although the Ottoman administration aimed to import steam engines for pumping out the water, that was not realized and until 1850s the pumping mechanism was worked by animal power. At the same time, one of the granaries to the north side of the first dry dock was transformed into a ship-modeling house *Endâzehâne*, when the height of its walls was raised and arched windows were opened. This former shipshed granary is still standing with its later alterations. The second dry dock was built on the east side of the first one in 1821-1825; it was 75 meters in length and its maximum width was 17,5- 29 m. The construction of this dock by Ottoman engineer Abdülhalim Efendi and Master Manol, manifests the transfer of the know-how from foreign experts to the locals.

From Aynalıkavak to Taşkızak

Following the completion of the first dry dock, Admiral Küçük Hüseyin Pasha started the extension project of the Imperial Naval Arsenal on the premises of the Aynalıkavak Palace. Late 18th century engravings show the palace adorned with waterfront buildings and kiosks that was indeed recently restored. The decision of the Ottoman Court to give away partially one of its favorite resorts demonstrates the importance attached to the modernization of *Tersâne-i Âmire*. On the former bay within the palace waterfront several slipways were established; some being large stone slipways rising from the water to a higher elevation at the back designated

the new section of the galleon shipyard: *Taşkızak*. While these slipways were partially working as caulking yards, the area at the back of Taşkızak was reserved for the supply industries of the Arsenal with foundries of copper (*haddehâne*) and sailcloth facilities around an open place named as the Equipment Square (*Âlât Meydanı*). By the late 1830s a factory inhabiting a mechanic saw was founded along the waterfront that was referred as the British establishment. Since in the next episode of the Arsenal this area was congested with new industries for the equipment of steam ships and cruisers it is hard to document this earlier stage of industrialization. While the new industrial sheds were constructed in Taşkızak, the existing ancient galley shipsheds were transformed into new functions such as workshops and storerooms; this process can be witnessed throughout the 19th century. The only part of the Aynalıkavak Palace left from this process is a marvelous late 18th century pavilion within an enclosed garden at the back of the Arsenal. This pavilion was related later with the *Tersâne* through its own monumental gate adorned by a skylight with an onion dome.

New Military School on the hilltop and the New Admiralty

The mansion of the Admirals on the hill overlooking the Kasımpaşa bay was reconstructed at the time of Admiral Hasan Pasha in a palatial scale over an impressive terrace wall. The two slopes from Kasımpaşa and the Imperial Prison terminated at two monumental gates with arches forming the entrance to this seat of power that resembled a military barrack. Meanwhile, the Admiralty at the point of the bay was a great waterfront building in the lexicon of the 18th century great wooden seashore palaces of the Bosphorus. The two buildings were rebuilt after a great fire by 1820s during the reign of Sultan Mahmud II (r. 1808-1839), who is one of the major figures of Ottoman reformations. On the place of the Admiral's hill a new military school (*Bahriye Mektebi*) was established. This immense masonry building had a high tower on the axis of symmetry that also constituted the entrance. The tower had a pinnacle and a very high flagpole; there was a clock on its waterfront façade. As the military school would be transferred to one of the Prince Islands, Heybeli, the new edifice would be turned into a military hospital before the Crimean War and still performs the same function in the present day.

The Admiralty was reconstructed as a single building mass two stories high having a U shaped plan with a mosque on its open backside. On the waterfront the edifice was built right at the edge of the water. Of the three identical pediments with six columns, each was placed at the central axis of the façade. This classical architectural style reflected a similar visual understanding with the new palace of the sultan on the Bosphorus. Indeed, western travellers likened the Admirality to St Petersburg waterfront buildings. This new image is in striking contrast with the adjacent old rows of shipsheds towards the Kasımpaşa side; these were used as stores for royal barges. In 1836 the first bridge on the Golden Horn from Azapkapı to Unkapanı was built over wooden pontoons, which were constructed at the *Tersâne*. Redefining the eastern edge of the Arsenal, the new bridge also divided the Golden Horn separating the naval shipyard section from the rest of the harbor.

View from 1770's to 1850: monumentalization of the Imperial Naval Arsenal

The panorama of the Arsenal from the Aynalıkavak Palace to Galata drawn by Clara Meyer in 1780s may form a great contrast with the panoramic photographs taken in early 1850s. Meyer depicted a waterfront still consisting of shipsheds with the exception of the open yard near the great crane, maçuna. *Seventy years later the view of the Arsenal represented in an imperial manner its reformation to a man-of-war shipyard. The novel buildings like the admiralty, barracks, military school and naval infrastructures such as the dry docks represent a new order in the model of the west. Nevertheless some of the transformed buildings like the imperial magazines and a number shipsheds are also altered with a new façade treatment with pedimented gateways, pillars and inscriptions. This was not solely an industrial facility but the naval base of the empire, which has been an experimentation ground for its troubled reforms. Unlike the galleys the great galleons would be kept on the sea at their stay; the man-of-wars of the Ottoman fleet -like the Mahmudiye that is one of the greatest of its kind- as imperial spectacles themselves were anchored at station points parallel to the Arsenal.*

Episode 6. Industrialization: Arsenal of Steam Ships and Cruisers (1850-1925)

The Crimean War (1853-1856) with the alliance of British, French and Ottomans against Russians, when Istanbul became the center of command, was a challenge for the capacity of the Imperial Arsenal, specifically for the facilities of maintenance. Subsequently, the dry dock capacity of the Arsenal was extended. After the Crimean War great powers like Britain and France began to move away from the wooden man-of-war technology and started to reshape their navies by adopting the steam power and metal hulk vessels, namely cruisers. The steam ship had arrived to Istanbul in 1827 and in 1845 the first steam trading ship was constructed. Steam power was utilized in the new factories within the Imperial Naval Shipyard around Taşkızak area but the construction of metal ships was limited. The Ottomans could not adapt to the speed of change in modern naval ship technology and the cruisers of the navy were majorly imported. The Arsenal functioned for the maintenance of these types of ships and the production of their components. In the 1870s the shipyard faced a financial crisis. In the late 19th century the navy was sustained with the modernization of existing vessels; there were some achievements like the construction of submarines. By the early 20th century as the construction of two pontoon bridges on the Golden Horn created difficulties for the access to the Arsenal, there was a project to transfer the imperial shipyard to İzmit, a port on the Marmara Sea. This was realized in 1925 after World War I that brought an end to the Ottoman Empire and resulted by the foundation of the Republic of Turkey.

Dry Docks extended and separated

After the Crimean War the area of the dry docks was extended to cover the whole section towards Galata. The third dry dock was constructed to the east of the existing ones at a long time interval between 1857 and 1870; it is 20 meters in width, 112 meters in length and the depth is 11 m at the gate point. Four years later the first dry dock was elongated 80 meters reaching a length of 150 m; it was renamed as the third dry dock where chronologically the third was numbered as the first. A new road from the Galata side was opened towards the embankments in front of the Barracks of the Marines to Kasımpaşa, thus the yard of the dry docks was redefined within its own limits and separated from the rest. There was a gate at the back of the first dock opening towards Galata and another gate by the new street on the Kasımpaşa side facing the granaries. The high retaining walls of the shipyard with the curving ends of the dry docks adorned by large inscription panels presented an impressive façade. In front of the retaining walls were industrial facilities with arched façades and high chimneys. Between the second and third docks was a monumental dormitory two stories high parallel to the waterfront on its longer side. This section of the shipyard is still functioning and has partially preserved its 19th century architecture.

The Last Admiralty

In 1860s, the Admiralty was reconstructed at a palatial scale in the middle of a waterfront garden extended over the point of the Arsenal. Sarkis Balyan of the well-known Armenian family of imperial architects designed the project. The edifice, still standing in the present day, has a rectangular plan with an atrium and it has identical four symmetrical elevations having projections at the corners and the axis of symmetry. A prayer room took the place of the former Admiralty Mosque within the new building. The façade is formed of framed windows and bays with triangular gables and the central bays are marked with balconies with horseshoe arches; the edifice is considered an important example of the so- called orientalist style in Late Ottoman Architecture. The reminiscences of the shipsheds on the two sides of the former Admiralty were removed and the new seat of power became a freestanding monument in the eastern corner of the second major sector of the Arsenal.

From Admiralty to Camialtı

The two imperial magazines of provisions preserved their former location throughout the transformations of the 19th century; it is not certain if they shared the same walls with the former. Between Admiralty and Camialtı, below the Military Hospital these buildings presented a linear blank façade approximately a hundred meters each. Their entrances were adorned with arched gates framed by columns and friezes. In mid 19th century these blank façades were treated with false frames and pilasters, which was removed in later years. An administrative building with a pedimented entrance that formed a focal point of the horizontal

building mass filled in the lot between the two magazines. In the late 19th century the front of the magazines were extended by infill and stone embankments with regular rows of trees and light poles. This embankment opened on the west to a square facing the Camialtı shipyard that was used for naval ceremonies. The pictures of the Arsenal Populace of the Late Ottoman period were taken at this point: divers, military personnel, musicians or even the wagons of the Hicaz railway were posed in an orderly manner at the front of the Mosque (reconstructed in similar lines after the fire of 1820s), crane and the new buildings that took the place of Bagno. After 1850s slavery was abolished in the Ottoman Empire and B*agno* was replaced with a smaller military prison. Its larger plot was utilized by workshops.

From Camialtı to Taşkızak: Old and New Sheds

The former galley sheds from Camialtı and Taşkızak had been transformed in different ways throughout the 19th century. The first section is the two groups of storehouses built before 1840s, where the masonry walls of the sheds had been structurally utilized. Although these units had been combined to give the image of a single building under an attic floor with a hipped roof, the former shipshed walls can be followed in their façades and define the divisions on the lower levels. There were pedimented entrances to each bay of the storehouse. It is also possible that the street between the storehouses on the back was opened through the shed walls. To the west of these renovated magazines, thirteen shipsheds with arched pediments were still kept in their original shape; some of them even had open façades. The eight sheds that housed for a short period the engineer school displayed a very complex pattern of conversion; these were remade into armature and steel storehouses.

In the Taşkızak shipyard occupied by several slipways the main spectacle of the late 19th century was the dock covered with a huge wooden gable roof known as the Valide Kızağı, the slipway of the Sultan mother. This was the only example of a covered dock within the shipyard. There were skylight windows on the roof illuminating the vast enclosure. Unfortunately, the shed was demolished due to structural deficiencies in the first years of the 20th century. At the back of this edifice was the main industrial establishment of the Imperial Arsenal. The arteries and gauge ways from the docks towards the Gate of the Aynalıkavak gate were cut by several streets and buildings placed parallel to the waterfront. The architecture of the new industrial facilities shared a similar genealogy with the ancient shipsheds on a grand scale. Most of them were formed of elongated halls of one or more stories having stonewalls pierced by arches or rectangular openings. Sometimes placed in rows they had pitched roofs with pediments or large hipped roofs with skylights in the middle. Within these sheds were boiler shops, fitting workshops, foundry, hammer department and steel furnace. A coal store and an electric fabric served the establishment. There were also dormitories for artisans and mechanicians as well as the grain mill and bakery of the navy. The long chimneys with smoke coming out completed this industrial scape, the major among such facilities in Istanbul.

View of late 19th and early 20th centuries: Sultan Abdülhamid Albums

Sultan Abdülhamid II (r. 1876-1909) has not been particularly praised for investments in the Imperial Arsenal during his long reign as much as his 19th century predecessors. However, as part of this sultan's interest in photography that led to a big collection of pictures documenting the cities and institutions of the Empire, the Imperial Naval Arsenal of the late 19th and early 20th century can be viewed in detail from panoramic prospects to the exterior and interior pictures of individual buildings. In reference to these visual documents the last episode of the Golden Horn Arsenal can be clearly displayed. As in the next episode of the Republican period the Arsenal has been altered in parts these views form the strongest link between the reminiscences of the former epochs from the shipsheds dating to 16th century, to dry docks of the early 1800s and the industrial facilities of Ottoman modernization, which have survived to the present time.

Episode 7. Waning of the Golden Horn Arsenal (1925-present day)

The international treaties signed during the foundation of Republic of Turkey defined Bosphorus as a zone outside of national sovereignty until the Montreux Convention declared in 1936. During these years the former naval base of the country was trapped in the Golden Horn, the access of which was through the international waters. In these circumstances some

part of the naval arsenal including its equipment was moved to Gölcük on the İzmit bay. Even after when Turkey's territorial rights on Bosphorus were restored, the Golden Horn Arsenal would not recover totally as a naval dockland but would be utilized partially as state enterprise shipyards. Since 1980s as the industrial harbor functions on the Golden Horn were removed, these dockyards continued to function at a decreasing rate. In 1995, the Golden Horn Arsenal has been declared a conservation site and 31 buildings were registered as historical properties. The shipyard functions were majorly sustained between 2000 and 2013 with the exception of eastern docks that is still functioning at the present-day.

Fragmentation: Haliç, Camialtı and Taşkızak shipyards

The insurance maps of 1926 depict the Arsenal in two parts: a smaller sector on the east composed of dry docks from Galata to Kasımpaşa and a larger sector on the west from the Admiralty to Taşkızak. The master plan of Istanbul made by French urbanist Henry Prost from late 1930s to 1950, envisaged the interior part of the Golden Horn from the Unkapanı Bridge to the west as an industrial area. The conditions for an industrial port emerged after 1950s and consequently the western sector of the Arsenal was fragmented into three parts: the North Seaboard Command Headquarters, Camialtı and Taşkızak shipyards. The area from the former Imperial Storehouses to Admiralty was reserved for the naval headquarters where offices and social facilities were constructed. Meanwhile the eastern dry docks sector was renamed as the Haliç Shipyard. Here, additional slipways were constructed towards the bridge; new ateliers and workshops were formed within basic sheds parallel to the shoreline.

Old and New Camialtı: Junkyard and the latest Shipyard

After 1950s Taşkızak area still functioned as a military shipyard in continuation with earlier structures and former slipways. On the larger flat area in between the historic factories, new workshops were constructed and the shoreline has been slightly extended. In this period, the old Camialtı area including the waterfront square towards the east was turned into a junkyard; there are photographs showing the piled old cars around the Mosque and its fountain as well as wooden boats covering the shore in rush to collect this debris. Meanwhile a genuine dockyard was formed to the west of the original Camialtı area on a site gained by the demolition of the last relics of galley shipsheds. The main element of the New Camialtı shipyard is a metal slipway 140 meters long, high enough at its back end to house workshops. From Old Camialtı to Taşkızak the shoreline has been extended towards the Golden Horn forming large embankments with several huge mechanic cranes. A pair of huge sheds was constructed to the east of the new slipways, the larger (40 X 100 m) perpendicular to the sea and the smaller (30 X 80 m) in the other direction. These sheds with metal structure and roof cover have huge glass façades, which are contrastingly thin compared to size of the volume they shroud.

View of 1970s: images of an industrial landscape

The last phase of the working harbor in the Golden Horn with the increasing scale of trade and industry juxtaposed over the historical layers of Istanbul is documented in utmost detail in photographs and movies. As the naval arsenal was partially removed and replaced by ordinary industrial shipyard facilities, the former official views of military ceremonial, might and order gave way to quotidian pictures of a modern construction site. This was one of the places where the cultural metropolis of Turkey confronted the world of heavy industry. The shipyard activities extended towards the Golden Horn with floating slipways, large cranes and pontoons; even the water surface itself was utilized as a work place. In the contemporary waterfront cities, this kind of scenes has retreated from the center to peripheries or other geographies; concerning the processes of a post-industrial harbor, Istanbul has been no exception.

Postscript: Arsenals of Istanbul and Venice transformed

The historic arsenals of Istanbul and Venice had shared a similar architectural culture in the Early Modern period; they constituted monumental examples for the last revival of galley shipyards in the Mediterranean and the succeeding transition to the galleons. The paths of the two arsenals diverged after the late 18th century. The difference is not solely related with Venice's loss of sovereignty but mainly in the modes and scale of transformation. In the Golden Horn

Arsenal the galleon and cruiser shipyards were superimposed over the Early Modern installations forming a very complex pattern of interpenetration. With the latest layer of industrial shipyard the historical unity of the *Tersâne* was severally damaged. Where in Venice, these historic stages of the naval shipyard were developed in adjoining new basins from 1870s to early 20th century. As such, the *Darsena Grande* was piecemeally transformed and preserved partially its Early Modern legacy. In addition, the scale of the older basins in Venice, originally defined for galleys brought limits to its modernization. However as the Golden Horn Arsenal was a strand type shipyard open to a deep and large estuary, there was no infrastructural limitation for transformation. Needless to say, continuities and ruptures in a historical site, even if that is an industrial facility, cannot be solely expressed in functional terms. The nostalgia for a lost grandeur might have been a motive for keeping an Early Modern shipyard as a monument in Venice. Where the imperial ambitions to catch up with the emerging naval powers or, at another stage, the wishful distanciation with that imperial past might have lead to the superimposition of new structures over the precedents at the Golden Horn Arsenal. Nevertheless, it should be stated that in both cases the navy culture is an important agent of conservation. As manifested in the episodes above, navies sparingly recycle materials, places and vessels. They also collect and store past relics of ships and shipyards. Various *spolia* are displayed in the Naval Museums of Istanbul and Venice from the animal prow figures and placards to the foundation stones and inscription panels of destructed buildings.

The historical antagonism of these two arsenals may not be over yet. The centennial art biennial of Venice has taken hold of the *Arsenale* as one of its venues in the last decades of the 20th century, which constitutes a site-specific undertaking widely appraised as a post-industrial transformation project. On the reverse in Istanbul whenever the revitalization of any waterfront industrial facility, including the Golden Horn Arsenal, is mentioned, the Arsenal of Venice strikes upon as an idea of transformation. Ironically, the Venetian Arsenal continues to be an object of emulation for Istanbul's waterfront.

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Comparing And Restoring: The Ottoman-Venetian Maritime Traditions And The Collective Memory Of Mediterranean People

A dogged teleological approach is still the main obstacle encountered in the historiography of many Mediterranean nations in their controversial journey towards the construction of shared collective memories and, more generally, to further evolutions of their peoples' cultural consciousness. In this context the propensity for a "teleological approach" means casting a retroactive and preconceived shadow on episodes and phases of a state's existence, on the projects and behaviors of its ruling classes, and on the social attitudes of its peoples, even if they are not necessarily or directly connected with that state's ultimate collapse or survival into modern times[1]. For instance, the dissolution of the Ottoman Empire in 1922 should not imply that any aspect of its centuries-long history was destined to fail[2]. I believe that the persistent though unjustified narrative fortune of the Battle of Lepanto is linked to the widely accepted – though historically incongruous – prejudice of the sixteenth-century "beginning of the end" of Ottoman maritime power[3]. Similarly, the fall of the Republic of Venice in 1797 should not lead us to believe that its eighteenth-century maritime enhancement was a lost cause from the outset. Nevertheless, mainstream historical reconstructions tend to underestimate the actions of figures such as Francesco Morosini and Angelo Emo, and rather focus on the benefits deriving from the Napoleonic conquest, which "finally" put an end to the "living anachronism" of the Venetian oligarchic model[4].

Due to the detrimental and often ideological interpretations resulting from a teleological approach, even transitional circumstances are interpreted as signals of the "crisis" to come, and any initiatives taken by social and/or political *élites* are viewed as hopeless attempts to interfere with a destiny which has already been written. Although Fate has long been banished from Clio's entourage, fatalist de-contextualization is still a fruitful

source of false beliefs. Historical events continue to be described as "naturally destined" to either success or failure, as if this verdict had a priority over the need for actual (i.e. contextual) understanding. The history of the Ottoman Empire and that of the Republic of Venice are particularly exposed to the prejudicial effects of a teleological approach, since the tradition and memory of both states, wiped out by "the magnificent, progressive destiny of humankind"[5], have either been misused or unclaimed[6].

Both in Italy and in Turkey, nation-building processes have been supported by cultural agendas which sentenced the Ottoman and Venetian past to oblivion or manipulation, in particular as far as the maritime traditions and the widely interpreted vocation to international trade were concerned. Having become nations for different reasons and in different circumstances, Italy and Turkey nevertheless shared the imperative to forget aspects of their most recent past, including the intensely close proximity of their respective traditions and their belonging to a shared cultural system consisting of mutually understandable symbols, metaphors and languages. That cultural system itself had to be torn apart: Italy and Turkey were meant to consolidate their respective national frameworks not only independently from one other, but animated by a mutual sense of radical diversity. In spite of the centuries-long relations between Venice and the Ottoman Empire, Italy has participated in Europe's claims for Turkey's cultural otherness. In fact, the *damnatio memoriae* of the Ottoman and Venetian political legacy served the precise purpose of delegitimizing the birth of a new Mediterranean cooperation.

In Medieval and Early-Modern times, for cities and countries bordering the Mediterranean, being committed to a maritime policy potentially meant having access to international exchange, luxury trade included[7]. So relevant was the importance of Mediterranean exchanges, that even states lying beyond the traditional trade routes towards the East needed either to establish relations with Mediterranean mediators (as in the case of Germany, which relied on Venetian mediation up until 1797) or to adopt their own new maritime policy (this was the case of sixteenth-century England, the Low Countries and seventeenth-century France)[8]. For states like the Republic of Venice, who earned their chance to trade commodities from West to East and back, maritime policy was not an issue that could be considered separate from other state policies[9].

In the same perspective, the fleet represented the Republican State and hegemony over the Adriatic ("*il Golfo*") as a continuation of its feudal domination of the coasts. The Arsenal should thus be considered a state-building location[10]. As a consequence, the Arsenal of Venice was of crucial importance both on a pragmatic level, connected with the commercial and military power of the Republic, and also on a symbolic level, often being described as a smaller city within the city[11].

The fifteenth-century establishment of the Imperial Arsenal in Istanbul undoubtedly shows that the Ottoman *élite* felt the need to equip a military fleet and secure the Northeastern Mediterranean maritime routes[12]. The conquest of Negroponte from the Venetians in 1470 was a consequence of this strategy. At the same time, in relation to the previously-mentioned symbolic perspective, the construction of an Arsenal highlights the birth of the Empire's maritime vocation: the Sultan's "well-protected domains" bordered the Mediterranean and the capital itself stood on the sea. These facts implied both advantages and problems which called for public intervention. Since the eclectic capacity to integrate and assimilate foreign traditions is legitimately considered the primary feature of Ottoman rule, the choice of the Arsenal of Venice as a model for the construction of their own *Tersāne* should not be a surprise. After all, at the end of the fifteenth century the Republic of Venice boasted the most powerful fleet in the world. While following Persian styles in literature and choosing the Arabic vocabulary and book-keeping practices in drawing up budgets and surveys, the Ottomans "went Venetian" as far the shipbuilding industry was concerned. Assimilating foreign models (and words) was neither perceived as a form of weakness, nor as a departure from an endogenous tradition. On the contrary, it showed the pragmatic attitude of a heterogeneous ruling class which was the result of an impressive social mobility process. It was in the name of this same pragmatism, I believe, that maritime policies started being an issue in the second half of the fifteenth century when the Imperial Arsenal was built. Structurally different from the Republic of Venice, the Ottoman State never codified precise rules for the waters under its jurisdiction. The fleet was perceived as a crucial element of the Imperial military system, but certainly not as a representation of the State itself, as it was in Venice.

Comparing historical experiences does not only mean highlighting their common features. Sometimes, structural diversities of otherwise parallel paths prove to be the most instructive. Unlike the Ottoman Empire, the Venetian system was based on a feudal business economy which implied unique features of maritime policy management. These were certainly perceptible in the central role of the shipbuilding industry and in the emphasis given to diplomatic networks in the Ottoman Empire, but also in the port administration, whose working methods, which were directly decided and managed by the central government, were treated as a vital political issue by the Venetian ruling class. In contrast, the Ottoman government dealt with the administration of the port system only on a fiscal basis and often via the perspective of foreign policy. To be more precise, ports were generally farmed out and, before the incentives given to local industries by Ahmed III in the eighteenth century, the Ottoman State intervened only periodically in exports and almost never in imports[13]. Their radical differences in conceiving port administration and customs policies meant that Ottomans and Venetians were enduring and complementary trade partners. Nevertheless, from the second half of the sixteenth century onwards, and especially after the conquest of Cyprus, when the New Economy had started to make its first marks on the Eastern Mediterranean waters and shores, the Ottoman vocation to attract foreign trade and investments, supported by the structural lack of an industrial policy, accelerated the end of the Venetians' hegemony over Mediterranean trade and the relative decline of the Republic[14]. The Ottoman Empire had embarked on becoming the world's largest internal market for English, Dutch and later French industrial products, sanctioning the destiny of the Mediterranean ports as low-cost transit areas. This pattern had important social consequences in the Ottoman Empire, such as the development of powerful commercial lobbies which in the long run created serious problems for Ottoman and Turkish industrialization[15].

In conclusion, both in Istanbul and in Venice, the Arsenal was a place with diverse, converging identities. Firstly, it was a public space resulting from state investment. Secondly, it was an example of a centralized industry in which salaried craft-guild members with a wide range of skills contributed to the production of a unique object(the ship)[16]. Thirdly, representing a function of the state, if not the state itself, the Arsenal could be conceived in terms of a "microcosm" and "projection" of the surrounding city. It is not surprising that in the eighteenth century, when the Ottomans and the Venetians became aware of the gap between Northern European and Mediterranean countries, it was in their Arsenals that newly conceived industries began to grow. This was not a coincidence: the arsenals were perceived as the very core of the state, structures where public intervention could create or "produce" economic revitalization and initiate a new industrial policy... as if it were a shipbuilding strategy.

Footnotes

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