

The Malta Shipyard: Infrastructural Developments during the 18th Century¹

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In 1701 the Hospitaller and Military Order of St John, which had been based in Malta since 1530, completely re-organised its navy by reducing its galley squadron from seven to four units and by concurrently founding a new squadron of four sailing ships-of-the-line. This remarkable development in the navy of the Order called for the building of more adequate docks and shipyards in the Grand Harbour of Malta, where new vessels could be constructed and old ones repaired. It demanded bigger arsenals, powder-magazines, and more spacious stores to supply the new squadron with the necessary equipment and the crews with victuals, arms, and clothing². A modern and well-equipped base for shipbuilding, ship repair and rearmament required three qualities – proper logistics, an infrastructure which included adequate stores, and an organised workforce of capable administrators and industrious and efficient craftsmen. The present article focuses on the first two requirements.

Logistics

The logistic efficacy of any naval base was largely determined by a good strategic location vis-à-vis both the traditional theatre of war and a point of origin for the supplies needed. A close connection existed between operational efficiency and the facilities for refit and replenishment, since the endurance of warships in the eighteenth century was constrained by the degree of damage incurred in action and by the strain they endured

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1. The presentation is largely based on Chapter 8, “The Shipyard-Base”, of the author’s book *The Maltese-Hospitaller Sailing Ship-of-the-line Squadron, 1701-1798* (Malta, 2003).
 2. J. Mizzi, *Catalogue of the Records of the Order of St John of Jerusalem in the Royal Malta Library*, xii (1968), 12-13.

from the elements. Foul or leaking hulls, sprung masts, tattered rigging, and parted cables were commonplace in navigation. Ships were too heavily encumbered to afford the space for stowing spare topmasts, canvas, cordage, and other tackle in large quantities. Sides and bottoms had to be occasionally re-timbered and, above all, regularly careened for cleaning and recaulking. Water casks needed constant replenishment, as did stores of victuals, ammunition and fuel. Any squadron required space and depth of water for berthing, and security from enemy attack and from the worst of weather conditions³.

Malta's shipbuilders were in the unenviable position of having to depend entirely on imports of timber, hemp, iron, tar, and grain from Italy or other countries for the provision of stores needed for the yard. The island's position had much in common with Brest in Brittany. With a poor hinterland, Brest drew most of its supplies by sea; and since enemy corsairs habitually frequented the Breton littoral in the same way as Barbary corsairs infested Malta's and Sicily's coasts, both shipyards relied heavily on convoy movements, themselves exposed to weather variations and the delays characteristic of all convoys. The strength of both Malta and Brest lay in the numbers and quality of their seamen⁴.

In Malta, the Order's naval base depended upon the ships as much as the ships in turn depended upon their base. Malta's geographical position made it the undisputed sentinel of the narrow channel between the Barbary States and the Ottoman east, lying relatively close to both. Strategically, it could beg for no better position. As for the natural endowment of shelter, the Hospitaller navy was also very well served by Grand Harbour and Marsamxett. Indeed, one of the most decisive factors which induced the Order to adopt the island for its headquarters in 1530 had been precisely the presence of these two harbours⁵, which offered shelter for ships, more especially inside the creeks between the promontories on a south-east, north-west axis, themselves sheltered from

3. J. S. Bromley, A. N. Ryan "Armies and Navies", in *The New Cambridge Modern History of Europe* (Cambridge, 1970), vi., 807.

4. *Ibid.*, 812.

5. G. Bosio, *Istoria della Sacra Religione et Illustrissima Militia di S.Giovanni Gerosolimitano*, iii (Venice, 1695), 30.

the often violent *Gregale*⁶ to which the mouth and main channel of the harbour were both then exposed⁷. Since shipbuilding was done in the open, heavy rain hindered progress. In the case of the French ports, Toulon was better placed than either Brest or Rochefort in this regard. The former received only about 600 millimetres of rain every year, while the latter two ports had their work interrupted for days on end since the Atlantic ports received 900 millimetres in annual precipitation⁸. Malta's average annual rainfall, meanwhile, is about 525 millimetres. It has always been endowed with a most favourable climate for shipbuilding or ship-repair work.

Infrastructure

To be well equipped and efficiently organised a naval squadron had to be served by a base fully provided with all the infrastructural amenities necessary for shipbuilding. These included quays, stores, docks, officers' and sailors' quarters, arsenals, craftsmen's shops and related facilities.

When the new Hospitaller squadron was founded in 1701, none of these resources were available in Malta. The arsenal at Birgu (Vittoriosa) had been fashioned to serve the galley squadron exclusively. It was unsuitable for the round ships, which had consequently to be constructed on a wider platform on open ground along the shore. The *San Giuseppe* frigate and the *Santa Catarina* ship in fact had to be built on the coast of the French Creek outside the bastions of l-Isla (Senglea). Since the galleys had been stationed at Vittoriosa ever since 1530, the ship-of-the-line squadron found its base in the inner reaches of Galley Creek⁹ and French Creek, around the *manderacchio* or boat basin of Bormla (Cospicua)¹⁰,

6. These winds often blow for three consecutive days and account for fifteen per cent of all winds in Malta. A. St. B. Harrison and R. P. S. Hubbard, *A Report to accompany the outline plan for the region of Valletta and the Three Cities* (Malta, 1945), 9.

7. J. F. Darmanin, *The Phoenico Graeco-Roman Temple and the Origin and Development of Fort St Angelo* (Malta, 1948), 32.

8. Bromley / Ryan, 812.

9. E. Rossi, *Storia della Marina dell'Ordine di S. Giovanni di Gerusalemme, di Rodi, di Malta* (Roma, 1926), 103–104.

10. A(rchives of the) O(rder of) M(alta, manuscript) 1186, ff. 274, 294–294v.

and the land or Main Gate in front of Senglea's walls¹¹. It was precisely for this reason that the Knights decided to build a shipyard there to serve the new squadron. The experience in port development gained by the Hospitallers in the Levant was put to practical use. The ports of St Jean d'Acre in the Holy Land and Limassol on Cyprus had been their important bases there and were well fortified¹². At Rhodes, the Knights had built the inner harbour, also called 'crooked harbour' (a site from which land has today been reclaimed), but which then included galleries for docks and stores¹³. They also owned wharves and even fortresses at Marseilles¹⁴. After 1566, it was only fortuitously that the Order's navy continued to use Galley Creek. There had been plans for the transfer of the arsenal to the *manderacchio*, which the Knights had thought of digging up on the Marsamxett side of Valletta, but these had to be abandoned when very hard rock was struck in the quarry which had been dug there during the building of Valletta¹⁵. In 1685, a small galley arsenal in the Valletta ditch was burnt down by accident, indicating that the place was not sufficiently safe for timber storage¹⁶. The building of the Firenzuola lines around Cospicua after 1638¹⁷, and the Cottonera lines around the Three Cities after 1670¹⁸, were mainly intended to provide added protection to Galley Creek between Vittoriosa and Senglea. After 1638 it was obvious that Galley Creek was firmly and permanently established as the Order's naval base¹⁹. French Creek would have been totally secure had the original plans of the Cottonera lines, as designed by Antonio Maurizio, Count of Valperga, been fully executed. But the line of three bastions by which he proposed to incorporate Corradino Heights were left incomplete for lack

11. N(ational) L(ibrary of) M(alta) Old Maps and Plans, D1; S3(55); S5(54).

12. R. Dauber, A. Spada, *La Marina del Sovrano Militare Ordine di Malta / The Navy of the Sovereign Military Order of Malta* (Brescia, 1992), 95.

13. Rossi, *Storia della Marina*, 102.

14. Dauber/Spada, 95.

15. V. Mallia-Milanes, "Valletta 1566-1798, An Epitome of Europe", in *Bank of Valletta Annual Report and Financial Statements 1988* (Malta, 1988), IX.

16. G. A. Ciantar, *Malta Illustrata* (Malta, 1780), 18.

17. J. Crocker, *History of the Fortifications of Malta* (Malta, 1920), 5.

18. AOM 261, f. 161 v; AOM 6402, ff. 305-307v.

19. J. Muscat, "The Arsenal" in *Birgu, a Maltese Maritime City*, ed. L. Bugeja, M. Buhagiar, S. Fiorini (Malta, 1993), passim.

of funds and were only built in a modified form under the British administration in the 1870s. The expansion of the galley arsenal at Vittoriosa between 1538 and 1696, but especially in the 1690s, was an instructive prelude to the building of the shipyard after 1701. The Vittoriosa arsenal included magazines, slipways, and large stone-archways covered with wooden roofs where stores were kept, and it was a site also for vessel repair and overhaul and the construction of new galleys. In 1545 a building was constructed which housed the bakery and whose second floor constituted a sail-cloth factory²⁰. This bakery and factory were later used to supply the men of war too.

Another consideration which must be borne in mind in this context is that all over Europe, and more especially in France after 1650, governments had been developing their naval ports to serve their modern fleets. When on 26 April 1702 Perellos and his Council decided that six stores be built in the exterior covert way of Senglea's old Main Gate, thus initiating the development of the ships' base, they were simply emulating Colbert who had improved the port of Brest by changing the wooden wharves for masonry, and who had chosen Rochefort as the seat for a repairing port by building a new naval arsenal in 1666. The stores at Senglea, three on either side of the Gate, were prepared for the equipment and provisions of the ships which were being constructed at Toulon. Construction of the *Santa Catarina* had begun at the same time²¹.

20. E. Brockman, "The Order of St John of Jerusalem. The Sovereign Order as a Naval Power", *Revue de l'Ordre Souverain Militaire de Malte* (Rome, 1958), 171.

21. AOM 265, f. 70v. These were numbered I to VI starting from left when one looks at their doors from inside the town of Senglea. Store number I was nearest to the *machina* and number VI was contiguous with the slave prison. Stores I, II, and III were connected to each other by doors, just as IV and V were. The latter two stores occupied the site of the present two modern archways into Senglea. Stores I to VI are still extant. Stores I and VI were irregularly shaped while II to V were in the shape of a parallelogram 5.502 metres wide and 19.903 metres long for a total area of about 109.5 square metres each. NLM Old Maps and Plans S5 (54). On 3 September 1705, Nicola Speranza, the custodian, begged and obtained permission from the Common Treasury to reside in three rooms by the stores in which there were still iron wares, oakum caulk and other items, since he had to support a large family. AOM 647, f. 372v, 268v.

Perellos might well have followed similar examples in France. Cardinal Richelieu had strengthened the naval arsenal at Toulon and Vauban built the new dock, enceinte, and several forts and batteries. The extension of the naval yards in the Grand Harbour may thus be said to have followed the European trend.

It is perhaps significant that the military engineers employed by the Order from the late seventeenth century were mostly French. Mederico Blondel, for example, was resident engineer of the Order of St John from 1659 to 1698. His brother François was the famous Field Marshall of France²² who had built the warehouses at Rochefort with the novelty of a storehouse for each particular ship attached to it²³. Small wonder then that when, shortly before 1709, the main warehouses of the ships of the Order were built on the quay of Galley Creek towards Cospicua²⁴, the building included a store for each ship, a general store, the store of the *provveditore* (director) and an archway. In the early eighteenth century, a store for each ship was considered a novelty and luxury in any European port, even in French ones. The warehouses' stately, functional, yet simple military Late Baroque architecture can still be admired today, since the building is still standing and was still in use by the Malta Drydocks for tailors' and minor servicing shops until 2003. The building is 120 metres long and 30 metres wide on three floors, having a total floor area of about

22. A. Hoppen, *The Fortification of Malta by the Order of St John 1530–1798* (Edinburgh, 1979), 190–191.

23. Bromley / Ryan, 812.

24. K. Ellul Galea, *L-Istorja tat-Tarzna* (Malta, 1973), 9, states that they were built about 1731. The names of the first four ships of the squadron, engraved in stone on the facade above the door of each store, including the *San Giuseppe* which was laid up in 1709, suggests an antecedent date. They were mentioned in the audit report of the *Congregazione dei Vascelli* of 1707–1708, AOM 266, f. 62^v. They also feature in a 1715 plan of the harbour, *NLM Plan des Villes, Forts et Chateaux*, 1715. The design of the main warehouses might well have been by Romano Carapecchia, who came to Malta in 1706 to take up the post of chief architect to the Order. See J. Tonna, D. de Lucca, "*Studies in Maltese Architecture: 1 Romano Carapecchia*" (Malta, 1975), 4. In this case the stores were built between 1706 and 1708. They in fact resemble the facades of some of his buildings, including churches, and he designed various storehouses in his treatise, the *Compendio*. According to Castagna, the warehouses were built in 1707. P. P. Castagna, *Li Storia ta' Malta bil Gzejjer Tagħha* (Malta, 1865), ii, 108.

10,800 square metres. Maltese *żonqor*, or lower coralline limestone, was used to withstand any weathering caused by the humid environs.

These were not the only stores available for the ships. The squadron also used some warehouses in the old arsenal of the Valletta ditch, which had been built by Knight-Bailiff Salvago. They had been requisitioned from the *Langue* of Italy on 22 November 1703²⁵. Stores for hay used by the ships were built by the church and convent of the Carmelite Friars of Saint Teresa, and just outside Birgu Gate were other stores which belonged to the Grand Master²⁶. In 1738, the Sailing Ships Commission spent 64 (Maltese) *scudi 7 tari* in the construction of four docks (*cantieri*), made of hard stone for storing the guns of the ships in the Santa Teresa quay²⁷. In 1720 victualling stores were built in Vittoriosa ditch²⁸. Stores for masts were situated below Senglea's walls in French Creek.

Two special types of storage facility were the roofless enclosures for ballast and the timber basin behind Senglea (*dietro l'Isola*). Ballast was stored in *casse per savorra*, unroofed walled enclosures on the quayside below Senglea's bastions at French Creek, generally about 10 metres long and 3.75 metres wide²⁹. For the proper management of the shipyard, an adequate supply and careful storage of timber were needed³⁰. The Order owned several commanderies (estates), especially in Spain, France and Calabria, which yielded timber suitable for shipbuilding, and these were subject to strict control³¹. However, the introduction of the squadron created a number of problems, since more varied kinds of timber were needed, especially when new ships were constructed, and these kinds were not always readily available on the Order's own estates. Between 1717 and 1720, for example, when three ships were constructed in rapid succession, timber had to be extracted

25. AOM 2315, f. 218.

26. NLM Old Maps and Plans, D1.

27. AOM 1823, ff. 335-335v.

28. Università archive, NLM manuscript 174, no page.

29. NLM Old Maps and Plans, S3(55).

30. J. Muscat, "The Arsenal", 309.

31. *Codice del Sacro Militare Ordine Gerosolimitano, Riordianato per Comandamento Del Sacro Generale Capitolo Celebrato Nell'Anno MDCCCLXXVI*, (Malta, 1782), 483-484.

from Naples³². When time was pressing for the 1718 campaign of the war of Corfu, the Order was short of the necessary ships, since the timbers which had been brought over from the Roman littoral had been found to be of very bad quality³³. Perellos frantically sent letters to his receivers at Naples and Genoa to procure as much timber as possible³⁴. He also ordered a private corsair flying the Grand Master's flag, who had just preyed on a Turkish ketch laden with timber near Zante (Zakinthos), to send the prize to Malta without delay³⁵. Maltese captains, owners of tartans, were contracted in 1720 to supply rare oak, pine, walnut, and poplar wood for the *San Vincenzo*³⁶. In the eighteenth century, regular supplies of timber came mostly from Venice. The hardwood for the galleys was kept under water in the *manderacchio* basin, behind the boats quay at Cospicua³⁷. The same applied to the ships-of-the-line. A timber basin was dug up before 1724³⁸ behind Senglea in the French Creek, but had to undergo reconstruction between 9 December 1738 and 25 April 1739, according to the plans of the engineer François Marandon. Its total cost was 1,896 *scudi* 9 *tari* 14 *grani* in cash and 1,215 *scudi* 10 *tari* 4 *grani* in raw material, paid by the *Congregazione dei Vascelli* (Sailing Ships Commission)³⁹. Marandon's project included also the construction of two *lumache*, or water pumps, to fill or drain the basin⁴⁰. During the four-month work on the basin,

32. AOM 1478, Perellos to Receiver Fra Carlo Campitelli at Naples, 22 December 1717; AOM 1479, *ibid.*, 10 August 1718.

33. AOM 1479, Perellos to Sacchetti, 16 March 1718.

34. *Ibid.*, Perellos to Campitelli, 16 March 1718; and 6 April 1718; Perellos to Receiver Spinola at Genoa, 16 March 1718.

35. *Ibid.*, Perellos to Consul Teodoro Andrizzi at Zante, 16 May 1718.

36. AOM 758, ff. 152-153 v; AOM 762, ff. 323-325. In 1739 Captains Marco di Pietro and Tommaso Madiona of Senglea were commissioned by contract to supply 160 knees (curved wood), 1302 planks, 35 beams for galleys, 35 dentured planks for decks, 8 helm tillers and 20 trunks for masts for the use of both squadrons, either from Calabria or Aromagna for 4,000 *scudi* transport and 5 *scudi* 6 *tari* or 5 *scudi* per *tratta* (0.216m.²) of wood.

37. Muscat, "The Arsenal", 312.

38. *Leggi e Costituzioni Prammaticali* (Malta, 1724), 107, probably under the direction of Romano Carapecchia.

39. AOM 1862, pp. 69-70.

40. AOM 1863, ff. 286-294.

the *congregazione* sent Fra Giulio Sandsedoni to reside at Senglea to supervise the work as an on-site Knight-Commissioner, for a monthly allowance of 30 *scudi*⁴¹.

On 30 September 1758 new sail warehouses were completed behind the General Stores at the Shipyard Base (called *Parco delle Navi* in Italian) according to the plans of the renowned Maltese architect Giuseppe Bonnici. The foreman of works was Giovanni Scerri and the stone was quarried from Santa Venera and Corradino⁴².

Whenever the development of a port was taken in hand, one of the primary tasks would always be that of shaping the existing shoreline into straight quays or wharves. According to cartographic evidence, the inner Galley Creek quaysides at Cospicua were reshaped for proper berthing of ships after 1670⁴³, while those of French Creek were developed shortly after 1701. The layout of streets at Cospicua was in place by about 1713⁴⁴.

Another necessary facility at any shipyard was that provided by the haulk-and-shears for masting or demasting vessels. The one at Malta's shipyard was called *machina* in Italian, and it was positioned on Senglea's Galley Creek bastion⁴⁵. The *provveditore di terra* allowed *padroni* of private vessels to make use of the *machina* against payment. The haulk-and-shears was already in existence by 1709 when it was repaired by the Commission of Sailing-Ships⁴⁶. From February through April 1729 alone, the Commission earned 104 *scudi* from captains of private vessels for the use they made of the *machina*⁴⁷. On the eastern wharf of Galley Creek, also known as St Teresa Quay, there were other smaller haulk-and-shears for masting ships⁴⁸.

41. *Ibid.*, ff. 339, 524-525; AOM 1862 p. 69.

42. AOM 1873, ff., 45, 138, 487.

43. NLM Old Maps and Plans B3 (172).

44. *Ibid.*, C20.

45. *Ibid.*, D1. This was a crane made up of two wooden masts placed obliquely over the top of the bastion which overlooked the quay, conveniently placed so as to allow the ships to berth beneath it, to pull up or place their masts. Ciantar, 83.

46. AOM 266, f. 62v.

47. Univ. 174, no pag.

48. NLM Old Maps and Plans, D1.

Water is indispensable for any naval base, not only for the ships' crews but also for its use in several kinds of work. In Malta the ships used to fill up their barrels of water from Lascaris Wharf, Valletta, where a fountain stood in the shape of a cannon. The water was conducted through leather pipes directly on to the berthed ship⁴⁹. At the shipyard there was another fountain which could be opened or closed with two separate keys⁵⁰. It was meant for the service of tradesmen. The keys were held by the master-caulker⁵¹ and the first officer, so that they both supervised the proper use of water⁵². Wardens guarded the fountain and transported as much water as was necessary⁵³.

A number of other infrastructural facilities for shipbuilding and ship repair were available on the shore of French Creek beneath the St Raphael demibastion and the spur of Senglea's bastions. This is where the ships were built. Access to these wharves was either by sea or from a flight of fifty-six steps outside the old Main Gate of Senglea from the ditch. These facilities included a garden (12.57 metres by 10.48 metres), which was contiguous to the sailors' quarters (37.71 metres by 12.57 metres), and the houses (14.67 metres by 12.57 metres) for the captains of private vessels. There were also caulkers' scaffoldings for careening, caulkers' workshops (29.33 metres by 8.38 metres), a blockmaker's shop (8.38 metres by 6.29 metres), and a blacksmith's shop of the same dimensions⁵⁴. Further towards the mouth of the French

49. T. Salmon, *Stato Presente di tutti Paesi e Popoli del Mondo, Naturale, Politico e Morale, con nuove osservazioni e correzione degli antichi e moderni viaggiatori*, vol. xxiv, (Venice, 1762), 175–176; E. Rossi, *La Marina dell'Ordine di S. Giovanni di Gerusalemme, di Rodi, di Malta* (Rome, 1925), 13.

50. Univ. 174, no pag. In 1726, blacksmith P. P. Chircop was paid 8 *scudi* 9 *tari* by the Commission for their manufacture.

51. AOM 1763, p. 177.

52. AOM 266, f. 12.

53. AOM 1821, f. 189; NLM Old Maps and Plans, S5 (54). Rain water fell on the ships' stores as well as on the slaves' prison at Senglea. It drained through a channel 1.048 metres wide to a large cistern 24.09 metres long and 13.36 metres wide under the present site of Old Prison Street and George Mitrovich Square.

54. NLM Old Maps and Plans, S3 (55). All these buildings on French Creek, as well as the demibastion and spur, were demolished in 1900, to make way for dockyard development. P. Galea, 'The Bastions across the Harbour', in *The*

Creek was a quay reserved for the construction of tartans and other smaller vessels⁵⁵. On the wharves there were slipways for lighters⁵⁶. There was a tavern at the shipyard, leased by the Commission to an innkeeper for 25 *scudi* per annum⁵⁷.

There was also provision for the houses of the sailing ships' captains near the shipyard. That the captains of the squadron should live close to the base and not in Valletta was a laudable and practical measure by the government of the Order, since the captains could give close and immediate attention to preparations for any sailing. The captains of the galleys had already been residing at Vittoriosa or Senglea well before 1701. The houses of the sailing ships' captains were interspersed with those of the galleys in Vittoriosa and Senglea quays. Between 1657 and 1668, the Common Treasury had bought seven sites for galley captains, three at Senglea⁵⁸ and four at Vittoriosa⁵⁹. The former three were commonly occupied by the Lieutenant-General (Commodore) of the sailing ships squadron and two other galley captains; while the latter four by the captain-general of galleys, a galley captain, and two sailing-ships captains⁶⁰. However, in April 1711, the Lieutenant-General occupied a house at Vittoriosa⁶¹. The buildings included stores at ground-floor level and each captain, including the Lieutenant-General, paid 80 *scudi* per annum in rent to the Treasury⁶². Captains were sometimes allowed to change residence if they found it more convenient. When the *Santa Maria* galley was ordered to berth at the Senglea quay after 30 January 1717, her captain went to live in the house formerly

Sunday Times of Malta, 3 June 1956, 4. In their stead there are presently Docks 2 and 3, and the Blacksmiths' and General Stores of the Malta Drydocks, Ordnance Survey Map, Malta, grid references 565713 and 564716.

55. NLM Old Maps and Plans, S3 (55). This last location is presently occupied by the Boilers Shop of Malta Drydocks.

56. AOM 1823, ff. 335v-336.

57. Univ. 174, no pag. Paolo Caruana leased the public house up to November 1719. After that date the tavern was leased to Antonio Caruana for 30 *scudi* per annum.

58. NLM 390, f. 9.

59. *Ibid.*, f. 8.

60. *Ibid.*

61. AOM 648, f. 64v.

62. NLM 273, pp. 149, 164.

occupied by the captain of the *Santa Catarina*⁶³. When Fra Jacques François de Chambray was appointed captain of the *Sant' Antonio*⁶⁴, he rented a house from the Treasury at Senglea, conveniently overlooking the shipyard, since he could see the work progressing on his ship⁶⁵. By the 1730s, the Lieutenant-General's house was being let for 80 *scudi*, and the other houses for 74 *scudi* 6 *tari* and 55 *scudi* per annum⁶⁶.

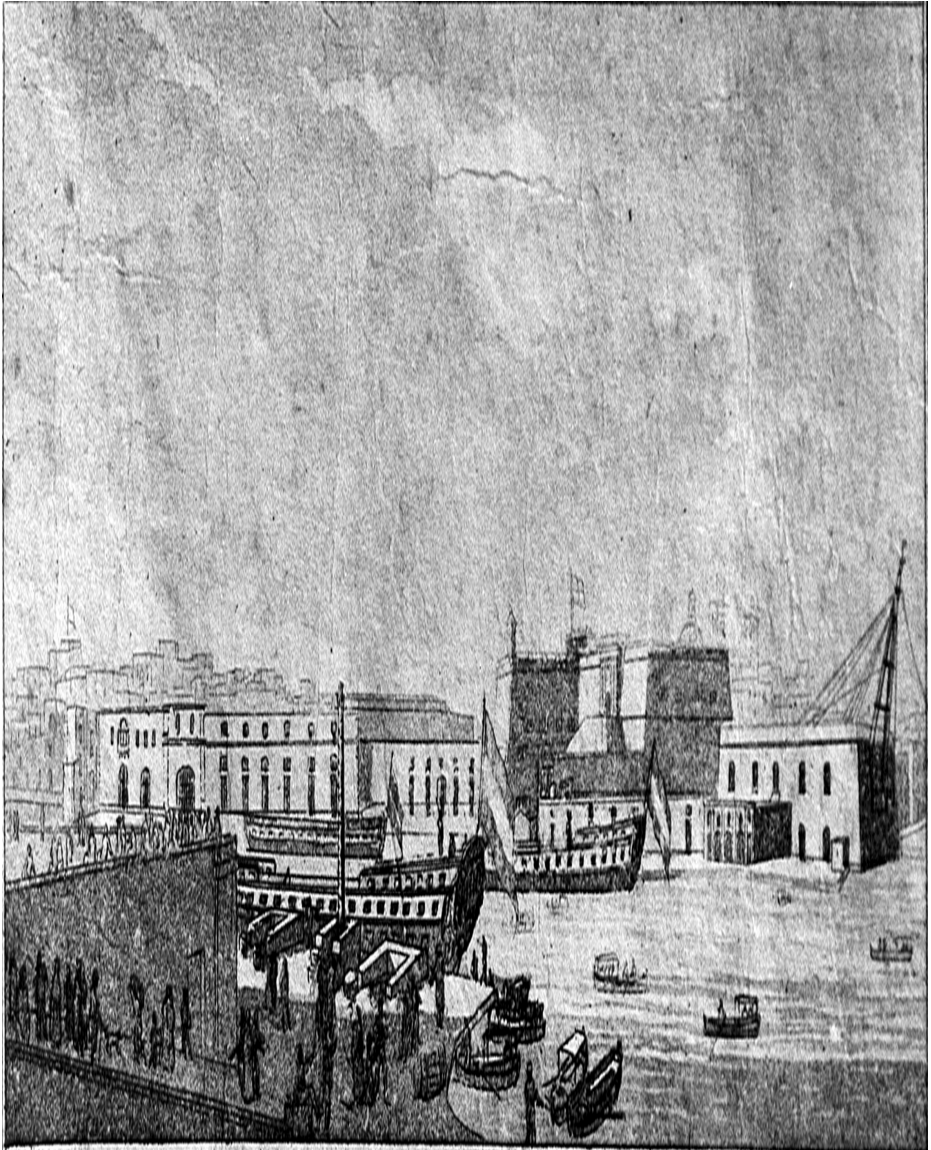
When one considers that all the naval facilities which have been discussed were built at the shipyard in a relatively short period of time after 1702, it may be concluded that, in terms of the proper infrastructure required by a good naval base, the *Parco delle Navi* was very well served. This was complemented by the efficient way in which the 200 to 300 strong workforce was led, and which further rendered general organisation of the shipyard quite excellent.

63. AOM 648, f. 168v.

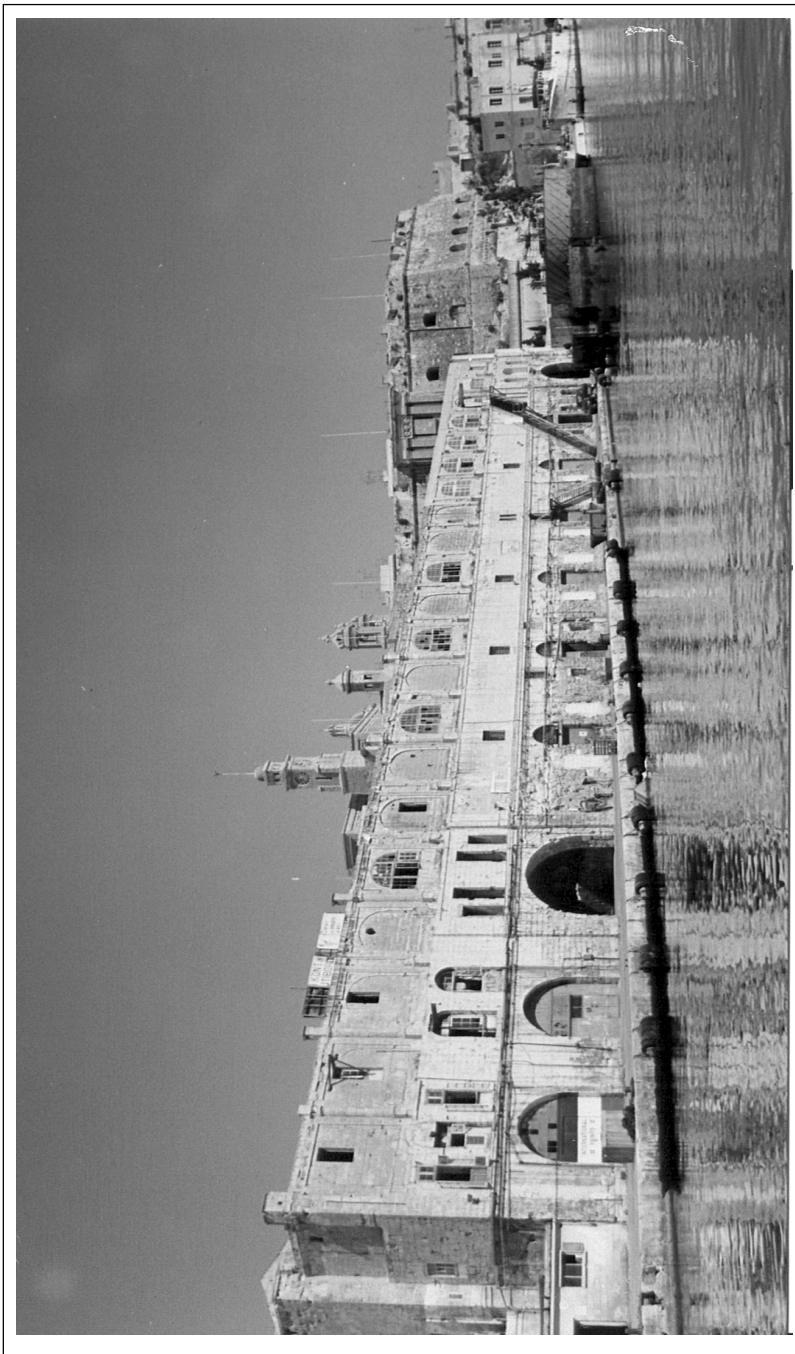
64. AOM 142, f. 205v.

65. AOM 649, f. 127. When he proposed the addition of a double door and glazed balcony on 11 January 1729, the Treasury increased his rent by 5 per cent of the total cost of the restoration work.

66. AOM 1862, p. 72 and AOM 269, ff. 109v, 189.



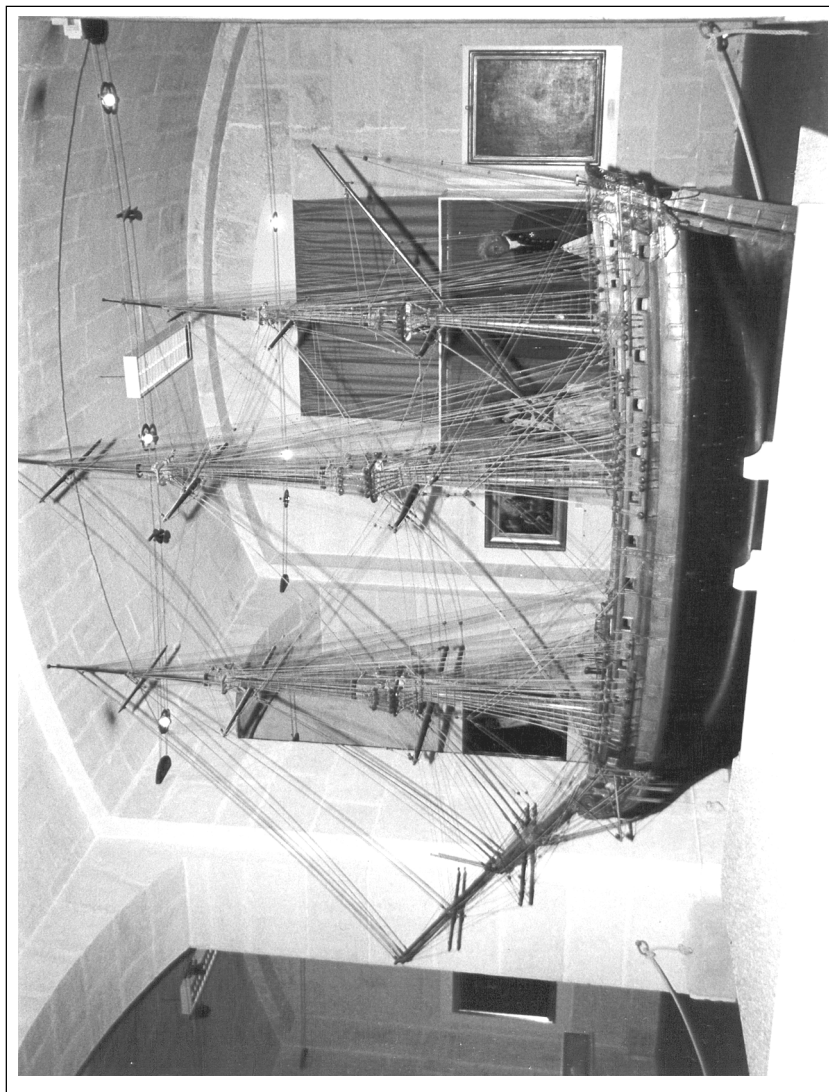
VEDUTA DEL ARSENALE DE UASCELLI



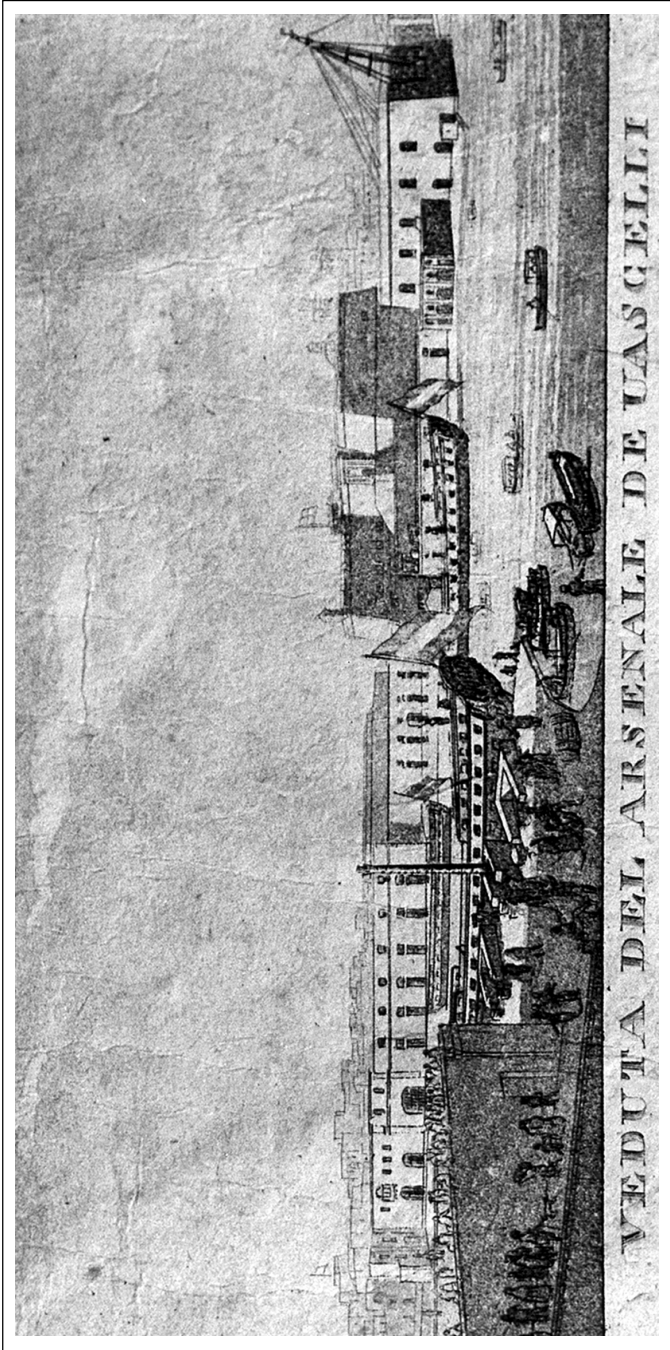
The Malta Shipyards – General view of the ships' warehouses, 1709c.



The San Giuseppe frigate's warehouse.



Original model of a Maltese-Hospitalier sailing ship-of-the-line, third rate, possibly the San Giacomo (Malta Maritime Museum).



Veduta del Arsenal de Vascelli. Detail from Porto e fortezza di Malta by Sebastiano Ittar (1790s). The print shows the unrigged ships at berth along the quaysides of the shipyard in Galley Creek from St. Theresa quay at Cospicua. On the opposite side of the Parco(shipyard) the ships' stores, Senglea Main Gate, the soldiers' quarters and haulk and sheers (machina) are visible.

