Shipyards in Egypt between antiquity, nowadays, 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 revealed remains of shipyards dating back to antiquity. By studying shipyards in Egypt nowadays in different environments, the ethnographic research revealed the main features of the Egyptian shipyards and the industry of shipbuilding. Shipyards reflect both the materialistic aspect represented in tools and material, and the cultural aspect represented in labourers and builders; therefore, studying the Egyptian shipyards illustrates a lot of evidence about the future outlook of the shipbuilding industry in Egypt.

Keywords: shipyards, shipbuilding, ship maintenance, shipbuilders, iron ships

1. Introduction

Sea and 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, it is required to study ships and shipyards as well. Despite the scarcity of actual recognizable remains of shipbuilding sites, we depend on evidence such as the archaeological finds that refer to an existence of shipbuilding sites to provide us with knowledge on shipyards. Studying shipyards reveals evidence that supports the studying of ship construction and building techniques, as they illustrate a lot of information about the process of building from its very beginning, when a ship was just an idea and 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 all of the Egyptian civilizations through history.

This paper aims to present the Egyptian shipyards in antiquity and nowadays, in addition to their future outlook. It will also illustrate the main features of shipyards and discuss the differences and similarities between these features. Ethnographic research is the main methodology used in this study to define the characteristics of shipyards today, as well as the archaeological and historical evidence to read the past of shipyards and imagine their future. Three ancient shipyards and their archaeological evidence will be discussed: Tell Abu Saifi, Berenike, and Quseir Al-Quadim. These ancient sites will be compared to ethnographic research that has covered three modern shipyard regions with different environmental characteristics: Alexandria, Rosetta (Rasheed), and Burullus (Fig. 1).

2. Shipyards in antiquity

Maritime installations such as shipyards are considered as the interface between the land and the water. Therefore, the existence of shipyards is essential in Egypt as a country where people depended on the sea in many aspects of their life through history. Shipyards are not only sites for shipbuilding, but they also could be sites for routinely repairing and vessel maintenance. Another activity that took place in shipyards is ship dismantling to reuse timbers in the construction of new vessels, as this process required skilled labourers. The evidence of reused elements of ships that has been identified in shipwrecks and shipyards worldwide is a clear indication that ship dismantling was a well-known activity (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 generally, and in Egypt specifically, revealed indications of shipyards; the following are some examples of those excavated sites.

Fig. 1 Satellite image with the locations of studied sites (Google Earth Pro)

2.1. The site of Tell Abu Saifi

In North Sinai, an Egyptian survey has revealed remains of a shipyard that is dated back to the Ptolemaic and Roman eras. The site, called Tell Abu Saifi, lies 3 kilometres to the east of Suez Canal, near the Roman town of Sila (Hosny 2019). According to Dr Mostafa Waziri (the secretary General of the Supreme Council of Antiquities), the shipyard consisted of dry docks for shipbuilding and maintenance. The bigger dock, located to the east, was used for maintenance; it is 6 meters wide and surrounded by walls (Hosny 2019).

The excavation did not reveal the remains of the shipyard only; a lot of finds such as bronze and metal nails of different sizes and shapes, pottery, statues, and Nile fish bones were found. According to Hisham Hussein (North Sinai Antiquities Director), the remains of Nile fish bones that were found in the site is an indication that one of the old Nile branches used to run to the south of Tell Abu Saifi (Hosny 2019).

2.2. The site of 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 for about eight centuries later (Sidebotham *et al.* 2008). The harbour was built by Ptolemy II (Philadelphus) in about 275 BC, and he named it after his mother (Wild, Wild 2001). The site is located about 825 km southeast of Suez, and 260 km east of Aswan. The site was excavated for fifteen seasons, from 1994 to 2001, then 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. These ship remains could be an indication of a site for shipbuilding or maintenance (Wild, Wild 2001).

2.3. The site of Quseir Al-Quadim

Another ancient site on the Red Sea coast is the harbour of Quseir Al-Quadim, that was 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 at the site was from 1978 to 1982 by a team from Chicago University. The investigation was continued by a team from the University of Southampton between 1999 and 2003 (Sidebotham *et al.* 2008). During the excavations the team discovered some finds referring to shipbuilding and maintenance activity: nails, fragments of reused timbers, rigging and sail parts (Blue 2007). Additionally, the team discovered well-preserved finds of organic artifacts: a Roman deadeye with three holes dated to the mid to late 2nd century AD, various Roman sheaves from rigging blocks dated to the second half of the 2nd century AD, and a small fragment of a Roman sail dated to the late 1st or early 2nd century AD. Additionally, several brail rings made from wood and horn were excavated during every season of the survey (Whitewright 2007). These finds are considered clear evidence of shipyards.

3. Shipyards nowadays

Studying the Egyptian shipyards and their process of building today depended on ethnographic research to examine different regions with different environmental characteristics: Alexandria, Rosetta (Rasheed), and Burullus. The ethnographic research explored the role of shipyards nowadays and the different types of boats and ships that are built for different purposes. Egyptian people still depend on the sea in different aspects of their lives; consequently, the industry of shipbuilding remains an influential industry in Egypt today. Due to the differences between the studied regions and their environmental characteristics, there is a variety of vessels that are built. However, there are also some similar features in all the studied shipbuilding sites, in spite of the differences between the regions.

3.1. Alexandria

According to my ethnographic research with current shipbuilders and the owners of shipyards, for many years fishing was the main function in Alexandria. Most of the Alexandrian people were fishermen who depended on nets as a type of fishing. Therefore, it was essential for them to own fishing ships or boats. Thus, the earlier generations of shipbuilders used to build fishing boats and ships. Nowadays, Alexandrian people do not depend on fishing as a main activity anymore, and as a result the industry of building fishing ships in Alexandria is not as common as it used to be. Shipyards still exist in Alexandria, but today they are more famous for building luxury yachts. At local shipyards in Alexandria, shipbuilders depend on basic equipment during the process of shipbuilding (Fig. 2), even though they produce yachts in different sizes and various designs that are mostly used in tourism tours.

Fig. 2 A labourer uses a hammer in the process of shipbuilding in Alexandria (photo: A. M. Helmy)

According to interviews with shipbuilders in Alexandria, the quality of yachts depends on the type of timbers used; that is decided according to the budget of the shipowner. But, generally the process of shipbuilding requires more than one kind of timber. Based on the ethnographic research, and the interviews with the labourers and owners of shipyards, Alexandrian shipbuilders used to build most of the ships and boats by eye, as they don't rely on patterns, especially the old builders. Moreover, some fishermen used to build their own boats by themselves, depending on hand tools. The community of fishermen and shipbuilders in Alexandria proves that dealing with the sea is such an innate talent that all of them seem to have, thanks to the environmental characteristics of this city.

3.2. Rosetta (Rasheed)

Rasheed is a pioneering city in the industry of shipbuilding because of its unique location, as it is bordered by the Mediterranean Sea to the north, and the Rasheed Nile branch to the east. The industry of shipbuilding in Rasheed does not depend on small shipyards, instead this city has huge shipyards that are well equipped for shipbuilding and maintenance (Fig. 3). Based on interviews, through the ages the shipbuilders in Rasheed used to build different types of wooden boats and ships, but nowadays Rasheed is mainly famous for the industry of iron ships, especially those that are used for oil services, in addition to iron fishing ships.

Fig. 3 A side of the most famous shipyard in Rasheed (photo: A. M. Helmy)

According to the shipbuilders in Rashid, the industry of iron ships became known in the 1960s. However, wooden ships were still produced until approximately 2010 when ship owners decided to build iron ships, the whole industry in Rashid became dependent on iron except small boats manufacturing. The advantage of iron in this industry is that ships are maintained almost once every three years, conversely the wooden vessels are maintained twice a year, and they are left on land for almost a month to dry.

3.3. Burullus

The Egyptian lakes play an economic and environmental role that is not less important than the role of the Mediterranean Sea, the Red Sea, or the River Nile. Lake Burullus is one of the Mediterranean basin lakes. It is located 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 as the reason of life for most of the people who live in Burullus, as most of them are fishermen. Therefore, the main features of this town are boats that are used for net fishing in lake Burullus (Fig. 4).

Burullus icon of the town is characterized by sailboats with masts and sails that move depending on the direction of the wind (Fig. 5). However, making sails nowadays is not as common as it used to be, as according to the owners of shipyards in Burullus, some of them stopped making sailboats almost five years ago. And according to those owners of shipyards, this is based on financial reasons, since making sails and masts became expensive for the fishermen, therefore, they prefer boats that work with engines instead. Additionally, those boats with engines are much more practical as they do not move depending on the direction of wind. Although the industry of shipbuilding in Burullus depends mainly on small shipyards that are famous for producing flat 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 sail in the Mediterranean Sea.

Fig. 4 A fisherman on his boat in lake Burullus (photo: A. M. Helmy)

Fig. 5 Sailboats on the shore of lake Burullus (photo: A. M. Helmy)

4. The main features of the Egyptian shipyards

Regardless of the different characteristics of the studied regions, and the different types of vessels that are produced in the Egyptian shipyards, there are common features of the Egyptian shipyards that are obvious in both the material and cultural aspect.

4.1. The material aspect

The material aspect of shipbuilding is represented by the tools that are used in building all of 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 excavations of the ancient shipyards documented that the tools and materials in use did change over the centuries. This demonstrates

that shipyards had to evolve to serve the needs of the state and the sailors, thus the required skills of ancient shipyard workers must have changed as well. Today in the modern shipyards, the shipbuilders in Alexandria and in Burullus depend on the same basic tools to build wooden ships and boats. 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. As a result, shipbuilders, labourers, and even the owners of the shipyards in Rasheed are specialized in working with tools and equipment that are used in iron work. This shows how the pace of shipyard change has accelerated in modern times to keep up with the changes in today's technology. Based on ethnographic research, the types of ships and the skills of Egyptian shipbuilders and shipyard workers are changing rapidly today to support new demands. Wood to iron, sails to motors, fishing to tourism; the material aspect of Egyptian shipyards must continue to modernize to survive, just as ancient shipyards did.

4.2. The cultural aspect

The cultural aspect is represented in the society of shipbuilders, labourers, and the owners of shipyards. The industry of shipbuilding does not just depend simply on shipbuilders. Each shipyard in Egypt includes specialized staff in different fields. Culture cannot remain static in the presence of changing technology. Skill sets may change. The process of shipbuilding goes through several stages that are not all about carpenters or builders. For example, luxury yachts must be provided with some services and divided into essential sections such as bedrooms, bathrooms, and kitchens, that depend on the size of each yacht. Fishing ships must contain sections such as rooms for the fishermen, and bathrooms. Moreover, all vessels must be well protected by caulking and painting. Therefore, the process of shipbuilding requires a group of technicians who are specialized in electricity, plumbing, caulking, and painting, etc. (Fig. 6).

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 owner, 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 work-

Fig. 6 Caulking a yacht by a labourer who specialized in caulking in Alexandria (photo: A. M. Helmy)

ing, talking, and also having their daily meals together. Workers will continue to move to find work as the location of demand changes. If wooden shipbuilding reduces at salt water shipyards, craftsmen may relocate to fresh water yards to remain employed, or perhaps they will retrain to other skills. These movements result in cultural mixing today; they must have caused cultural mixing in the past as well. This certainly leads to the exchange of cultures, traditions, and ideas. The education of present and future workers must reflect future expectations, not past needs.

5. The future outlook of shipyards in Egypt

The Egyptian shipbuilders totally respect their profession and realize the enormous importance of the industry of shipbuilding. Therefore, they do not stop working and believe this industry will remain just as important as it is now. Historically, the industry of shipbuilding in Egypt has been passed down through generations. In accordance with this ethnographic research, all the studied shipyards are dated back to the fathers and grandfathers of their current owners. Thus, the most common feature in the Egyptian shipyards nowadays 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 as well (Fig. 7). As technology changes, some of the skills required to maintain older boats may become scarce. According to generations of shipbuilders, they will keep learning and continue to build wooden ships. However, the advancement of technology may increase the emphasis on formal education over the transfer of knowledge between generations of shipbuilders. Shipbuilding may increase the demand for technical education in Egypt. Regardless, shipbuilding sites should continue to exist in Egypt, and the profession of shipbuilding should not disappear in the future; on the contrary, it should continue developing.

Fig. 7 Children learn the function in Burullus (photo: A. M. Helmy)

6. 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 that is characterized by its coastlines illustrate a lot of information about the industry of shipbuilding in Egypt, and the society of shipbuilders. Also, by studying the remains of the Egyptian shipyards in antiquity and shipyards in Egypt nowadays we can anticipate the future outlook of the shipbuilding industry, shipbuilders, and the existence of shipyards. As the archaeological remains proved the importance of shipyards in antiquity, present-day ethnography shows that shipbuilders respect their function and teach it to the next generations.

There were shipyards thousands of years ago. They changed over time. There are shipyards today, that are changing right now. The rate of change seems to be accelerating. While in the past the transfer of shipbuilding knowledge emphasized generational transfer, technology today may increasingly emphasize formal education as shipyards continue to become more complex. The results of this research confirmed the impact of the shipbuilding industry in Egypt through history as a key player in building the Egyptian civilization, and supported the opinion of shipbuilders – especially the new generations – that their profession is not going to disappear, but will continue to evolve in the future.

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