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# Shipyards in Egypt Between Antiquity, the Present, and the Future

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## Abstract

Shipyards in Egypt played an extensive role in building the Egyptian civilization through the ages. Significant archaeological excavations at several sites in Egypt have revealed the remains of shipyards dating back to antiquity. Studies of Egyptian shipyards in different environments utilizing ethnographic research, have revealed the main features of Egyptian shipyards and the region's shipbuilding industry. Shipyards reflect both the materialistic aspect represented in tools and material, and the cultural aspect represented by labourers and builders; therefore, studying Egyptian shipyards illustrates significant evidence about the outlook of the shipbuilding industry in Egypt.

**Keywords:** Shipyards, shipbuilding, ship maintenance, shipbuilders, iron ships, sailboats.

## Introduction

Seafaring played an extensive role in building civilizations in the Mediterranean region, as the sea was an essential maritime highway for the Mediterranean people (Tilley, 2004). Therefore, historical analyses of ships are required to better understand ancient civilizations. Ships have always been

studied as machines, but it is not common to study shipyards, the sites where ships were built and repaired. Studying shipyards reveals evidence that supports the study of ship construction and building techniques, as it illustrates a considerable information about the process of building from its very beginning, when a ship originates as just an idea and is then transformed into a reality through wood and metal. Since Egypt has coastlines on the Mediterranean Sea, the Red Sea, and the River Nile, in addition to the Egyptian coastal lakes, the shipbuilding industry is a key player in Egyptian civilization.

This short report aims to present ancient and modern Egyptian shipyards, in addition to highlighting their outlook. It also seeks to illustrate the main features of shipyards, outlining their key differences and similarities. Ethnographic research is the main methodology, used to define the characteristics of modern shipyards, as well as the archaeological and historical evidence to understand their past and imagine their future. The ethnographic research covers three regions with different environmental characteristics: Alexandria, Rosetta (Rasheed), and Burullus.

## Shipyards in antiquity

Maritime installations such as shipyards are considered to be the interface between the land and the water. Therefore, the existence of shipyards is essential in Egypt: a country where people throughout history depended on the sea in many aspects of their life. Shipyards are not only sites for shipbuilding, but also sites for routine repair and vessel maintenance. Another activity that took place in shipyards was ship dismantling, the process of reusing timbers in the construction of new vessels, which required skilled labourers. The evidence of reused elements of ships identified in shipwrecks and shipyards worldwide is a clear indication that ship dismantling was a well-known practice (Moser, 2011, 839). It was common that shipyards were located in harbours, or near rivers that were deep enough to launch such large vessels (Moser, 2011, 838). Many of the archaeological excavations around the Mediterranean, and specifically in Egypt, revealed indications of shipyards. The following are some examples of those excavated sites.

### *Tell Abu Saifi*

In North Sinai, a survey by a team of Egyptian archaeologists revealed remains of a shipyard dated back to the Ptolemaic era (332 BC-30 BC) and it may have been used during the Roman era as well. The site, called Tell Abu Saifi, lies 3 km to the east of the Suez Canal, in a place that was previously the Roman town of Sila (Hosny, 2019). The team discovered a limestone building in the southern part of Tell Abu Saifi **(Fig. 1)** and **(Fig. 2)**.

According to Dr. Mostafa Waziri, the current Secretary General of the Supreme Council of Antiquities, the shipyard consists of dry docks for shipbuilding and maintenance. During excavation, two separated dry docks with a rectangular building between them were revealed. The bigger dock located to the east was used for maintenance. It is 6 m wide and surrounded by walls (Hosny, 2019). According to Dr. Nadia Khedr, the head of the Central Administration of the Lower Egypt Antiquities, most of the large limestone blocks at the site was reused in later times as spolia (Hosny, 2019).

The excavation not only revealed the remains of the shipyard, but a large variety of finds, such as bronze and metal nails of different sizes and shapes **(Figs 3 and 4)**, pottery **(Fig. 5)**, statues **(Fig. 6)**, and Nile fish bones **(Fig. 7)** were also discovered. According to Hisham Hussein, the North Sinai Antiquities Director, the remains of Nile fish bones are an indication that one of the old Nile branches used to run to the south of Tell Abu Saifi (Hosny, 2019).

***Marsa Gawasis***

Marsa Gawasis was the ancient Pharaonic harbour of Saww on the Red Sea coast during the Middle Kingdom (2030 to 1650 BC). It was the harbour where ships were sent to the land of Punt and was located near the shortest overland route from the Nile valley in Upper Egypt to the Red Sea, between Qift and Quseir (Bard and Fattovich, 33). The site lies 24 km south of Safaga, 60 km north of Quseir, and 80 km south of Hurgada. It was discovered in 1970 by professor Abdelmonem Sayed (University of Alexandria), who first identified the remains of the harbour. In 2005 a team from the University of Naples and Boston University excavated the site again (Bard and Fattovich, 2011). During the latter excavations of this site, the team found well-preserved organic evidence such as ship timbers and planks, equipment, ropes, and wood fragments (Ward and Zazzaro, 2010) **(Fig. 8)**. These remains could be a clear indication of a site for shipbuilding and maintenance near the harbour.

***Berenike harbour***

The site of Berenike harbour lies on the Red Sea Egyptian coast. Berenike (modern Berenice) was an important port city on the Red Sea coast during the Ptolemaic and Roman periods and continued to be so for about eight centuries (Sidebotham, Hense, and Nouwens, 2008). The harbour was built by Ptolemy II (Philadelphus) around 275 BC, and he named it after his mother (Wild, 2001). The site is located about 825 km southeast of Suez, and 260 km east of Aswan. The site was excavated for 15 consecutive seasons: from 1994 to 2001, and then again from 2009 to 2015 by a team from the University of Delaware and the University of California. During the excavations, the team discovered a sail fragment, reinforcing strip, and rings **(Figs 9 and 10)**. These ship remains could be an indication of a site for shipbuilding or maintenance (Wild and Wild, 2001).

### *Quseir Al-Quadim*

Another site on the Red Sea coast is the harbour of Quseir Al-Quadim, previously known as Myos Hormos. The site lies about 8 km north of the modern town of Al-Quseir, about 500 km south of Suez, and rises to about 8 m above sea level (Whitewright, 2007). The early investigation of the site was from 1978 to 1982 by a team from the University of Chicago under the co-supervision of Whitcomb and Johnson. The investigation was then continued by a team from the University of Southampton between 1999 and 2003 (Sidebotham, Hense, and Nouwens, 2008). During the excavations, the team discovered some finds related to shipbuilding and maintenance activity: nails, fragments of reused timbers, as well as rigging and sail parts (Blue, 2007). Additionally, the team discovered well-preserved finds of organic artifacts, including a Roman deadeye with three holes **(Fig. 11)**, dated to the period between the mid to late second-century AD, and which was most likely used as a part of a pair of blocks in the shrouds of a ship. There were also various Roman sheaves from rigging blocks dated to the second half of the second century AD **(Fig. 12)** and a small fragment of a Roman sail dated to the late first or early second century AD **(Fig. 13)**. Several brail rings made from wood and horn were recovered during every season **(Fig. 14)** (Whitewright, 2007). Therefore, these finds are considered to be clear evidence of shipyards.

### *Portus Magnus, Alexandria*

In Alexandria, according to the Institut Européen d'archéologie Sous-Marine (IEASM), the excavation of Portus Magnus has revealed that there was a sea wall with two openings to allow passage between the ports. In this location near the sea wall, there were large shipyards, hence the name Navalia given to this part of Portus Magnus (Goddio, 2008). In addition to the shipyards, docks are illustrated on the map of Portus Magnus **(Fig. 15)** (Goddio, n.d.). These docks could have been used as repair sites since the main purpose of dry docks was for ship repairs and maintenance. However, docks were also sometimes used for shipbuilding in large shipyards where dry docks were essential features as were slipways, which could be filled with water and emptied as needed. Indeed, dry docks were the preferable site for building premium military ships that were too large to be built on the ordinary slips at shipyards. Using dry docks was more easily manageable as opposed to the complex operation of hauling vessels up on slipways or careening them for repairing or cleaning, because careening was a dangerous technique, especially with large vessels. This traditional technique was used for small boats, particularly in shallow waters or at high tide (Moser, 2011, 838-841).

## Modern shipyards

Studies of the Egyptian shipyards today and the process of building has depended on ethnographic research covering different regions that have different environmental characteristics: Alexandria, Rosetta (Rasheed), and Burullus. This research demonstrated that the present-day role of shipyards is equally important as it was in antiquity, as Egyptian people still depend on the sea in different aspects of their life; consequently, the industry of shipbuilding remains an influential industry in modern Egypt. Due to the differences between the studied regions and their environmental characteristics, there is a variety of vessels that are built at each location. However, there are also some similar features in all the studied shipbuilding sites, despite the differences between the regions.

### *Alexandria*

For many years, most of Alexandria's people were engaged in fishing. They depended on nets, so it was essential for them to own fishing ships or boats. As fishing was the main source of income in Alexandria, shipbuilders used to primarily build fishing vessels. Nowadays, Alexandrian people do not depend on fishing as a main occupation anymore, and, as a result, the city's industry of fishing ships is not as common as it used to be. Shipyards do still exist in Alexandria, but their specialty is the construction of luxury yachts **(Fig. 16)**.

At local shipyards in Alexandria, shipbuilders depend on basic equipment **(Figs 17 and 18)** during the process of shipbuilding from its conception, even though they produce yachts in different sizes and various designs that are mostly used for tourism **(Figs 19, 20, and 21)**.

According to the shipbuilders in Alexandria, the quality of yachts depends on the type of timbers used, which is decided according to the budget of the shipowner. Generally, the process of shipbuilding requires more than one kind of timber, which is imported to Egypt from different countries.

Alexandrian shipbuilders, especially the old builders, used to build most ships and boats by eye, without relying on patterns. Moreover, some fishermen used to build their own boats by themselves, depending on hand tools. The community of fishermen and shipbuilders in Alexandria demonstrates that working with the sea is an innate skill that all its occupants seem to have, thanks to the environmental characteristics of the city.

### *Rosetta (Rasheed)*

Rasheed is a pioneering city in the shipbuilding industry because of its unique location, as it is bordered by the Mediterranean Sea in the north, and the Rasheed Nile branch in the east. Rasheed's shipbuilding

industry does not depend on small shipyards, but largescale facilities that are well equipped for shipbuilding and maintenance **(Fig. 22)**. Through the ages the shipbuilders in Rasheed used to build different types of wooden boats and ships, but now Rasheed is mainly famous for its construction of iron ships, especially those that are used for oil services **(Fig. 23)**, in addition to iron fishing ships **(Fig. 24)**.

According to the shipbuilders, the industry of iron ships became common in the 1960s. However, wooden ships were still produced until 2010, when shipowners decided to build iron ships, and the whole industry in Rasheed became dependent on iron except for small boat manufacturing. The advantage of iron in this industry is that ships are maintained once every three years, while wooden vessels need to be maintained twice a year and have to be left on land for almost a month to dry.

In the past, the shipbuilders in Rasheed used to build different types of boats and ships, including sailing ships, until this disappeared in the 1970s. However, in 2008, shipbuilders were able to build a replica of Hatshepsut's ship (*Min of the Desert*) at one of the most famous shipyards in Rasheed, using traditional tools and techniques. The replica is displayed in the Suez Museum **(Fig. 25)** (Eldeeb, 2020).

***Burullus***

The Egyptian lakes play an economic and environmental role that is equally important to the role of the Mediterranean Sea, the Red Sea, or the River Nile. Lake Burullus is one of the country's Mediterranean basin lakes. It is located in the town of Burullus to the east of Rasheed, bordered by the Mediterranean Sea to the north, and agricultural land to the south (Younis, 2018).

Lake Burullus is considered the source of livelihood for most of the people who live there, as most of them are engaged in fishing **(Fig. 26)**. Therefore, the main feature of this town is its boats **(Fig. 27),** used for net fishing in the lake.

The town is characterized by sailboats with masts, and sails that move depending on the direction of the wind **(Fig. 28)**. However, making sails is not as common as it used to be, as some shipyard owners in Burullus stopped making sailboats almost five years ago. According to these owners, this change was due to financial reasons, since making sails and masts became prohibitively expensive for the fishermen. So instead, they make boats that work with engines **(Fig. 29)**. In addition, these boats with engines are much more practical as they are not dependent on the direction of the wind.

Although the industry of shipbuilding in Burullus depends mainly on local shipyards that are famous for producing flat-bottomed fishing boats to sail in the lake, there are other shipyards in the town that

build and maintain yachts and fishing ships with deep drafts that can sail in the Mediterranean Sea **(Fig. 30)**.

## The main features of Egyptian shipyards

Regardless of the different characteristics of the studied regions, and the different types of vessels that are produced in Egyptian shipyards, all of them share similar features such as the use of ramps to launch vessels, and thus we can see slipways at all the shipyards. Additionally, there are common features of Egyptian shipyards that are obvious in both the material and cultural aspects.

### *The material aspects*

The material aspects are represented by the tools that are used in building all the different types of vessels, and the available facilities in shipyards themselves as building and maintenance sites. The main characteristic of all the studied shipyards is that the tools are similar, whether hand tools or electric tools. The shipbuilders in Alexandria and in Burullus depend on the same basic tools to build wooden ships and boats **(Figs 31 and 32)**, while the studied shipyard in Rasheed is well equipped with more sophisticated tools that are used in the building and maintenance of iron ships, in addition to other facilities and equipment, such as trucks and lorries to transport metal **(Fig. 33)**. As a result, shipbuilders, labourers, and even the owners of the shipyards in Rasheed are specialised in working with tools and equipment that are used in iron work **(Figs 34 and 35)**.

### *The cultural aspects*

The cultural aspects are represented in the communities of shipbuilders, labourers, and the owners of shipyards. The shipbuilding industry does not just depend simply on shipbuilders. Each shipyard in Egypt includes specialised staff in a variety of different fields. The process of shipbuilding goes through several stages that are not all dependent on carpenters or builders. For example, luxury yachts must be provided with services and divided into essential sections such as cabins, bathrooms, and galleys (kitchens) that depend on the size of each yacht. Fishing ships must contain sections such as cabins and heads (toilets) for the fishermen. Moreover, all vessels must be well protected by caulking and painting. Therefore, the process of shipbuilding requires a group of technicians who are specialised in electricity, plumbing, caulking, painting, and so on. **(Figs 36, 37, 38, and 39)**.

The ethnographic research has revealed that too often workers move from one city to another to work at a shipyard at the request of their employer, or even due to lack of work opportunities in their home

city. As a result, in one shipyard there could be a group of workers with different cultures and different backgrounds who spend several months working, talking, and having their daily meals together. This certainly leads to the exchange of cultures, traditions, and ideas.

## The outlook of shipyards in Egypt

Egyptian shipbuilders respect their profession and realise the enormous importance of the shipbuilding industry on the country's economy. Therefore, they continue working and believe this industry will remain just as important as it is now. The industry of shipbuilding in Egypt is passed down through generations. In accordance with ethnographic research, all the studied shipyards are dated back to the fathers and grandfathers of their current owners. Thus, the most common feature in Egyptian shipyards today is the presence of teenagers and children, who are the sons of the owners of the shipyards or sons of labourers. During the process of shipbuilding, they join the workers to watch, learn, and help **(Figs 40, 41, and 42)**. Consequently, shipbuilding sites will continue to exist in Egypt, and the shipbuilding profession is not going to disappear in the future; on the contrary, it will continue developing.

## Conclusion

Studying ships and their different types is complemented by studying the sites where those ships were built and repaired. Therefore, studying shipyards in Egypt as a country characterized by coastlines and lakes provides significant information about the industry of shipbuilding and the specialized society of shipbuilders. By studying the remains of the Egyptian shipyards in antiquity and shipyards in contemporary Egypt, we can determine the outlook of the shipbuilding industry, the shipbuilding profession, and the existence of shipyards. The archaeological remains demonstrated the importance of shipyards in antiquity, and the ethnography demonstrated that shipbuilders respect their profession and continue to pass it on to the next generations. The results of this research confirmed the impact of the shipbuilding industry in Egypt throughout history as a key player in the development of Egyptian civilisation, and it supported the opinion of shipbuilders that their profession is not going to disappear.

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## Figures

Fig.1: The limestone building found in Tel Abu Saifi (Hosny, 2019).

Fig.2: The excavated remains of a shipyard at Tel Abu Saifi (Hosny, 2019)

Fig.3: Different metal nails found at the site of Tel Abu Saifi (Hosny, 2019).

Fig.4: Nails of different sizes found at the site of Tel Abu Saifi (Hosny, 2019)

Fig.5: Pottery found at the site of Tel Abu Saifi (Hosny, 2019).

Fig.6: A statue found at the site of Tel Abu Saifi (Hosny, 2019).

Fig.7: Nile fish bones found at the site of Tel Abu Saifi (Egyptian Ministry of Antiquity).


Fig.8: Wood fragments found in Marsa Gawasis (Ward and Zazzaro, 2010, Fig.3, P.29).

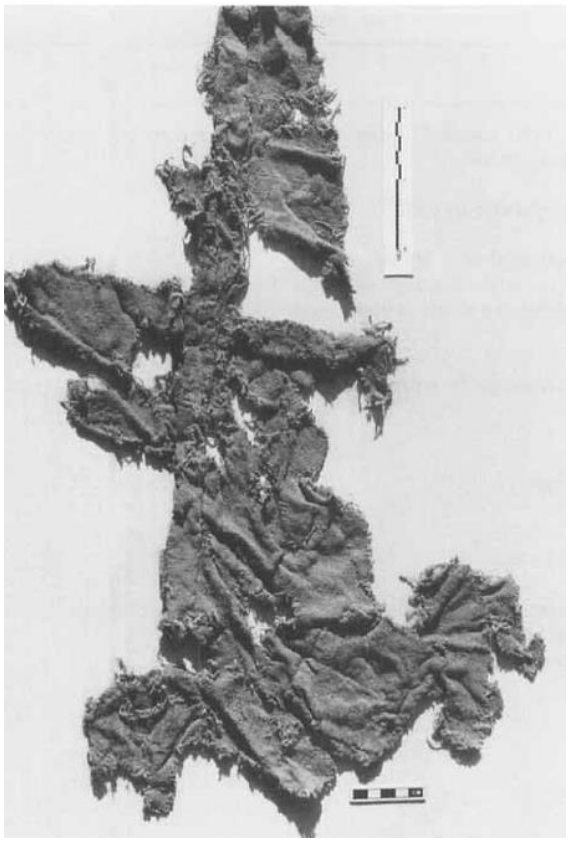

Fig.9: Sail fragment found at the site of Berenike (Wild, and Wild, 2001, Fig.2, P.214).


Fig.10: Reinforcing strip and rings found at the site of Berenike (Wild and Wild, 2001, Fig.5, P.216).

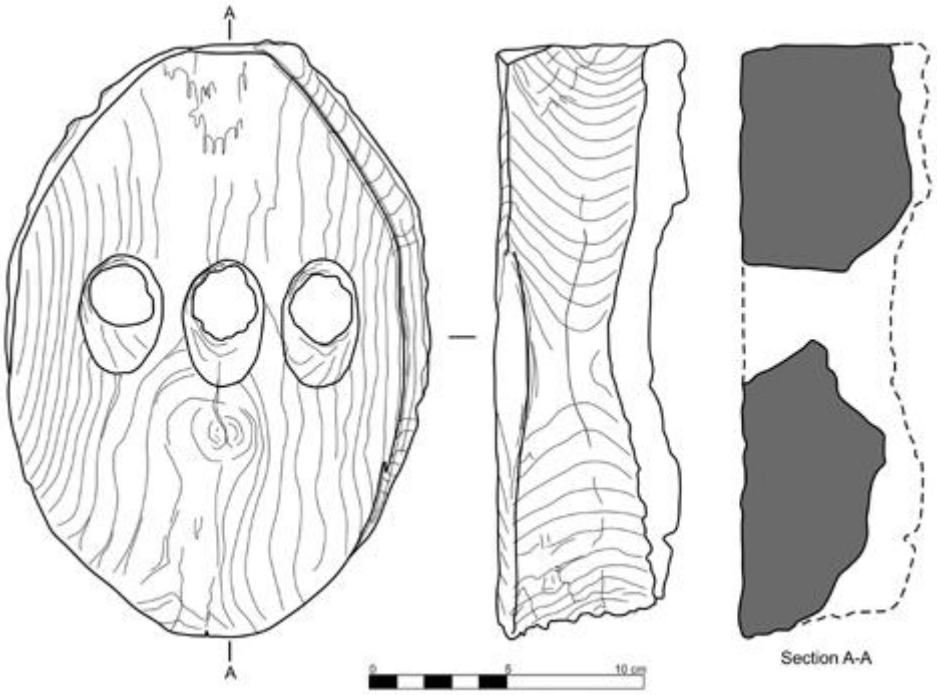


Fig.11: A roman deadeye with three holes, found at Myos Hormos (Whitewright, 2007, Fig.2, P.284)

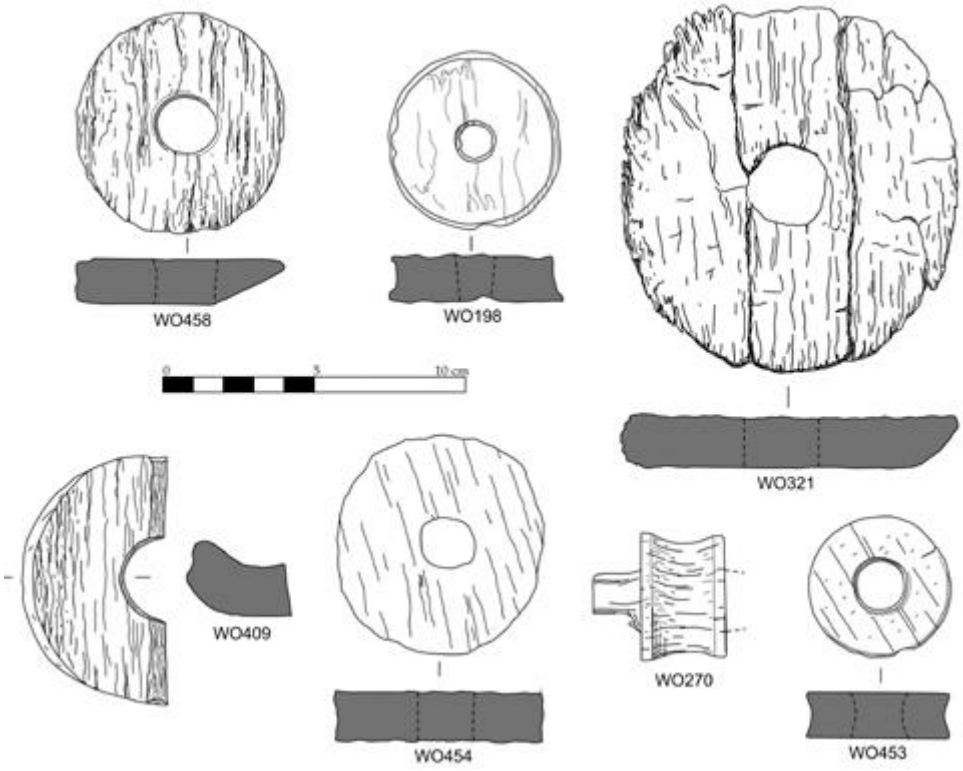


Fig.12: Various Roman sheaves from rigging blocks found at Myos Hormos (Whitewright, 2007, Fig.3, P.284).


Fig.13: A small fragment of a roman sail found at Myos Hormos (Whitewright, 2007, Fig.5, P.286).

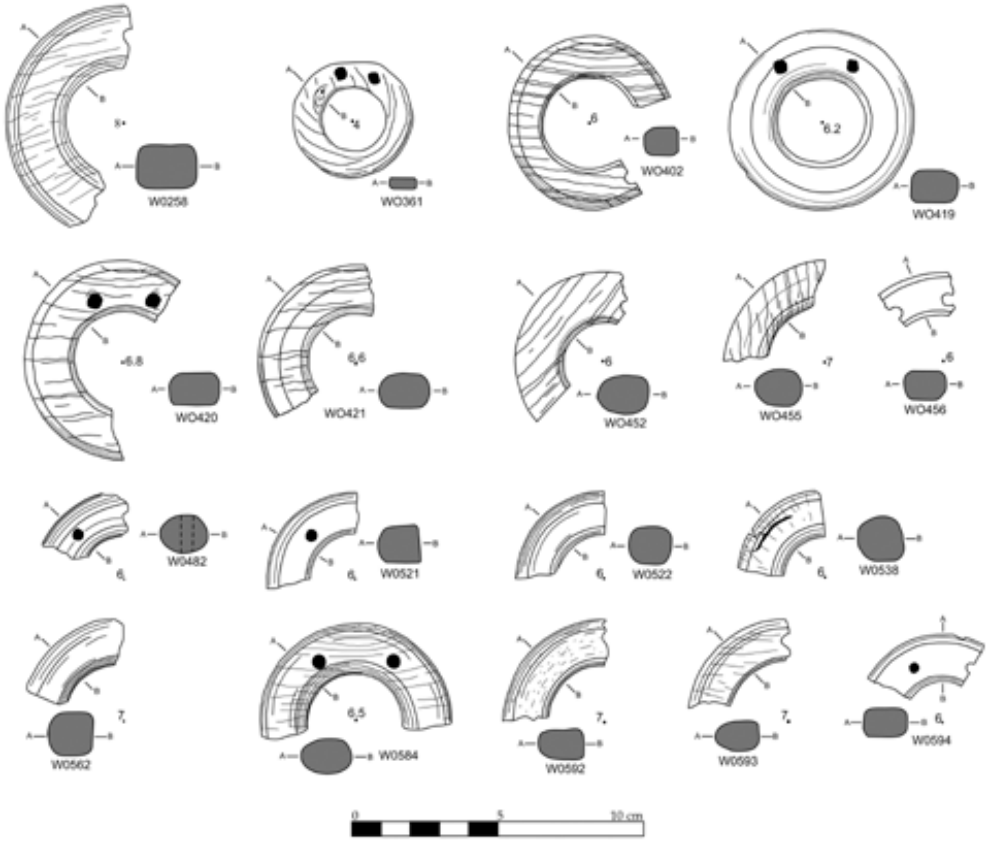


Fig.14: Several brail rings made from wood and horn (Whitewright, 2007, Fig.4, P.286).

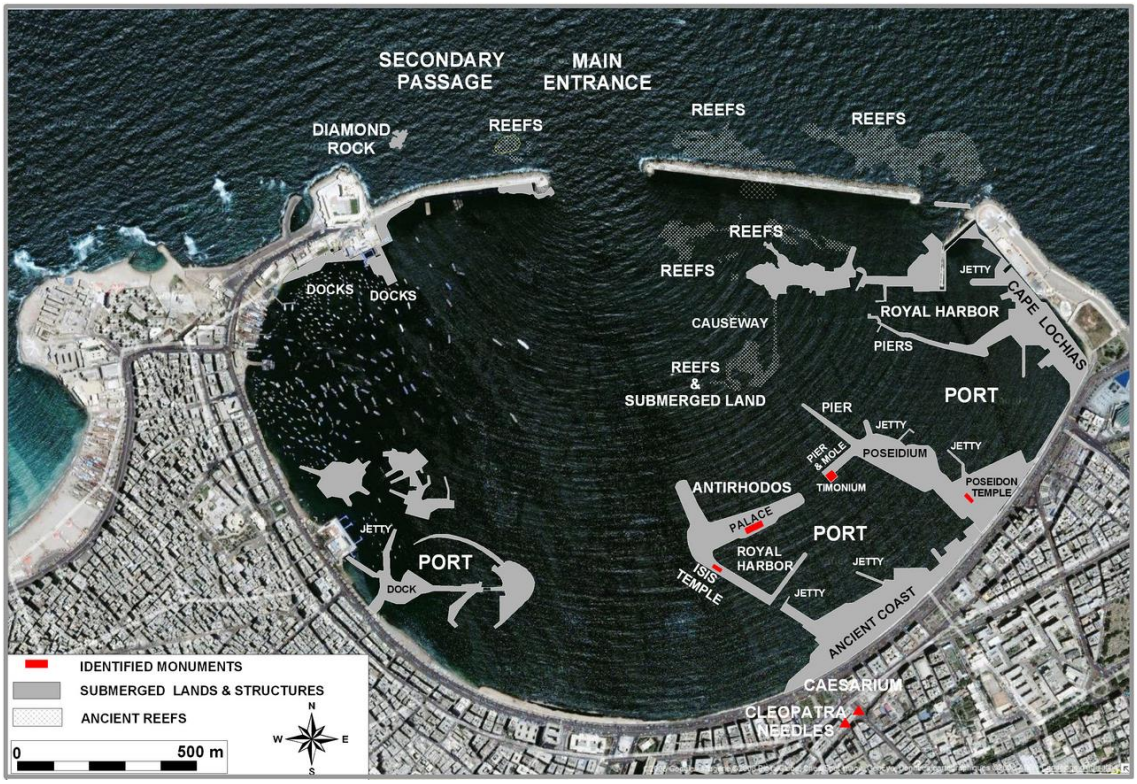


Fig.15: A map of Portus Magnus illustrates the location of its docks (Goddio, n.d.).

Fig.16: A luxury yacht under construction at a shipyard in Alexandria (© The author)

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Fig.18: A labourer uses a saw in the process of shipbuilding (© The author).

Fig.19: A tourism yacht built in Alexandria – first design (© The author).

Fig.20: A tourism yacht built in Alexandria – second design (© The author).

Fig.21: A tourism yacht built in Alexandria – third design (© The author).


Fig.22: A view of the most famous shipyard in Rasheed (© The author).

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Fig.24: An iron fishing ship (© The author).

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Fig.26: A fisherman on his boat in Lake Burullus (© The author).

Fig.27: Fishing boats on the shore of Lake Burullus (© The author).

Fig.28: A sailboat in Lake Burullus (© The author).

Fig.29: Fishing boats with engines (© The author).

Fig.30: A shipyard at Burullus, where ships with deep drafts are built (© The author).

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Fig.32: A labourer uses a plane as a basic tool at a shipyard in Burullus (© The author).


Fig.33: A shipyard well equipped with sophisticated equipment and facilities (© The author).

Fig.34: The owner of a shipyard in Rasheed cutting and forming iron (© The author)

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Fig.36: Preparing a specific kind of paint used for ships by a specialized labourer in Alexandria (© The author).

Fig.37: Painting a yacht by a specialized labourer in Alexandria (© The author).

Fig.38: Caulking a yacht by a specialized labourer in Alexandria (© The author).

Fig.39: Sticking faber to a yacht by specialized labourers in Alexandria (© The author).

Fig.40: A child learns how to use a plane at a shipyard in Alexandria (© The author).


Fig.41: A child learns how to operate heavy machinery at a shipyard in Rasheed (© The author).

Fig.42: Children learn the boatbuilding techniques in Burullus (© The author).