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Traditional Sailing Boats of Egypt: A Maritime Ethnographic Research of the 19th and 20th century boats

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requirements for an MA in Maritime Archaeology

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Declaration

I hereby declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Abstract

Egypt's extensive coastlines along the Mediterranean and the Red Sea, which form almost half of the country's borders, together with the internal water bodies, namely the River Nile and the lakes, played a significant role in shaping the country's culture through the ages. The Nile, however, was the most significant factor in the development of the country's civilisation. It served as a dominant artery of life and the country's main highway for millennia; thus, shaping maritime transport in Egypt, and sailing traditions on the river have their roots back in the ancient history of the country. In the 19th century, European travelers were intrigued by the beauty of Nile boats, the thing that made them write about their travels on the Nile. A large number of accounts and descriptions of Nile boats, along with a large number of photographs was made. However, nothing has been done to categorize and identify these boats, hence, there's a need for research, to try to categorize different boat typologies in the 19th and 20th centuries, and try to trace the Maritime Sailing Traditions through the ages until modern time.

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Introduction

Several aspects of Egypt's maritime cultural heritage have been investigated during the past decades; however, traditional sailing boats of Egypt have not received much attention from researchers and maritime ethnographers as much as the traditional boats of other regions did, despite the fact that traditional boats and traditional fishing communities throughout Egypt are on the verge of extinction.

On the other hand, hundreds of photographs have been taken in the last two centuries of various sailing boats in Egypt, particularly on the Nile. here you are contradicting the preceding paragraph That is in addition to a corpus of western travelers' writings about Egypt and the Nile in the last two centuries. Nevertheless, so far, there have been no attempts to utilize these resources in order to establish a database of the types of traditional Nile sailing boats, or to record their features and characteristics. Therefore, the aims of this research are:

1. To utilize the available photographic collections as well as the textual resources in the form of the writings of the western travelers such as (John Fuller, Edward Lane, James Hornell, Henry Folkard and Sir Gardner Wilkinson) in order to make a record of the traditional Nile sailing boats of Egypt and also to identify the different types, features and characteristics of these boats.
2. To document traditional boat building and sailing activities on the Nile in Egypt.
3. To create a bilingual (Arabic – English) glossary of traditional nautical terms, including ship parts and sailing traditions.

It is hoped that the research will provide a better understanding of the different types and uses of the Nile sailing boats that were used in Egypt in the 19th and early 20th century, as well as the living traditions of boat building, sailing and seamanship which still persists in some communities in Egypt where different types of traditional boats are still in use. The research will also elaborate on the impact of the different environmental conditions the maritime communities and the types of vessels used.

In order to achieve such objectives, the research is divided into a number of interlinked phases.

The Research Methodology

Phase One:

Egypt has always drawn the western world's attention, the thing that encourages western travelers to write about many aspects of life in Egypt. Accordingly, the first phase of the research focuses on collecting data about Nile sailing boats and maritime traditions in Egypt based on western travelers' writings in the last two centuries.

Phase Two:

This phase is the backbone of the research, it is the phase in which the researcher examines and studies collections of old photographs of traditional sailing boats across the country.

Phase Three:

In this phase, the results of the two previous phases are combined. The combination has given a better understanding of the features and characteristics of the boats in the photographs.

Phase Four

This is a practical phase where the research aims to document the rapidly disappearing traditional maritime material culture of Egyptian Nile. The phase aims at the study of design, construction, materials, operations, handling and terminology which is still used today in the maritime communities. A number of fieldworks has been conducted over the period of two years.

Chapters Outline:

The dissertation will be divided into an introduction, three chapters and a Glossary:

Chapter One:

The first chapter is titled "The Nile Features And Its Influence On Sailing Boats", in which the geographical context of the Nile and its features are discussed. The chapter will look at the river's Delta and Valley. It will also discuss the effect of the inundation on navigation. In this chapter riverine harbours will also be explored and hypothesized around its fate will be presented. Finally, the chapter will shed light on the navigational conditions in the Nile during the 19th and 20th centuries,.

Chapter Two:

Titled "Sailing the Nile", which is the essence of phase three, in which the combination of literal and photographic sources gives a firm explanation of various types of Nile sailing boats.. The chapter is divided into two main sections: Working boats and Leisure Boats ,depending on the purpose or the use of these boats. Under each section there are several boat types.

Chapter Three:

The final chapter titled “Traditional Boats and Boatmanship in Egypt (An Ethnographic Approach)”, in which the practical work is summarized, presented and analysed as mentioned earlier in phase four.

Glossary:

The glossary consists of a list of maritime and ship parts terms and tool names, in Arabic that was assembled during phase four, with its English equivalent terms, and some illustrations.

CHAPTER ONE: THE NILE FEATURES AND ITS INFLUENCE ON SAILING BOATS

Chapter One: The Nile Features And Its Influence On Sailing Boats

This chapter is intended to outline the importance of the river Nile, and its keyrole in shaping navigation and shipbuilding traditions through the different eras. Thus, this chapter will be divided into two parts, the first will be dedicated to outline the geomorphology of the Nile, and the second will talk more about the flood system which was one of the main, and the most important, aspects which affected life in general, and navigation in particular in Egypt

The Nile is the greatest river in Africa. It flows northward through north-east Africa to debouch into the Mediterranean Sea. Along its route it passes through Tanzania, Uganda, Rwanda, Burundi, Congo, Kenya, Ethiopia, Eritrea, South Sudan, Sudan and Egypt. The Nile is about 6825 km long and it is considered to be the longest river on earth(**Error! Reference source not found.**). Moreover, it is the only river in the world that flows from south to north (Al-Manawy 1966: 19). The name Nile is derived from the Greek Neilos (Latin: Nilus), which probably originated from the Semitic root *naḥal*, meaning a valley or a river valley and hence, a river. Currently, the Nile is formed by three major tributaries: the White Nile, the Blue Nile and the Atbara. The source of the Nile is considered to be Lake Victoria, which extends in Tanzania, Uganda and a small part of Kenya. From Lake Victoria going northwards, this longer segment of the Nile, from Malakâl to Khartoum, is sometimes called the White Nile, that is to distinguish it from the Blue Nile, which feeds into the river at Khartoum from a southeasterly Ethiopian source at Lake Tana(Woodward *et al.* 2007: 275). The White Nile begins at the source and works its way northwards to the junction of the White and Blue Niles. The White Nile undergoes many changes as it moves north to

Khartoum. It is known that the White Nile is much bigger than the Blue Nile, but because of losses along the way it only contributes between 15% - 25% to the flow of the combined Nile. The Blue Nile, rising in Ethiopia, contributes between 75% - 85% to the flow of the river that passes through Egypt to the Mediterranean.

The Nile contains a series of steeper and flatter segments, and this is thought to indicate that several independent drainage systems existed in the region at different periods of time (El Zain 2007).

The Nile is the main water body that affected most aspects of life in Egypt throughout its history. Most Egyptians lived near the Nile as it provided water, food, transportation and excellent soil for agriculture. Therefore, two economic aspects of the Egyptian civilisation were specifically influenced by the Nile, namely agriculture and transportation (Hassan 1997). Moreover, the River Nile is one of the most predictable rivers in the world, as it underwent an annual steady flood regime which enables people to utilise and benefit from it. Ideally the Nile would rise to bank-full stage by mid-August in southern Egypt, with the northernmost basins being flooded 4–6 weeks later (Mays 2008: 471)(**Error! Reference source not found.**).

Since rainfall is generally scanty in Egypt, the floods provided the main source of irrigation to sustain crops (Bagnall 1993: 20-2; Said 1990a: 9), as well as for shaping the Nile Valley and influencing its ability to accommodate settlements.

Without the blessing of Nile water, Egypt today would have been as arid as the rest of the Sahara, and civilisation would have had to begin. Because of the Nile, Egypt was one of the wonders of ancient times that inspired ancient societies such as in Greece and the Levant, which in turn provided the basis for the philosophical, scientific and religious outlooks that

defined Western Civilisation. The continuous blessings of the Nile allowed Egypt today to be one of the largest and most powerful nations in Africa and the Middle East. There can be little doubt that if the Nile did not flow through Egypt, the human endeavour that we call civilisation, would have been a very different thing than it is today, if it existed at all.

Of the total course of the Nile only its terminus 1536km runs through Egypt, with an average width of 750m (Gouda 1994: 55-7). Before the construction of the major irrigation projects of the 20th century in Upper Egypt, when the Nile entered the country, north of Wadi Halfa, it ran for about 300km in a narrow valley before it reached a series of rapids, about 7km upstream from Aswan, known as the first Cataract (Ball 1939: 3-4) (**Error! Reference source not found.**). This area is currently occupied by Lake Nasser. As it extends throughout all of Egypt, the Nile was navigable in both directions along its lengths as its currents flow from the south to the north while wind blows in the opposite direction (Abou El-Atta 1994).

1.1. Main Body

Between Aswan and the Mediterranean Sea, the Nile extends for 1200km running through a narrow valley (Al-Manawy 1966: 106), and consists of two parts, the Nile Valley and the Delta. Along most of its length in Egypt, the Nile has scoured a deep, wide gorge in the desert plateau without any substantial obstacles, except for the occasionally forming shoals resulting from Nile sediment accumulation (Mohamed 2001: 107-18). It is worth mentioning, however, that the Nile water level at Aswan is c.91m above sea level, while at Cairo it is c.18m above sea level (Hamdan 1980: 622). So, from Aswan to Cairo the Nile falls c.73m. In other words, the Nile River slopes from Aswan to the sea in a very gentle gradient, thus having a mean

slope of 1:13000 (Said 1981: 81; Said 1990a: 10; Said 1993b: 32). Such a gradual sloping produces a moderate current that flows generally from south to north except in some areas where the river curves. Downstream from Aswan the Nile flows northerly to Armant before taking a sharp bend at Qena where the river reaches its closest distance to the Red Sea coast.

The Nile flooded every year between June and September, in a season the Ancient Egyptians called *akhet* - the inundation. The heavy summer rain in the Ethiopian Mountains sent a torrent of water causing the banks of the River Nile in Egypt to overflow on the flat desert land. In 1898 a dam was built across the Nile just south of Aswan for the purpose of saving some of the Nile flood waters and releasing it during times of low flow. However, in 1968, since the completion of the much larger structure to the south, the older structure became known as the Aswan Dam and the newer structure as the High Dam. The High Dam impounds the largest artificial lake in Africa, which extends for about 270 km south of Aswan. The lake is known as Lake Nasser in Egypt and Lake Nubia in Sudan and was designed to provide Egypt a reliable source of water for irrigation and hydroelectric power (Abu-Zeid and El-Shibini 1997: 210-13).

Before the construction of the High Dam, the velocity of the river was influenced by its gradient, therefore it varied from place to place. Furthermore, the velocity of the Nile water varied from the flood season to the drought season. During the flood season in summer, the water took about six days to travel from Aswan to Cairo, with a velocity of about 8km/h, while in low-water season, it took from ten to twelve days to travel the same distance, with a velocity of about 1.8km/h (Hassan 1997: 61; Said 1981: 80-1). This had an obvious effect on the speed of vessels travelling on

the Nile during different seasons and made travelling during flood season, or at least ahead of the flood, preferred by sailors for fast shipments.

As to the Nile Valley, it has always been subject to moderate north and north-western winds that blow all year round (Fayed 1994; Mohamed 2001: 97-103). Even in winter, when violent storms blow over Egypt's northern coast, the Nile Valley is generally not affected (Fayed 1994: 123-25). Accordingly, Nile water that flows from south to north and winds that blow in the opposite direction, made the river navigable in both directions at almost all times (**Error! Reference source not found.**).

1.1.1. The Nile Valley and Delta

The Nile Valley consists of the broad floodplain which flows between steep limestone or sandstone hills(**Error! Reference source not found.**). The floodplain and the width of the valley floor widens northward until it opens up into the delta, just north of Cairo. The term "delta" was coined to describe the region where the Nile flowed into the Mediterranean. The ancient Greeks were impressed by the triangular outline of the region around the Nile's mouth and how similar this shape was to the 4th letter of the Greek alphabet (Δ)(Al-Manawy 1966: 106).

At present, the Nile splits into two branches at the southern end of the delta, the western, or Rosetta branch, and the eastern, or Damietta branch. Up to the time that the High Dam was built, the delta was expanding northwards towards the Mediterranean Sea as a result of the accumulation of the sediments loads discharged annually by Nile over-flow. These sediments are now filling Lake Nasser, with the

result that the sediment-starved delta is slowly shrinking and its shoreline is retreating southwards (Woodward *et al.* 2007: 283).

North of Aswan, the river is flanked by a floodplain that widens progressively to the north, and then fans out to create the delta. The scale of agriculture increases as the area of cultivatable land increases northward. This allows for larger populations as the delta supports 63% of the country's agricultural land and accommodates about 45% of Egypt's population (El-Asmar and Hereher 2010). However, at Aswan exists the first cataract, which was a great natural obstruction for travelling upstream by sailboats or those powered by oars. The cataract is an obstruction of the river caused by a series of rocky rapids and small islands. Upstream, for hundreds of kilometres from Aswan the floodplain was not wide enough to be cultivated to support a great population (Bunson 2009: 115).

In ancient times, Egypt was divided into Lower and Upper Egypt, with Lower Egypt being the delta region and Upper Egypt being the area from the delta to the first cataract at Aswan. Even though the Nile flows only 170 km through the delta, it contains about twice as much agricultural land (about 22,000 km²) whereas in Upper Egypt (about 12,000 km²), which also had its influence of the size of Nile traffic and the movement of goods (El-Asmar and Hereher 2010).

Following the Nile north from Aswan, its valley immediately narrows and is surrounded by sandstone cliffs until near KomOmbo where a broad flat plain appears. The valley narrows again at Gebel Silsila gorge, known in ancient times as "Kheny" which has been translated as "The place where you have to row" probably due to the narrowing in the Nile's channel, making the river flow even harder and stronger, plus, the mountains on both banks of the river were blocking the prevailing

wind, the reason why boatmen had to row to get out of that area. The Gebel Silsila gorge takes the form of a long stretch of sandstone quarries which had been exploited from the 18th Dynasty until Greco-Roman times. In the latest discovery of the (Gebel Silsila Survey Project 2015) ornamented blockworks and a hieroglyphic text that clearly mentions the site's Egyptian name *Kheny* was found in the site of the temple in the area near the quarries. The river, being bounded between steep cliffs, flows through a narrow valley for another 30km and then the valley begins broadening forming the delta (Woodward et al. 2007: 267). Near Esna, about 160km downstream from Aswan, the sandstone of the bounding cliffs is replaced by limestone, and limestone makes up the bounding cliffs all the way to the delta. At Qena, about 120km downstream from Esna, the Nile swerves east and the valley broadens significantly. Limestone cliffs rise to heights of 300m or more on either sides of the valley. It is in these limestone cliffs that the Pharonic tombs in the "Valley of the Kings", west of Luxor, were built. Near Assiut, about 260km downstream from Qena, the cliffs on the western side become much lower than those on the eastern side and continue so for about 400km to Cairo. From Qena to the delta the river stays on the east side of the valley. Nearly 90% of the cultivatable land in Upper Egypt lies on the west bank of the Nile, which had direct influence on the establishment of towns and villages and hence on the shipment and movement of goods and products.

Nevertheless, the most drastic geomorphological change that affected the Nile Delta during the past two millennia was the substantial alteration in the number and position of its ancient distributaries (Hassan 1997; Said 1990b).

“There is great difficulty in settling the ancient branches of the Nile, after its division into seven parts, when it runs through that part of Egypt which was called Delta, by reason that many of them have been filled up for want of being cleaned; and the maps that have been made of those parts are not entirely to be depended upon.” (Pococke 1763: 1.15-6).

Past Cairo, the Nile continues in a north-westerly direction for about 20km, and then it fans into the Rosetta and Damietta Branches of the Delta. The western branch, which debouches into the Mediterranean at Rosetta, is about 236km in length, while the eastern branch is about 242km and reaches the sea at Damietta. However, the Rosetta branch is much wider, with an average width of 500m, while the Damietta Branch is only 270m wide (Mohamed 2001: 128). A number of ancient authors, historians and travellers spoke about the Nile branches in antiquity, such as (Herodotus, Strabo, Diodorus Siculus, Pliny, Ptolemy Claudius, Ibn Mājid, and al-Idrīsī); however, there has been obvious variation between them in defining the exact number, names, nature and routes of those branches, which indicate that they were in constant change through time. Nevertheless, it is quite evident that most of the branches were navigable, and contributed significantly to the development of the internal transport system in Egypt. Moreover, navigation on the Nile has been enhanced by digging navigable canals; a skill which Egyptians excelled for millennia.

Of the branches mentioned by ancient historians and geographers, only two exist today. The silting of the other branches generally extended from east to west, probably in association with periods of high rates of sedimentation of the first

millennium AD (Abd Al-Fattah & Frihy 1988). Nile Delta has been experiencing significant changes due to the flood of River Nile. Moreover, there is a general tilting of the Delta towards the west (Mohamed 2001: 177). This resulted in the diminishing of the water supply of the eastern branches, which eventually led to their extinction, while water supply increased for the western branches. Therefore, due to this uplift, the Rosetta Branch is currently almost twice as wide as the Damietta Branch, and possibly the ancient Canopic Branch was even wider (**Error! Reference source not found.** and **Error! Reference source not found.**).

Other factors that may have contributed to the decline of the ancient Nile branches during the first millennium AD, were the successive incompetent administrations that ruled Egypt after the 3rd century AD, as well as the social and political unrest that prevailed by the end of the Roman period (El-Abbadi 1996: 243-71). As a result, local authorities failed to maintain the distributaries during periods of heavy sedimentation, which eventually contributed to their siltation (Said 1993b: 70).

It has been suggested that the surviving two branches are of a somewhat artificial nature, which aided their survival as they followed a relatively direct route to the sea and had a steeper slope and a stronger current than the natural branches; therefore they were able to take up most of the water from the other branches, which in return contributed to their decline (Hamdan 1980: 195).

1.1.2. Changes in the Nile's Course

Studies by Lutley & Bunbury (2008:3) suggest that the Nile is moving laterally at rates of up to 9km every thousand years. The direction of motion depends on the

curvature of the river; bends tend to move outwards and downstream except where constrained by the desert edge. From Aswan to Cairo, the Nile Valley has an average width of about 15km (Mohamed 2001: 120-2). However, it is noticeable that, throughout its course, the river tends to occupy the eastern side of its valley, to the extent that in some areas like Al-Menia and BeniSueif, the river plain is located entirely to the west of the Nile channel, while to the east there is hardly any distance between the river and the desert (Ball 1939: 4), which means that the river tends to deposit its sediments mainly on the west bank. At the same time, the repeated process of building up the Nile banks, and the relatively high velocity of water during the flood, resulted in the river taking different shifts along its course (Said 1993a: 80). On that account, significant changes have occurred in the topography of the floodplain and the course of the river since antiquity. Many of the villages and settlements of Upper and Middle Egypt which were located on the banks of the river, in Dynastic, Hellenistic and Roman times, are now several kilometres inland. For example, between Akhmim (*Panopolis*) and Cairo, the river passed by Al-Quseiya, Al-Ashmunein (*Hermopolis Magna*) and Al-Badrashin (*Memphis*) during early 19th century. Those three towns are currently 4km, 8km and 2km west of the Nile channel respectively (Said 1993b: 61-3)(**Error! Reference source not found.**).

The fact that the Nile deposited most of its sediments on the western side of its plain, and that its course shifted eastward, had a significant impact on the construction and decline of ancient Nile harbours.

1.2. Nile Flood System

Due to the Nile obvious impact on nature and society, climate variability and change have been increasingly discussed in the recent years. The time series of the minimum and maximum River Nile flood levels is a prime example for the study of climate change. The River Nile is subjected to different floods with considerably high variations ranging from very low to very high floods (**Error! Reference source not found.**).

Ancient Egyptian texts mention the first flood management concepts. The earliest evidence of water control in ancient Egypt is the famous historical relief of the mace head of Scorpion King also known as the Major Scorpion mace head, currently in the Ashmolean Museum, dates to around 3,100 BC. It depicts one of the last Pre-dynastic kings, holding a hoe and ceremoniously cutting a ditch in a grid network, which confirms that Egyptians began practicing some form of water management for agriculture about 5,000 years ago (Butzer 1976: 50)(**Error! Reference source not found.**).

As Nile water was the principal source of life for Egyptians due to the aridity of the climate and the scarcity of rains, thus, they always had the leadership in flood management. Moreover, the need for Nile water forced the Egyptians to establish one of the first challenges to measure the water levels (Figure 11).

As mentioned earlier, the Nile channel has moved during the past 5,000 years. We already know from the intensive borehole survey (1983-2004) of David Jeffreys that the Nile has moved towards the east, abandoning the Roman water-front at Memphis (described by Joseph Hekekyan in the 1850s) and moving to the eastern boundary of

the Nile valley in present times (Bunbury and Lutley 2008)(**Error! Reference source not found.**).

The volume of Nile flood discharge, as well as its seasonality, is primarily governed by the impact of climate on rainfall over the Nile sources in Ethiopia and Equatorial Africa. River Nile flood has great variation due to the different characteristics of the Nile basin. It can be as high as 150 billion cubic meters per year (year 1878/1879) and as low as 42 billion cubic meters per year (year 1913/1914) (Yousef and Osman 2000: 253). Both extreme cases, very low and very high, floods had their own side effects. While the low floods had their own consequences such as the shortage of water supply, navigation difficulties, and sedimentation problems, high floods produce very important results/outcomes/effects. Some of these impacts are the flooded areas, their effects on river banks, beds and maritime structures.

We have several accounts, from the 19th century, about river Nile flood, one of the most detailed accounts was by Edward Lane, who travelled up the Nile and wrote his book titled (An account of the Manners and Customs of the Modern Egyptians), he mentions what Egyptians used to do during the inundation of the Nile during the night known as "*Leylet en-Nuktah* " (or the Night of the Drop):

"The night of the 17th of June, which corresponds with the 11th of the Coptic month of Baoneh, is called "Leylet en-Nuktah" (or the Night of the Drop); as it is believed that a miraculous drop then falls into the Nile, and causes it to rise. Astrologers calculate the precise moment when the "drop" is to fall; which is always in the course of the night above mentioned"(Lane 1835b: 453).

About four weeks later, the flood would move northwards, so by the end of September or early October it reached its maximum high level in the Delta, inundating its

floodplain along its length to depths of 1-3m. Subsequently, the flood remained stable for about a month, and then it started falling rapidly, so the first basins in Upper Egypt were normally dry by November, and by December or January the river would return to its normal level. Then the water level resumed dropping until it reached its lowest levels by June when the Nile was reduced to half its ordinary breadth (Butzer 1976; Said 1993b: 96-7).

Hence, we have Lane's account about "*Wefa en-Neel*" (the Completion, or Abundance, of the Nile):

"On this day, the Munadee goes about his district, accompanied by a number of little boys, each of whom bears a small coloured flag, called " rayeh ; " and announces the " Wefa en-Neel " (the Completion, or Abundance, of the Nile). The period when the Wefa en-Neel is proclaimed is when the river has actually risen about twenty or twenty-one feet in the neighbourhood of the metropolis; which is generally between the 6th and 16th of August (or the 1st and 11th of the Coptic month of Misra)" (Lane 1835b: 456).

1.3. Nile Harbours:

The Nile was the backbone of the transport system in Egypt until the early 20th century (Hassan 1997: 62-3). The Nile was the principal and cheapest means of internal transport of people and goods. Under the Romans, riverine transports acquired particular significance as riverboats were carrying commodities that were considered of a great value to the empire's capital. Moreover, the fact that there was no part of the valley more than about 15km from the Nile and many towns were within a half-day's sailing of the next town (Bagnall 1993: 18-19), contributed significantly to the abundance of river harbours and the regularity of boats travelling up and down the Nile.

Nile harbours were also receiving and despatching various goods, which were involved in internal trade in Egypt, throughout time: foodstuff, fodder, pottery, timber, cotton, building stones, and even beasts of burden were all loaded and unloaded from river harbours (Bagnall 1993: 37; Khalil 2009: 135).

However, in spite of the mass of shipping that river harbours were handling and the large number of riverboats that were travelling up and down the Nile, no evidence of substantial ancient of historical harbour installations have survived.

Herodotus (2.97) stated that '*When the Nile overflows, the whole country is converted into a sea, and the towns, which alone remain above water, look like the islands in the Aegean*', while Strabo (17.1.4), who visited Egypt in 25 AD mentions that '*...but the rising of the Nile, the whole country is under water and becomes a lake, except the settlements, and these are situated on natural hills or artificial mounds and contain cities of considerable size and villages, which when viewed from afar resemble islands*'. So, towns and villages close to the Nile had to be built on relatively high grounds to avoid being inundated during the flood, while their adjacent harbours were situated on the riverbanks, which made them susceptible to the annual depositions of Nile sediments. Therefore, Nile harbours generally consisted of two parts: the town and the waterfront. Towns were where the business took place, while the waterfronts handled the movement of people and goods. This can still be said about Nile villages and harbours in subsequent periods until the construction of the High Dam.

Unfortunately, we have no significant material or iconographic evidence of ordinary river harbours from antiquity (Khalil 2009: 138).

Many representations from ancient Egypt of artificial harbours that took the form of rectangular basins excavated inland and joined to the river by canals. However, they are mostly associated

with temples or royal residence.

(Why do you use “on the other hand”, are you comparing ideas?), in a scene depicted at the Tomb of May (c.1365 BC) at Tell El- Amarna we see a representation of what an ordinary Nile harbour might have looked like. In the foreground of the scene we can see a waterfront with boats moored at the shore, tied to mooring posts, while there is a sloping pathway that connects the waterfront to a colonnaded building located higher up on the levees. Between the river and the colonnaded building, the riverbank is depicted with a number of people performing various waterfront activities (Khalil 2009: 139). It is obvious that such harbour would not have had many permanent installations, simply because each time the Nile floods, it would bury under its sediments any waterfront installations the harbours might have.

More evidence on Nile harbours can be obtained from the 18th and 19th century illustrations and photographs which often depict various types of Nile vessels moored at a flat stretch of the riverbanks (Breccia 1914: 14), without any evidence for permanent harbour installations. The boats can easily be loaded and unloaded from their position by the use of simple gangplanks or temporary quays made of the river clay. No matter how much the water level rose during the flood, boats can still be moored at any suitable stretch of the riverbanks, which is the same case in the present day. During one of the fieldworks, that will be discussed later in Chapter Three¹, sail boats were moored at the river bank, and the boatmen can go up and down a gangplank to reach the deck (**Error! Reference source not found.**).

Ordinary river harbours in Egypt were probably not much different from such arrangement. Regardless to the river’s water level, towns and villages situated higher on the levees would have taken advantage of flat stretches of the Nile banks to establish their harbours without any

¹See Page Number 51

permanent waterfront installations. They could have used simple jetties of local wood or piled stones for mooring relatively large vessels that they can access using wooden gangplanks, while smaller boats could be hauled close to the shore for loading and unloading.

As mentioned earlier, harbours were subject to annual sediment deposition, which must have contributed significantly to the absence of material evidence for their existence. The acts of rebuilding and maintaining the river harbours along the Nile in accordance with the river's flood cycle, was probably part of the routine work undertaken by local residents of towns and villages along the river's banks. However, Nile harbours were mostly workaday facilities, which are unlikely to have been preserved in the archaeological record.

Most of the sail boats in the 19th and 20th centuries had two or three big lateen sails, these lofty sails are designed to overtop the high banks and buildings, and so catch the breeze which would otherwise be intercepted. The build of the boats also is peculiar; they are very wide and flat bottomed, and the rudders are unusually large, so as to enable them to turn quickly in the narrow channels, which are often tortuous (Kelly 1912: 39). Sails and masts have exaggerated proportions (Clot-Bey 1840: 452-3). The masts are manually closed, by the means of boatmen getting on top of the yard and fold the sail manually, which generates accidents when the winds are too strong, as mentioned above. More details about boat types, description and functionality will be discussed more elaborately in chapter two.

CHAPTER TWO: SAILING THE NILE

Chapter Two: Sailing the Nile

Nile nature and annual routine did not have a significant change throughout the ancient times up to the point when the river was obstructed to build the Aswan Dam in the early years of the last century. As a result, sailing traditions on the Nile remained more or less unchanged through that long period of time, which contributed to the fact that Nile boats' characteristics have not changed much through ages.

The Egyptians knew, or perhaps even invented, the sail at the end of the Pre-dynastic period, around 3100 BC suggested by the early use of hieroglyphics showing a boat with sail to mean to go "south" or upstream, and a boat without sail to mean to go "north" or downstream (McGrail 2004: 16; Al-Manawy 1966: 192))Fabre 2004: 89)((**Error! Reference source not found.**)**Error! Reference source not found.**). The first sail known was a square sail, made of a rectangle piece of linen cloth or whatever material was available to be used (Casson 1964: 16). However, the square sail was the best with the wind coming from behind; it was not too efficient when sailing into the wind. Thus, in order to achieve such purpose, boatmen adopted the "fore and aft" rig, so the sail lies in the fore or aft line of the boat (Whitewright 2010: 2). This configuration, would allow boatmen to adjust the sail position according to the direction of the wind, making sailing into the wind easier. According to Casson (1964: 16; Whitewright 2010: 2) the "fore-and-aft" rigging had four chief versions, which was evolved over the centuries, these versions are: "*the lateen, the sprit, the gaff, and the leg-of-mutton*"(**Error! Reference source not found.**). A major evolution was transforming a square sail to a Lateen sail (**Error! Reference source not found.**). "*Lateen-rigged ships were probably faster, and achieved better sailing angles to the wind than square-rigged ships.*" (Whitewright 2010: 2 after Castro et al., 2008: 348) (**Error! Reference source not found.**).

Boats, normally had a main mast, carrying one sail. However, a number of extra masts and sails could be fitted in one boat in order to utilize the full force of the wind. These extra sails are named according to their location on the boat. The fore sail is called *artemon*, while the aft sail is called *mizzen* (Casson 1995: 239-242) (**Error! Reference source not found.**).

Archaeological finds such as the Dahshur boats (Haldane 1993: 202-203), gives us an idea about the kind of working boats which have been used along the Nile water in the Ancient Egyptian period, which is, to an extent, not completely different from the ones which were used on the Nile until the introduction of motor engines and fiber-glass hulls (**Error! Reference source not found.**and Figure 21).

Nile river system was the biggest contributor to long and medium-distance movement and bulk transport in Egypt before the modern era, and was the optimal medium for transportation. Moreover, it affected directly the patterns of human settlements. Even after the introduction of railway systems in Egypt, The Nile remained one of the major transport highways in the country (Cooper 2008: 3).

In addition, the Nile wasn't just a transportation medium, but also an environment where trees such as acacia, sycamore fig, date-palm, dom-palm, persea, and tamarisk did indeed grow within its bounds, all of which have been used by Egyptians for building their Nile boats (McGrail 2004: 16). According to Haldane(1993: 38-39) timber resources in Egypt were great, although local wood have certain issues in building big boats, still it was the main type to be used in local wooden boats. Foreign timber was available but extremely expensive. Finally, both imported and local wood were under the direct control of royal government in ancient Egypt.

This chapter is not intended to be a catalogue of boat types and images, but more as a descriptive analysis of Nile boats characteristics throughout the last two centuries, which lead to

the final development of the last wooden sailboats of the Nile, which are currently on the verge of extinction.

Accordingly, this chapter will be divided into three sections, the first will be dedicated to working boats, the second to leisure boats, and the third will be discussing a broad overview of the Nile navigation methodology, and the hardship that encountered boatmen on the Nile through the accounts of different European travelers in the 19th and 20th centuries.

Nowadays, all Nile boats are known as "*felluka*" *فلوكة* which is the generic Arabic term for a boat. This chapter aims to give a better understanding of different names of Nile boats of the 19th and 20th centuries; and their typology including their functions and different characteristics. The typology will be based on the description of these boats which occurred in the 19th and 20th centuries resources, with a comparison to ancient Egyptian boat typology when applicable. Moreover, the influences affecting boat building tradition in Egypt will be outlined and discussed.

Clot-Bey (Clot-Bey 1840: 446) mentioned that "*at time of the French expedition there were 1,600 boats on the Nile. Today (in 1840) their number is 3300. These boats are divided into classes according to their size and their use.*" On the other hand, Wilkinson (1847: 124) talks about the names of the Nile boats, stating the following: "*the djerm (germ), the maadil, aggub (akkub) mash or rahleh, dahabeeh, cangia (kangeh), Kyas (Kyaseh), Sandal, sefeenee, garib (Karib), and maadeeh.*"

Most European travelers who wrote about Egypt at that time concurred on these names. However, some of them have different names for the same type of boat, or know the same boat with a number of different names. Hence, in this chapter, the researcher will examine the majority of names and typologies of traditional Nile sailboats.

The order of names will be alphabetical. Boats will be divided into two main categories; a) Working boats, and b) leisure boats, under each category the researcher will outline its main characteristics, and state the different resources discussing these particular types.

One of the main problems associated with boat names and types is the transliteration of their names from Latin to Arabic since several letters in Arabic could be represented by one Latin letter, while Arabic resources are very limited in that respect. When most of the resources were written, no distinctive phonetic symbols were established, that would allow proper and accurate interpretation and hence Arabic transliteration of the names. However, the researcher has tried to examine all phonetic differences of the same Arabic proper names, and adding his own remarks through the knowledge obtained during the process of the research and fieldwork.

2.1. Working boats (cargo, ferry, fishing)

2.1.1. Aggub/Akkub/Agaba/Hagab عجب - عجب - عجب - حجة

The Aggub is only used for carrying stone, and is unique among the boats of the Nile for its square sail (Wilkinson 1854: 124)Folkard 1870: 14). However, this is not the only description related to this name. During the early 19th century, Rifaud, drew a type of boat called "*hagab*" (which conceals the view). It is a boat with a square sail that seems to have a high edge (Rifaudetal 1998: 145-147)(Figure 22). A drawing of Pascal Coste representing "an *Agaba* loaded with coal" appears in one of his albums. The drawing shows the mast completely stripped of its veil. However, (Clarke 1920) argues that the square sails have been long extinct in his days (1917), and he provides arguments from old manuscripts and other travelers account date back to the 18th century.

Murray and Wilkinson (1873: 126) and Wilkinson (1854: 126) state the difference between the Ethiopian and Egyptian square sail during that period; *"The square sail is still retained in Ethiopia, where it is furled by forcibly rolling up the lower yard in the sail; but in Egypt the only modern boats with square sails are a sort of lighter, employed for conveying stones from the quarries to Cairo and other places; and these have only a yard at the top."* In the 19th century, however, Hornell (1970: 215) could trace these square-sail boats to the south of the fifth cataract, and he described these boats as fishing boats and ferry boats using a kind of light square sail. And between the fourth and second cataract, the sails were more of the oblong shape (Figure# Drawing by Hornell). During the fieldwork conducted by the researcher in Upper Egypt between Qena and Aswan, the researcher came across a boat used only for carrying stones between the quarry in a place called (*Aqaba* – العقبة) and Qena (**Error! Reference source not found.**). This boat might be the last successor of such type of boats, and hence it is named after the place where it originated from.

Another description of the same name was mentioned by Edward Lane when he was talking about *"The period when the Wefa en-Neel is proclaimed"* he mentions a boat used in the festivals of the completion of the Nile he called it *"Akabeh"* and describes it as a very large boat painted specially for the occasion, and had two small cannons on board, and was glittered with a large number of lamps. Moreover, it was a cabin boat, which had a pavilion composed of pieces of silk over it, and was adorned with two pennants. Also it was used during the Ottoman period as a boat special for the Wali and other state's officials (Lane 1835a: 459; Al-Manawy 1966: 199). However, Lane in the footnote states the following *"Akab is the general name of the largest kind of the boats which navigate the Nile; and " 'Akabeh " (plural " 'Akabat "), the name of a single boat of this kind."*

2.1.2. Djerm/Germ/Gerbes/ Jarm - جرم - جرمة

It was mentioned in many travelers' writings as a two-masted cargo vessel that sailed the Alexandrian Mediterranean and the Nile Delta. It was functioning until the early 19th century, but dates at least from the 7th century AD (Greenhill 2001: 173). Clot Bey (1840: 450) described the *Djermes* saying that: *"they are smaller than Maachs (See page 31) and also used to transport goods. They sail only on two branches of the Nile. They also sail from Alexandria to Rosetta and Damietta sometimes in Cyprus and Syria."*

Resources agreed that the *Germs* were the largest boats on the Nile with reported lengths that ranged from 15 – 21 meters. It was a flat, broad boat, roofless, and similar to the one used on the river Rhon for carrying salt. It had fine lines, long overhanging bow, rounded stern, washboards amidships and flat floors. Long lateen yard set atop a vertical mainmast stepped amidships, and it was fitted with two or three masts; the foremast raked sharply forward. It had a hollowed deck and it was only used on the Nile during the inundation, or between Alexandria, Rosetta, and other ports on the Mediterranean (Alnakhily 1974: 22; Clot-Bey 1840: 450; Greenhill 2001: 173; Wilkinson 1854: 124).

The capacity of this kind of boat varied according to the size of the vessel. However, the recorded capacities were 800, 2000 and 4800 ardebs (120, 300 & 720 tons), and to give some idea of their size, a boat of 250 ardebs measures about 10 meter in length and 3 or 4 in breadth. It is said that this type of boat was only employed for carrying corn, and during the summer they were laid up, covered with mats, to protect them from the sun (Wilkinson 1854: 124; Folkard 1870: 14) (**Error! Reference source not found.**).

2.1.3. Gaiassa/Kaiasseh/Kyasah/Kyas/Kayasse قياسة/جياسة

"The Kaiassehs: they are flat-bottomed boats intended for navigation on the Nile when the water level is low"(Clot-Bey 1840: 451).Sir Gardner Wilkinson in 1847 describes a type of boat called the *Maadil*, which is also sometimes called, *Kyas (Kyaseh)*, as being of a very similar construction to the *Djerms*, but smaller, carrying from 150 to 800 ardebs (Wilkinson 1854: 124;Kelly 1912: 37).

Smyth (1906:289) thinks it was of Asiatic origin, based on its rigging. He describes it as the following "It is a bulk cargo vessel of the Nile that sails upstream with the prevailing northerly wind and drifts downstream with the current; also used on the Suez Canal and the Red Sea."(A. Smyth 1906a: 389)(**Error! Reference source not found.**)

The *Gaiassa* was a wall-sided, flat bottomed barge with an exaggerated bow. (A. Smyth 1906a: 290) describe this type of boat in detail: "*Bow blunt to almost flat. Very low freeboard, a little wall of planks set in dried mud sometimes is been added to the gunwale so as to keep out the waves. The bottom is protected by a certain amount of keel-piece forward as well as aft, but this gradually runs into the hull amidships. The reason of this keel appears to be as much for protection in grounding, which is necessarily of frequent occurrence among the ever-shifting channels.*"

The boat had a huge rudder controlled by a long, thick, two-piece tiller that lashes to the rudder. Individual boats were identified by colored bands on the mast and yard top. The boat had from one to three masts mostly with steps on their side to enable crew to climb aloft. They also carried lateen sails; often with the foresail and mizzen as quadrilateral lateen-type sails with a short luff, or the mizzen may be a quadrilateral sail. The exceedingly long main yard is in three pieces, lashed together. Sail may be boomed out forward; outrigger aft. High point of

the bow holds the lifting tackle. Also the boat was poled or rowed according to the sailing conditions (Greenhill 2001: 230; A. Smyth 1906a: 290)**Error! Reference source not found.**

According to the French expedition' writers (*Description de l'Egypt: Etat Modern*) under the title *Kayasse*, included boats of 50 and 90 tons; it was not possible to distinguish more than what has been done in this table, the different species of these boats also called *Kayasse*, any boat which has no room or cabin.

Also reported dimensions by the French are between 5 to 17 meters in length and 2 to 6 meters in width, and it can carry up to 200 tons of goods.

2.1.4. **Kaiks/Kik** كيك/كايك/قايق

It was described briefly by (Clot-Bey 1840: 451) as a small house-boat which was used by the fellahin to cross the Nile. These boats are very frail, and it capsized all the time because it was always over crowded with people (Al-Manawy 1966: 200).

Also, t was reported as a cargo vessel on the Damietta branch of the Nile Delta, with a sharp bow, flat bottom and lateen rigging(Greenhill 2001: 321).

2.1.5. **Ma'addiyya** معدية

A Term used to describe a Ferryboat; a generic name which describes any type of vessel that carries people and animals from one bank of the Nile across to the other bank; some with sails, and others used oars. Most boats of this type are still being built of wood, but steel hulls are becoming more common. Many are still in use in different parts of Egypt, however, they are being equipped with diesel engines specially in upper Egypt, where the Nile is broader (**Error! Reference source not found.****Error! Reference source not found.**).

2.1.6. Maach/Mâch معاش

Clot-Bey(1840: 450) was the only one who stated that this type of boat was used for transporting goods, while all other resources mentioned that it was used as a passenger boat (this will be shown in the next section of this chapter). Also the writers of Description de l'Egypt agree with Clot-Bey on the name. In the Volume "Etat Modern" there is a collective table of all boat names, dimensions, propulsion, capacity and months of navigation on the Nile. It states that a *Grand Mâch* is a "*Kangeh-kebyr*" a *big Kangeh* and it was used in Upper Egypt. More details will be discussed later about the type called *Kangeh*, which was used as a leisure boat. Perhaps there were two kinds of these boats, one was strictly used for transporting goods, and the other was used merely for leisure cruises along the Nile (Table 1).

(Clot-Bey 1840: 450) describes the "*Maach*" "as boats used mainly to transport bulky goods such as cotton, wheat, etc. These boats are as big as the ordinary commercial English and French vessels at that time; there are even some which can contain up to 500 tons. They have two or three masts and lateen sails. They only sail in the time of inundation. They make two trips per year. However, according to Description de l'Egypt this kind of boat could carry up to 60 tons only.

2.1.7. Mahonne معونة/معون

According to (Greenhill 2001: 371) this was a type of large cargo vessel used along the Mediterranean coast and in Al Mahmūdīyah canal (**Error! Reference source not found.**).

2.1.8. Naggr/Nuggar نجر

The “*Naggr*” is a common type of native-built boat, with no frames and with a width or beam often approximating to half its length. The hull was in the shape of a tea spoon, it might fit the description that Herodotus mentioned about the wooden working boat of the Nile, which was made of short planks of acacia wood, and it was laid down together like bricks and through-fasten them with long spikes set close together and then the hull was completed (Manley and Abdelhakim 2004: 34; Macaulay 2006). These boats ranged in size from small *Fellukas* to large craft which can carry 100 tons (Clarke 1920: 5)(**Error! Reference source not found.**).

The *Naggar* was constructed of heavy *acacia nilotica*, pinned together by long iron nails clinched on the outsides. According to Smyth (1906: 296) the rig of a “*Naggar*” was a single balance-lug with a boom along the foot, it was some kind of square sail, however, the yard and boom were tilted forward (**Error! Reference source not found.**). He also argues that “*the lateen rig was rarely used. In default the masts, yards, and booms are generally of Kakamut wood from the upper Nile. These boats are at all sizes - from thirty feet upwards - and have the heavy Gaiassa form of rudder*”(A. Smyth 1906a: 296-8).

2.1.9. Qârib, Sambūq, Sandal قارب، سمبوك، صندل

These represent a generic Arabic term for boat, especially a small rowboat used close to shore. Early literature also refers to the *Qârib* as a ship’s boat carrying as many as 33 men, or as a small boat that accompanied a ship, sometimes carrying extra cargo (Greenhill 2001: 479).

2.2. Leisure boats

As mentioned above, the Nile was full of sailboats carrying both goods and people. Yet some kinds of boat were sailing up and down the Nile, and were strictly for passengers and travelers; namely the *Maa'sh*, *Dahabeeh*, and *Cangia*. Those three types peculiarly adapted for travelling on the river, being furnished with cabins (Wilkinson 1847a: 124). These types of boats were for hire at Cairo's main Nile-port Boulaq بولاق at rates starting from 1000 piasters per month and as high as 8000 piasters per month (Wilkinson 1847a: 124). "*Boulak is the port of Cairo... There is a busy line of boat builders constantly occupied on its bank; it abounds with warehouses and granaries...Boats are generally hired at Boulak (where their builders live) at certain rates per month*"(Fairholt 1862: 77).

2.2.1. Cangia/Kange/Kangia قنجة

(Clot-Bey 1840: 451) describes the *Kanges* as Egypt's gondolas, they are slender and elegant, fast and lightweight. "*Sizes vary from 9 to 12 meters long and 2 to 3 meters in width. They might have one or two masts with lateen sails, very picturesque in appearance, and admirably well adapted to make the most of the wind; there is but one objection to them, they require constant attention and nice management, without which one runs the greatest risk of capsizing by the sudden squalls which come down from the mountains*"(Bartlett 1851: 124-5). It has a cabin aft divided into two rooms which are painted and decorated; but even in the smallest they did not extend over the whole breadth of the boat, and merely occupied the centre. The after-cabin and passage served as a deposit for stores and a washing-room (Bartlett 1851: 124-5; Wilkinson 1854: 126). These boats were very fast, that Clot-Bey(Clot-Bey 1840: 451) argues that it takes 24 hours to get from Alexandria to Cairo.

2.2.2. Dahabeeh/Dahabieh ذهبيه

Currently, the name *Dahabeeh* is given to luxurious Nile cruises, which travel the Nile from Cairo up to Lake Nasser, but in the old days it was a beautiful double-masted wooden boat, with a large cabin in the aft(**Error! Reference source not found.**).

Reported lengths of the *Daabihs* are 12, 15, 30, and 55 meters long with a slim width between 4 and 5 meters only. They are equipped with 2 lateen sails, the larger mast and lateen yard is fixed towards the bow of the boat, the smaller one in the stern. Oars were used in this type of boat, the number of men and oars are equal, reported oar numbers are 12, 18 and 20, and a number of long poles for pushing off from the sand-banks. They have 2, 3 or 4 rooms for travelers in the rear. A small row boat was towed to the big boat to be used when needed(Clout-Bey 1840: 450-1; Fairholt 1862: 79; Carey 1863: 80;Folkard 1870: 14; Laporte 1872: 7; Manning 1875: 67; Lynch 1890: 170)(**Error! Reference source not found.**).

The only writer who stated that it was used to transport goods when the Nile waters are low was Clout-Bey(Clout-Bey 1840: 450). Other travelers only write about it as the main and most comfortable mean of transport to go up the Nile and back again.

The *Dahabeeh*'soars, and the small row-boat are gaily painted in green, red, and white (Carey 1863: 81; Folkard 1870: 14).

Sir Gardner Wilkinson (1847: 124) compares between the *Dahabeeh* and *Cangia*: “*The Dahabeeh is, however, the larger and more commodious of the two*”

Sir Wilkinson also describes the *Dahabeeh* in full detail, mentioning that it was furnished with a gangway on each side of the cabin, extending to the steerage and had a rounded stern. He was impressed by the enormous foresail which was attached to a very long tapering yard, in some

cases more than 30 meters in length, thick at the lower end, but gradually diminishing to a slender substance at the peak, or upper end.

“Going up the Nile, both sails were sat up, when the wind is suitable; but on coming down, they stow away the main-mast and shift the mizzen-sail to the main-mast, and so drift steadily down with the current”(Wilkinson 1847a: 124).

A large water filter, it was a fresh water tank, the used to let the Nile water sit inside it, in order to let the mud and other siltation to sit in the bottom of the tank, with a wooden frame usually occupying the centre of the main-deck. The bulwarks are very low, about 15 cm in height above the level of the deck. The stern extends much higher out of water than the fore part, and the rudders are very large and powerful (Wilkinson 1847a: 124; Fairholt 1862: 80; Manning 1875: 67) (**Error! Reference source not found.**).

The keel was of concave form, being deepest at the stem and stern, whilst there is scarcely any keel at all amidships; the advantage of which is that when they get aground forward, by putting the helm to port or starboard, the hollow part clears the bank, and enables the boat to get off immediately(Wilkinson 1847a: 124).

2.2.3. Maash معاش

Sir Wilkinson (1847:124) was the only one who mentioned this kind of boat: *“The Maash, or, more properly, Rahleh, is convenient from its large and lofty cabins; but unless a traveler has plenty of time to spare, a Dahabeeh is far preferable ; and many of these are now so large as to yield very little to the Rahleh in the comfort of their cabins, added to which they are always cleaner. The traveller who has time to spare, and intends making a long sojourn at*

Thebes, may take a Rahleh to go up the Nile, send it off at Thebes, and write to Cairo for a Daheeh or Cangia ; or, if he does not object to the expense, he may take both with him, and, paying off the Rahleh at Asouan, use the smaller boat to pass the cataracts and return to Cairo”.

From what was discussed above, it becomes obvious that the distinction between different types of boats is not easy, also the lack of the appropriate knowledge of ship typology to the European writers made it even harder to distinguish between various Nile boats. Nevertheless, in the following section the researcher will try to comparison between some of the boat types mentioned earlier in this chapter in order to reach better understanding of the various types of these boats.

The first remark is about the different names that were given to the same types of boats. The reasons why each type had that many names is not fully comprehended, however, one of the probabilities is that the same boats have different names based on the region that it was used in. Another probability is that non-Arabic speakers were writing about Arabic names, without having the proper knowledge of the language, hence they had to rely on an interpreter to facilitate their staying in the Egypt, and that man handled solely the translation process, thus some of the words might have been lost in translation. The example for this kind of problem is the boat called “*Agaba*” page#

Additionally, another problem arises from the lack of proper description of different boat types. For example, one can easily mistake the *Giassa* with the *Djerm*, as most of the resources describe similarities in these two boats. Likewise, distinction between the *Dahbeeh* and the *Kangeh* can be problematic as most of the writers describe them as the same boat, with minor differences.

2.3. Accounts on Sailing in the 19th and 20th Centuries

As mentioned in Chapter One, before the nineteenth century, Egypt was subject to the full force of the annual Nile flood, and to a restriction of water supply when the Ethiopian highlands were in their dry season. The Nile has been so largely transformed by modern hydro-engineering projects that it bears little resemblance to its pre-modern self. But a wealth of historical data reveals a more complex navigational landscape than present appearances suggest (Cooper 2007: 25).

Clot-Bey (1840) described navigation on the Nile stating that: *“Nile navigation, usually one goes back the Nile River under sail, from the spring to the autumn. Sometimes the winds are contrary and men are responsible for towing the boat. To sail down the Nile River we used the veils or the oars.”*

One might anticipate that Nile navigation was a care-free job, spreading the sail while going upriver, and drifting with the current downriver, however, this was far from the truth. Nile navigation was a difficult job, which required some experience and tolerance. The boatmen of the Nile are mostly strong, muscular men. They undergo severe labour in rowing, poling, and towing (Lane 1835: 302). However, navigation before the building of the dams was highly seasonal, and it required much more skill and expertise than has often been credited to it.

Rowing, Punting, Tracking and Hauling

Heading upstream, the travellers' accounts give include plenty of evidence on incidents of calm, weak or contrary winds, in which it was necessary to tow or track the vessel using manpower, by means of a rope, to which smaller ropes are attached, and passed over the shoulders, one to each man. Men would then walk along the banks of the river or canals pulling the boat alongside. The progress is exceedingly slow, five miles a day being about the usual

average (Carey 1863:88; Fairholt 1962: 80)(**Error! Reference source not found.**). Swinburne's relatively rapid ascent to Aswan in 1850 was achieved only through extensive use of human power, with towing or punting taking place on day 12 from the 19 travelling days. One day – out of a total of five in which the boat was towed all day – the vessel made “perhaps 19.2 km in the course of the day.” In contrast, a 100km journey, with a favourable wind, took barely 24 hours, with the boat making “12.8 km/h at times” (Swinburne 1850).

The navigation of the Nile is often difficult, especially when the river is falling, for each year it alters its course and new sand-banks are formed. The boatmen, anyhow, can usually determine their course by the nature of the ripple on the water, which varies according to its depth. Frequently, however, it is not possible to gauge the river in this way, so every boat is provided with long sounding-poles called "*midra*," by means of which men stationed at either side of the bow feel their way through the difficult channels, calling out the depths of water as they go (Kelly 1912: 37-39).

In consequence of the continual changes which take place in the bed of the Nile, and the sudden whirlwinds and squalls being very frequent on the Nile, a boatman is usually responsible for holding the main-sails' ropes in his hand, that he may be able to let it fly at a moment's notice. However, it is not unusual that even the most experienced pilot would occasionally run his vessel aground or often stick fast upon some bank which has, perhaps, been formed in a few hours by a sudden shift of the wind or slight diversion of the current, caused by the tumbling in of a portion of the bank a little higher up-stream. On such an occurrence, it is often necessary for the crew to descend into the water, to shove off the boat with their backs and shoulders (Lane 1835: 302; Kelly 1912: 39). Once the boat is in shallow water, four or five men stand on a board fastened on the outside of the vessel, and they start pushing the boat with poles, until it was freed (Curzon

1849: 16-17). Thus, on account of being so liable to run aground, the boats of the Nile are generally made to draw more water at the head rather than at the stern, and hence the rudder is necessarily very wide (Lane 1835: 302).

Another hazard was running into other boats, Curzon (1849: 18) talks about his boat running and sinking another boat in the Nile; *“On rushing upon deck I found that we had run down another boat, which had sunk so instantly that nothing was to be seen of it except the top of the mast,... A few yards astern seven or eight men were swimming towards the shore, and our steersman having in his alarm left the rudder to its own devices, our great sails were swinging and flapping over our heads. There was a cry that our bows were stove in, and we were sinking; but, fortunately, before this could happen, the stream had carried us ashore, where we stuck in the mud on a shoal under a high bank up which we all soon scrambled.”*

One of the most impressive things that required massive efforts was going up the cataracts. Normally, Nile boatmen did not pass rapids and cataracts unassisted. Warner (1884: 236) calls them “The cataract people”. In his book “My Winter On the Nile”, Warner mentioned that when his boat reached the first Cataract, his *Dorgoman* made a deal with the *Ries* of the cataract, and in his case was a Nubian *sheikh*, who is responsible for the safety of passing by boats.

Warner and his crew were sailing to the south during the low Nile, while the wind was strong from the north. He explains that *“The cataract men swarm on board, two or three Sheykhs and thirty or forty men. They take command and possession of the vessel, and our Reis and crew give way.”*

“The Nubians run about like cats; four are at the helm, some are on the bow... there is an indescribable bustle and whirl as our boat is shoved off from the sand... and takes the current.

The great sail, shaped like a bird's wing, and a hundred feet long, is shaken out forward, and we pass swiftly on our way between the granite walls”(Warner 1904: 239-249).

Afterwards, two ropes were carried from the boat to the nearest island, and are fastened to the rocks. Two ropes from the island were also brought on board the boat. A double file of men on deck, and another double file on shore, then ranged themselves along the ropes; the *Sheykh* gave the signal and a system of double hauling began, by means of which the huge boat slowly and steadily ascended. (Edwards 1888: 197; Warner 1904: 239-249)

The basic principle in ascending the cataracts was to draw the boat along, hugging close to the shore rocks, so that the current cannot swipe it on its way. In hard ascends a big cable was bent on, and was twisted round the cross-beams of the forward deck, then was carried out over the rocks (Warner 1904: 249)

**CHAPTER THREE: TRADITIONAL
BOATS AND BOATMANSHIP IN
EGYPT (An Ethnographic Approach)**

Chapter 3: Traditional Boats and Boatmanship in Egypt (An Ethnographic Approach)

As mentioned earlier, the aims of this study it to try and fill a gap in the textual and pictographic evidence about sailing boats in Egypt in the 19th and 20th centuries. In doing so, the research has utilised an array of evidence. However, this chapter is dedicated to ethnographic research as another source of evidence. In the first two chapters historical, textual, and pictographic evidence were compiled and consulted. This will be enhanced in the third chapter by adding the result of fieldwork that was carried out by the researcher aiming to provide a better understanding of the research topic.

This chapter will start by looking at the different methodologies of ethnographic research. Then it will provide a brief discussion about the field work that was carried out as an integral part of this research. Moreover, it will discuss the methodology utilised for collecting the information needed. Finally, the chapter will deal with the data that was collected from the field, accompanied by a brief discussion of the result and outcomes.

3.1. Ethnography/Ethnoarchaeology

Participant observation has been considered the domain of anthropologists. Anthropology was established "as a recognized field of study" in the 1840's in American and Europe as ethnology. The use of the questionnaire was utilized on a French naval expedition to Australia in 1800-1803 and later became a common tool of ethnologists in the 1800's (Ellen 1984: 14-37). In 1900 Jesse Walter Fewkes was the one to give the title "Ethno-archaeologist" to himself when he was attempting to identify ancient sites according to the legends that were passed down from one generation to another (Richard 2003: 142).

Ethnography is a research methodology that depends on a number of fundamental criteria. Ethnographic research evolves in design through the study (O'Reilly 2008: 9). Ethnography depends upon a group of methods, involving direct interaction with human subjects, within the context of their daily lives, observing what happens, listening to what is said and asking questions. It results in richly written accounts. Beyond this, each ethnographer will choose whether, or to what extent, he or she wishes to consider historical and/or macro factors, the extent to which to be critical or to engage in cultural politics, and the range of methods employed beyond direct and sustained contact, watching, listening, and enquiring. Similarly, ethnography tends to be small scale and tends not to include much in the way of quantification, but these are not to be taken as limitations. However, for the purpose of this research it will not be possible to include more discussion about early anthropology, its roots and development (O'Reilly 2008: 8-11; Whitehead 2002: 6-8; Whitehead 2005).

While Archaeology tends to interpret an object in order to have a clear understanding of the human life in the past, Ethnography is the study of the people in their own context in order to have a clear understanding of how they made the object, why did they make it that way, and how they were using it.

In other words, Ethnography is the study and analysis of contemporary cultures in order to have a clear understanding of certain acts of ancient ones (Darvill 2008). The word "Ethnography" originated from two Greek words, *εθνος* (ethnos) = folk / people and *γραφειν* or (grafien) = writing / drawing, which simply means folk life research (Hasslof 1972).

3.1.1. Maritime Ethnography

It is evident that Ethnography can be of great value to archaeologists as one of the sources to be used in the interpretation of excavated material (McGrail 1997).

Ethnographic studies can make the archaeologist aware of a range of solutions to general problems such as those found in construction, boatbuilding, pottery making, fire making, water management and other ancient technologies. Besides, it is well known that maritime archaeologists deal with a range of structures (McGrail, 1983: 34-41), but one of their principal concerns is the interpretation of the incomplete remains of boats and other forms of water transport. However, in that respect, maritime ethnography is not all about proposing hypothetical reconstructions of incomplete objects or structures, suggesting the possible function of enigmatic structural elements, and describing in some detail how an object or structure was made and used, but it can be used in documenting the remaining maritime traditions and practices and the result of this (folk life research) can be used archaeologically in linking the present traditions and those of the past (Agius 2002). as Sean McGrail (2001: 3) states " *...the fact that ethnographers have documented the recent use... of simple forms of water transport such as hide boat and the bundle raft does not validate a claim that they must have been used there millennia ago*". So, maritime ethnographic investigations could contribute to having an end-product of a full record of these boats in their own geographical and social context and to preserve these endangered traditions for future generations.

3.2. Fieldwork

The term 'fieldwork' in the ethnographic context is often confused with participant observation and with ethnography, as if they were all the same thing. However, to be clear: ethnography is a

methodology, participant observation is a method, and fieldwork refers to the period of primary data collection that is conducted out of the office or library. Fieldwork is also used in survey researches where it refers to the period of data collection when questionnaires are distributed or face-to-face interviews are conducted. For ethnographers, fieldwork is the phase of data collection when the ethnographer is ‘in the field’. The term ‘fieldwork’ also acknowledges that there is a beginning and end to the fieldwork part of the research process and that this phase is distinct (at least to some extent) from other phases in terms of the research design, review of the literature, analysis, and writing stages.

3.2.1. Methodology

As stated earlier, ethnography itself is a methodology, or a way of conducting a research and this methodology itself is based on a number of tools which will be discussed later on. According to Whitehead (2004) *“The ethnographer should employ any and all means necessary and prudent to create the most holistic understanding of the cultural system or group being studied, including qualitative, quantitative, classical, and non-classical ethnographic methods”*. The following few lines, however, will discuss the various methods of Ethnographic investigation, and the method that have been used in carrying out this particular research and the reason for using it.

Classical ethnographic methods, which have been traditionally used, include carrying out fieldwork and living in the communities of their hosts, observing activities of interest, recording field notes and observations, participating in activities during observations (participant observation), and carrying out various forms of ethnographic interviewing.

As Denzin and Lincoln (1994:2) have suggested, the effective ethnographer should be a “bricoleur”, a “jack of all trades”, one who uses whatever tools and techniques are at hand in

order to gain an in depth understanding of the phenomena in question. According to this definition, ethnography should not be made a slave to any single method, whatever that method might be.

In this research, the researcher utilized all the available sources in order to obtain the maximum amount of data from the fieldwork. The tools that were used to conduct the field work includes; interviewing, audio recording, written notes, and photography.

3.2.2. Type of nterview

Interviews have two basic types, covert and overt interviews. The covert interview is where the researcher or the scholar is disguised to be able to enter the community without being noticed as an outsider, and/or without revealing his/her intentions in order to gain access to the community which is being investigated. According to O'Reilly (2008: 16) *"It is important to carefully consider, prior to accessing the group, what role the researcher will take. This can affect how people see us and therefore how they act towards us, and it may also affect whom we subsequently gain access to."* Overt interview means openly explaining the research to the participants, its purpose, who it is for, and what will happen to the findings. It means being open. The researcher intends to openly talk about the research, and answer all the questions of the participants in order to give them a sense of security(O'Reilly 2008: 16). Also a verbal consent about recording the interview is taken. This research, however, was conducted using the overt interviewing method, as it serves the goals of the research better.

3.2.3. Difficulties and obstacles

Gaining access to the study areas was one of the biggest challenges during the research. The first step after choosing the fieldwork area was establishing contacts in these areas of interest early enough before going there. Each area of interest had a "gatekeeper"(O'Reilly 2008: 157), normally, the gatekeeper was a person who lives in the area of the study or knows the place, and is willing to help in gaining access to the communities under research and to be involved in the research process.

The second difficulty was the logistics of gaining the physical access to the areas of study. Most of the places were remote, and without easy access, the thing that required significant effort and time.

The last obstacle was the interruption and/or the loss of raw data. During the interview audio data was interrupted due to wind, ambient noise or a malfunction of the recording device. One of the recording files was interrupted beyond repair while downloading it from the recording device into the computer, thus, a significant corpus of data was lost. However, the researcher could recall most of the conversation and combined it with the written notes for further analysis.

3.2.4. Description of the field visits

All the field visits were consistent in form, once the researcher has the green light from the Gatekeeper to go to the site; it is a straight forward process. First, giving an introduction about the researcher, what he does, and the research itself. After a quick talk to break the ice, a specially designed questionnaire was used to collect information. The questionnaire mainly consisted of three main sections, the first called (General Questions) which contained a number of basic questions to get to know the interviewees, such as Name, Age, Occupation (**Error!**

3.2.6. Choosing a place for the fieldwork

The research was carried out over two geographical zones in order to trace the different sailing and boatmanship traditions which mainly depend on the geographical background.

The main two geographical zones are; North (Nile Valley/Delta) and South (Upper Egypt). Accordingly, the researcher made an initial roadmap for the fieldwork; this roadmap has changed according to the new data which has been obtained during the research period.

3.3. Nile Valley

During 2014 the researcher came across one of the remaining sailboats on the Nile in Cairo. Looking at it from a distance it appears very much like the boats known as *Gayassa* (see chapter 2, p.29) big, heavy laden boat, with a big draft and two masts. Few months later the researcher started tracking this boat, and after days of searching for it, he finally reached the place where this boat was originated. And it was not the only boat there; there were five more of this type of boat. After contacting the boatmen, another visit to the place was conducted later on the same week. However, to the surprise of the researcher, all of the boats were made out of metal.

The place where these boats exist right now is in a village 30 KM south of Helwan called Elmasanda part of a big town called Elaiyat.

3.3.1. Professions

Boatmen of Masandah mainly work on their sailboats to transport haystacks from Meniah to Cairo, and that is their only work and it's the only type of goods that they carry.

The boatmen inherited the skills of riverine transportation from their fathers and their grandfathers before them. They work around the months of May – June only, as they are

depending on the harvest season of the grain. So once the farmers gather their crops, and make hey stacks they call for the boatmen to transport it.

During the non-working days, boatmen of Masandah maintain their boats, as there are no skilled carpenters around; hence, they do their own woodwork. During the preliminary visit one of the boatmen, had his kids gathered around him while he was cutting few wooden planks to repair his boat's rudder. On the second visit to the site, the same boatman was fixing his yard, as half of it had woodworms and it started to weaken the structure of the whole yard, so he had to replace the infected part with some local wood namely Sycamore, or any kind of wood that he can buy from the local carpenter, *"in the old times skilled carpenters were coming from Elmanial (a district in Cairo) in order to fix the wooden parts of the boat. After a while there were not any of them anymore, so we picked up the skills from watching"* said one of the boatmen² (**Error! Reference source not found.**).

According to the oldest boatman in the village, they used to sail only when the wind is favorable. If they were facing a heavy wind, they had to anchor by the river banks and wait till the wind calmed down. On that account, they don't use any mean of tacking while facing the wind. The Boatmen of Masandah used to sail during the day and night if the weather conditions permit. While sailing, when the boat is grounded on an underwater shoal, boatmen used a special technique: *" A big pole is taken out in the deep water and is hammered down to the bottom of the riverbed, then with a metal wire attached to the hand crane of the boat in one end, and attached to the big pole on the other end, we begin to winch the boat out of the shallows... if that doesn't work, the anchor of the boat is towed by a small rowboat to the deep water and we do the same,*

²AbdElhalimAbdelAziz, 62 years old, a boatman. He used to work on cruise ships, and have a Captain license. After the 2011 revolution, he lost his job, and went back to work on the boat in his home town ElMasandah.

bit by bit, until the boat is free” Explained one of the boatmen³. The previous technique was used in the 18th century by boatmen on Manzala Lake, in the north of Egypt; Farman (1908: 119) stated “A sailor, with the end of a long rope in his hand and a short, light pole, went over the low bow into the water. He went forward a few rods, pulling the rope after him, thrust the pole into the soft bottom and tied the rope to it close to the ground. While he remained holding the pole in place, the men on board pulled at the other end of the rope, slowly moving the boat forward over the grassy bottom to near the place of the pole. The man then went forward again with the rope and the process was repeated, but little progress was made.”

3.3.2. Boats

From a distance, the Msandah boats seems like a wooden boat, it is only when one gets close enough to notice the iron sheet’s welding. The boats look identical to the old Gayassa boats, with its two big masts and sails, carrying oversized cargo, and only a little bit of the hull is over the waterline (**Error! Reference source not found.and Error! Reference source not found.**).

Masandah boats varied in lengths between 15 and 25 meters long, 5 to 7 meters in width and its cargo hold was almost 80% of the boat’s space with depths up to 1.8 meters. The boats were made of iron plates welded together. Normally the boat was built up like a normal wooden boat, The metal keel was laid down, then the metal ribs were welded into the keel, then pre-cut iron sheets is welded to the ribs. A big, iron, hand winch is fixed into the boat’s bow, which is used in a variety of tasks. The most important was loading and unloading the cargo itself, the second task was to install the masts, the third, as mentioned earlier was salvaging the boat when it gets stuck

³Same as last note.

in the mud, and last, to retrieve the boat's anchors. All the mentioned tasks were done using a number of thick metal wires and a series of pulleys.

The masts are between 4 and 6 meters, the forward mast is always longer than the aft. The masts are fixed into their places by an even number of metal cables, normally three shrouds on each side of the hull, and are fixed to the main deck. Close to the bow, there is the mast step, in which the mast has a draft inside the body of the boat of about 1.5 meters. Inside the mast step are a series of cables holding the mast in the desired angle. And on the mast, a yard of approximately 11 meters is fixed, and it was made by lashing a number of wooden pieces together with a metal collar, the yards were thick on one end and tapered on the other. A boom, approximately half of the length of the yard is attached to the mast too. The sails are gathered by a series of ropes and pulleys. The rudder is made of a series of wooden plans, fixed together in a diagonal shape, and fastened together with a twin metalbar on each side, and a number of bolts and nuts, other small strips of metal sheets are added to ensure fixing the planks in place. The rudder blade is about 3 meters long and about 2 meters deep, the helm is about 4 meters, $\frac{2}{3}$ rd of the rudder post is within the boat itself and the remaining third runs over the blade. The blade is fixed to the stern by hinges and bolts. The boat has a hatch in the aft part, right under the second mast, where the boatmen sleep and cook their food.

One piece of boat equipment which is very interesting was the extension of the boat. In some of the photographs in chapter two⁴(**Error! Reference source not found.**and **Error! Reference source not found.**), the boats could be loaded with cargo hanging outside the hull, that was achieved by the means of building a wooden frame, which is wider than the boat, and fixed together, and the whole structure was fixed to the boat itself. Then a series of ropes are weaved as

⁴ See Page 100

a safety net, or a big reed mat is attached to the extension and reinforced with ropes to ensure that the cargo will remain in place.

The boatmen of Masandah called their boats Sandals, according to Greenhill (2001: 479), mentioned earlier in chapter two⁵, it is a generic Arabic name for boat. Further investigations and questions did not result in any significant data regarding the origin of the name, or the reasons behind naming such boats by that name.

When asked about the reasons behind fitting two sails on the boat, the boatmen answered “It makes the boat run better in the water” the explanation was, in their opinion, that if the boat has one mast it will run fast, but if fitted with two, it will run even faster. The only comparison that the boatmen did in terms of vessel speed, was comparing their boats to a single-mast, six meter-long *Felluca*.

According to them too, in an earlier time there used to be a large number of boats approximately 65 boats, some were made of wood, and some of metal. Over time, wooden boats became a liability to maintain and to fix, wood was getting more expensive, and the skilled workmen started to die. Eventually, all wooden boats were sold as scrap and were destroyed in Cairo, bit by bit, boat owners cooperated together and built a metal boat, every three boat owners collaborated and built one metal boat. The oldest surviving metal-hull boat in Masandah is 50 years old and was built with a different method than welding, it was built by hammering the metal sheets together by thick bolts, the metal would heat up and melt by hammering and became watertight.,only four boats have survived to our modern day, two of which are owned by one owner, who inherited them from his father. Boat owners, now, are different from boatmen. (then how was it in the past?) Boatmen are hired by owners to maintain the boat and do the

⁵ See Page 26

transportation jobs or tasks. The owner is the one who contacts the farmers and the stable owners to do the shipment. Each boat has two crew members on it; normally, they might also take their kids along to help cooking and cleaning the boat.

3.4. Upper Egypt

As previously mentioned in chapter one, downstream from Aswan the Nile flows northerly to Armant before taking a sharp bend at Qena where the river reaches its closest distance to the Red Sea coast. This proximity made Qena, and old Coptos, a trading hub that connects the Red Sea with the Nile. The land routes between Quseir and Qeft were used as early as the Middle Kingdom (Khalil 2005: 70 after Sayed 1993:41-97; Fabre 2004: 76-7). Hence, this place used to have sailboats through ages, which was the reason why the researcher decided to go and visit the area of Qeft. During the visit the researcher conducted interviews with the last three boatmen who used to work on sailboats most of their lives.

3.4.1. Professions

During the fieldwork, the gatekeeper was a local person, who is working for the Ministry of Antiquities as a guard of one of the archaeological sites in Quseir.

In modern Qena you can barely see the Nile; it became a large civilized city filled with big buildings and modern houses. The main port of the city is currently modernized, and lost all the authentic and tradition that the late 19th century writers used to describe.

The researcher met a handful of people who used to work on sail boats in a small village called “Elbaroud” in Qeft, this village used to be the place where most of the skilled boatmen came from. According to the interviews conducted there, in the early 1900’s and until the 1960’s there

used to be wooden sailboats, it was used mainly to transport goods, none of the sail boats were used for fishing, only small oared boats were used for fishing.

After the 1970's people turned to the motor boats (Sandal) which is a metal barge with a big engine. So, most of the owners of the sailboats dismantled and sold them as scarabs and then they bought those big Sandals.

People of the village, subsequently, started to navigate these barge-like boats on the Nile, delivering sugar canes and stone blocks from Upper Egypt to Cairo.

Afterwards, private sandals disappeared and the Nile was no longer the high way of Egypt, so some of them started working on touristic cruise ships (Modern Day Dahabees) that used to embark from Luxor and Aswan. And now, most of that generation either passed away or retired.

Most of the people who were living in that village were seamen, who were hired in the past by the wealthy people, who had enough money to build a wooden boat.

The sail boat normally needed 4 personals: the Reis (pilot, captain) and three sailors. Most of the time the captain of the boat was hired by the owner of the boat, and the latter might have more than one working boat.

The work on the sail boat was mainly in two or three months per year around the harvesting time between the months of May and July.

The boatmen were paid according to the "*place they were going to*" said one of the boatmen, and the Captain of the boat had a higher wage than the other boatmen.

There was not much of fishing activity in the area compared to transportation of the goods, mainly fishing vessel were small boats, two or three meters in length, with oars and a small net.

Large scale fishing was not known in that area. when asked about the reasons why they don't use motor boats, the boatmen answered that it costs a lot, and the maintaining of the motor, the fuel is

very expensive, and that they have to apply for a different type of boat navigation license from the ports authorities, which will cost a lot for them.

3.4.2. Boats

They used to carry different types of goods such as beans and also pottery jars “Ballas” which were produced nearby in a village called “Ballas” near Qena too.

The boats were between 13 and 17 meters in length and about 8 meters in width, they were almost flat bottomed, with a tiny proportion of keel visible, the capacity of these boats was between 35 and 70 tons. They used to stack goods on the top of the deck, and they also used to put extensions for the deck in order to accommodate more and more goods at once (Figure).

The boats were built of Acacia wood, which is a local wood. The boat builders were brought from Dendara to build the boat *in situ* according to the demand of the boat owner. One of the old boatmen stated: *“The boat builder would lay the keel first then the first streak is a number of bottom planks, after that it would all be fixed by nails with the ribs (frames). The boat builder used to drill by the hand bow for the places where he would put the big nails, then he weaved a small thread of linen on top of the nail before hammering it to its place.”*

After the building of the boat, the Caulking professionals start their work , they would fill the seams between the planks with linen then they place tar on it to make it waterproof; accordingly, there were different categories of boat builders.

As for the sails, it was also made in the same place where the boat was built; it was bought as long stripes of Linen textile then weaved together *in situ* depending on mast and yard dimensions.

3.5. Discussion:

The research was mainly focused on the original questions of the research. However, during the research process, a large number of new questions came up, some of which were answered, and others still need more investigations.

The research mainly was designed to trace the remaining tradition, in particular sail boats on the Nile. Modern, commercial touristic *Fellucas* were excluded of the research targets and the focus was on specific maritime communities, where some traces of the past traditions still exist.

During the different fieldwork the main concern was to gather as much data available in order to preserve what is left of the diminishing sailing traditions in Egypt, and especially that of the Nile, as it was the fascination of hundreds of European travelers, and inspired them to describe and illustrate it. Unfortunately, the sailing tradition in the Nile is diminishing. Motorboats are now the favorite type, and the sail is now only used for small scale leisure. The unique characteristics of the old wooden boats that were described in chapter two are long gone, and now modern techniques are in use. However, we cannot generalize the case of this research on all of Egypt, so a more thorough and focused research project is ought to be carried to investigate the status of the sailing traditions in the Egyptian lakes as well.

It was interesting to see how the geographical, social and economic conditions transformed the mindset of these communities, making them abandon hundreds of years of traditions, and start experiencing something completely new. And then this transition in traditions is passed down through generations. One of the main problems is that some of the traditions that are kept do not

have any explanation. For example, when the boatmen of Elmasandah were asked about the double sails they just said that *“it makes the boat better”* not faster nor appealing, just better, and that they are used to have boats with two masts, so they are used to the shape of the boat, but actually they don't really have a clear idea of its function, they are used to the appearances of their boats, and they think it is the best. Another example was also from Elmasandah fieldwork about sailing, the boatmen stated that they *“only sail when the weather is good, sailing North with the current, and sailing south with the wind, and if the wind is coming from the wrong direction, or there is no wind at all we just anchor and wait for the favorable wind”*. So none of them mentioned tacking or towing techniques that were used in the Nile during the past three centuries and trace back to ancient times.

As mentioned above, it is not possible to state that the old sailing traditions in Egypt are completely lost, however, more investigations in that research area are certainly needed.

CONCLUSION

As discussed earlier, the research was directed at first mainly towards the identification of the different boat types that used to sail the Nile during the 19th and 20th century, while doing so, a large quantity of data was collected both photographic and literature. In addition/Moreover, the research was also focusing on the tracing of old and ancient sailing traditions on the Nile that were directly connected to the identification of the boat types as mentioned in Chapter One and Two.

In the process of doing so, the research had to go through a number of phases, from gathering the resources, to cross reference and interpretation of these resources. Another phase of the research was conducting a number of fieldworks, or site visits which were concluded in Chapter Three. The reason of doing such fieldwork, especially using Ethnographic methodologies, was to highlight the importance of preserving the Egyptian national sailing traditions, which are, in fact, dying, rapidly and quickly to an extent that in a few years-time it will be gone completely.

The research discussed how Nile navigation was not an easy task, and how it was directly affected after the building of Aswan High Dam, and that sailboat traditions started to disappear because of the introduction of motorboats and the lack of skilled craftsmen who either died without passing their knowledge to the younger generations or the younger generations started to find new jobs in the big cities leaving behind the family business. Moreover, traditional sailboats can be found, in a really small scale, across Egypt, unnoticed, and not appreciated by the public.

This research is the first in the field to try to sort different types of Nile sail boats in the 19th and 20th century. However, it is not the first maritime ethnographic research to be done in Egypt.

A large number of ethnographic studies of the same nature of this research have been conducted elsewhere in the world, especially in Southeast Asia and Latin America, where a large number of traditional sailing boats are still in use extensively until now.

Due to the limitation in resources and time, the research was not extensive enough to include information of All the remaining sailboats and sailboat traditions or communities in Egypt. Thus, there are a number of recommendations for future researches include the following:

1. More extensive and systematic recording of the Maritime Traditions, especially the ones related to sailboats, to be done in Egypt. The idea is to systematically travel through different water bodies in Egypt (Nile, Lakes, Red Sea, Mediterranean, and the Canal) interviewing maritime communities and investigating the remains of these traditions.
2. A catalogue of all the available photographs, drawings, and paintings that captures the old sail boats from the 19th and 20th centuries should be done, accompanied with a brief description of each type of these boats, building on what has been done in Chapter Two.
3. A study of the Egyptian influences on the Nile boats south of Aswan, especially in Nubia and Sudan, and trying to find (if any) similarities of the boat typologies between Egypt and its southern neighbors.
4. A specialized research on working boats of the Nile, specially the cargo boats and try to investigate if the state used to have a special arsenal of Nile cargo boats, or it was mainly owned and maintained by individuals.

Reference Cited

1. Abou El-Atta, F. H. (1994), 'Trade and Transport التجارة والنقل', In Y. Ibrahim, et al. (eds.) *Geography of Egypt جغرافية مصر* (Cairo: Hai'a Al Kitab), pp. 401-39. (In Arabic).
2. Abu-Zeid, MA and El-Shibini, FZ (1997), 'Egypt's high Aswan dam', *International Journal of Water Resources Development* , Published Online by Carfax Publishing Company., 13 (2), 209-18.
3. Agius, D (2002), 'In the Wake of the Dhow', *Reading, MA: Ithaca Press*.
4. Agius, Dionisius A (2008), *Classic ships of Islam: from Mesopotamia to the Indian Ocean* (92: Brill).
5. Al-Manawy, M. H. (1966), *Nile River in the Arabic Library نهر النيل في المكتبة العربية* (Cairo: Al-Dar Al-Qawmya Publishing.(In Arabic)).
6. al-Idrīsī, نزهة المشتاق في اختراق الأفاق, Cerulli, E., Gabrieli, F., Levi Della Vida, G., Petech, L., & Tucci, G. (eds.). 1970- 84. *Al-Idrīsī (Abū 'Abd Allah Muhammad ibn Muhammad 'Abd Allah ibn Idrīs al- Hammūdī al-Hasanī): Opus Geographicum*. Naples: Istituto Universitario Orientale.
7. Alnakhily (1974), *Islamic ships on ABC lexicon : Lexicon Arab ships ' السفن الإسلامية على حروف ' المعجم: معجم السفن العربية* (Alexandria University).
8. Bagnall, R (1993), *Egypt in late Antiquity* (Princeton: Princeton University Press).
9. Ball, JOHN (1939), 'Contribution to the Geography of Egypt: Surv', *Cairo: Government Press*, 39.
10. Bartlett, William H (1851), *The Nile Boat: Or, Glimpses of the Land of Egypt* (Hall).
11. Borchardt, L. (1906). *Nilmesser und Nilstandsmarken*. Königl. Akademie der Wissenschaften, in Kommission bei G. Reimer
12. Breccia, E. 1914. *Alexandria Ad Aegyptum*. Bergamo: IstitutoItalianod'ArtiGrafiche.
13. Bunbury, JM and Lutley, K (2008), 'The Nile on the move', *Egyptian Archaeology*, 32, 3-5.
14. Bunson, M. (2009). *Encyclopedia of Ancient Egypt*. Infobase Publishing.
15. Butzer, KW (1976), 'Early hydraulic civilization in Egypt: a study in cultural ecology', *Prehistoric archeology and ecology series*, (Chicago: The University of Chicago Press).
16. Carey, ML M (1863), *Four months in a dahabëéh or, Narrative of a winter's cruise on the Nile* (L. Booth).

17. Clarke, S (1920), *Nile Boats in Petrie F. (Ed)* (Ancient Egypt: Macmillan and Company).
18. Clot-Bey, Antoine Barthélemy (1840), *Aperçu général sur l'Égypte* (2: Fortin, Masson et cie).
19. Cooper, John (2014), *The Medieval Nile: Route, Navigation, and Landscape in Islamic Egypt* (The American University in Cairo Press).
20. Darvill, Timothy (2008), *Concise Oxford Dictionary of Archaeology* (Oxford University Press).
21. David, Nicholas and Kramer, Carol (2001), *Ethnoarchaeology in action* (Cambridge University Press).
22. Diodorus Siculus, *Bibliotheca historica*, 1946. *Diodorus of Sicily, with an English Translation By C.H. Oldfather*. London: William Heinemann.
23. El-Abbadi, M. (1996), *The Roman Empire: The Imperial Regime and Roman Egypt* (6; Alexandria: Dar Al-ma'refa Al Game'ya).
24. El-Asmar, HM and Hereher, ME (2010), 'Change detection of the coastal zone east of the Nile Delta using remote sensing'.
25. Ellen (Ed.), (1984). *Ethnographic research: A guide to general conduct*. London: Academic Press.
26. El Zain, M (2007), *Environmental Scarcity, Hydropolitics, and the Nile* (Maastricht: Shaker Publishing BV).
27. Emerson, Robert M, Fretz, Rachel I, and Shaw, Linda L (2011), *Writing ethnographic fieldnotes* (University of Chicago Press).
28. Fairholt, Frederick William (1862), *Up the Nile, and Home Again: A Handbook for Travellers and a Travel-book for the Library* (Chapman and Hall).
29. Fayed, Y. A (1994), 'The Climate of Egypt مناخ مصر', In Y. Ibrahim, et al. (eds.) *Geography of Egypt جغرافية مصر* (Cairo: Hai'a Al Kitab), pp. 93-134. (In Arabic).
30. Gebel el Silsila Survey Project
2015. <http://gebelelsilsilaepigraphicsurveyproject.blogspot.com.eg/>
31. Gouda, G. H. (1994), 'Morphology of Egypt جيومورفولوجية مصر', In Y. Ibrahim, et al. (eds.) *Geography of Egypt جغرافية مصر* (Cairo: Hai'a Al Kitab), pp. 45-90. (In Arabic).
32. Greenhill, B (2001), 'A dictionary of the world's watercraft: from aak to zumbra. UK', (London: Chatham Publishing).

33. Haldane, Cheryl Ward (1993), 'Ancient Egyptian hull construction: a dissertation', (Texas A & M University).
34. Hamdan, G. (1980), *Egypt's Identity: A study of the Genius of the Place* شخصية مصر: دراسة في عبقرية المكان, Vol. 1 (Cairo: Alam Al-Kutub. (In Arabic)).
35. Hammersley, Martyn and Atkinson, Paul (2007), *Ethnography: Principles in practice* (Routledge).
36. Hassan, Fekri A (1997), 'The dynamics of a riverine civilization: a geoarchaeological perspective on the Nile Valley, Egypt', *World Archaeology*, 29 (1), 51-74.
37. Herodotus, *Historia*, Capps, E., Page, T.E., Rouse, W.H.D.. 1921. *Herodotus with an English Translation by A.D. Godley*. London: William Heinemann.
38. Hornell, James (2015), *Water transport* (Cambridge University Press).
39. Ibn Mājid, *كتاب الفوائد في أصول البحر والقواعد*, Tibbetts, G.R. 1971. *Arab Navigation in the Indian Ocean before the Coming of the Portuguese: being a translation of كتاب الفوائد في أصول البحر والقواعد* by Ahmad b. Mājid al-Najdī. London: The Royal Asiatic Society of Great Britain and Ireland.
40. Kelly, Robert Talbot (1912), *Peeps at Many Lands: Egypt* (London: Adam and Charles Black).
41. Khalil, E. (2005), 'Egypt and the Roman maritime trade: a focus on Alexandria', Doctoral dissertation (University of Southampton).
42. Khalil, E. (2009), 'Where did the Nile Harbours Go?', In *Bulletin Societe Archeologique D'Alexandrie* ', 48, P. 133 – 46.
43. Khalil, Emad (2008), 'The Sea, the River and the Lake: All the Waterways Lead to Alexandria', *Ostia and the Ports of the Roman Mediterranean*. In H. Di Giuseppe and M. Della Riva (eds), *17th AIAC International Congress of Classical Archaeology: Meetings between Cultures in the Ancient Mediterranean*. Rome, 22-26.
44. Landström, Björn (1969), *Sailing ships, in words and pictures, from papyrus boats to full-riggers* (Doubleday).
45. Landström, Björn and Phillips, Michael (1976), *The Ship: A Survey of the History of the Ship from the Primitive Raft to the Nuclear-powered Submarine with Reconstructions in Words and Pictures* (Allen and Unwin).
46. Lane, Edward William (1835a), *An Account of the Manners and Customs of the Modern Egyptians* (1; London: Ward, lock & co.limited).

47. --- (1835b), *An account of the manners and customs of the modern Egyptians* (Ward, Lock and co.).
48. Laporte, Laurent (1872), *Sailing on the Nile* (Cambridge: Press of John Wilson and Son).
49. Lipke, Paul, Spectre, Peter, and Fuller, Benjamin AG (1993), 'Boats, A manual for their documentation', *Nashville, Tennessee: American Association for State and Local History*.
50. Manley, D., & Abdel-Hakim, S. (Eds.) (2008), *Egypt and the Nile: Through Writers' Eyes* (American University in Cairo Press).
51. Manley, Deborah and Abdel-Hakim, Sahar (2004), *Traveling Through Egypt: From 450 BC to the Twentieth Century* (American Univ in Cairo Press).
52. Mays, L. W (2008), 'A very Brief History of Hydraulic Technology During Antiquity', in *Environment Fluid Mechanics* 8:471-484 (Online: Springer Publisher).
53. McGrail, Sean (2004), *Boats of the world: from the Stone Age to Medieval times* (Oxford University Press).
54. --- (2006), *Ancient Boats and Ships* (31: Osprey Publishing).
55. Mohamed, M. A. (2001), *River Nile* نهر النيل (Cairo: Hai'a Al Kitab. (In Arabic)).
56. Murray, John and Wilkinson, Sir I Gardner (1873), *A handbook for travellers in Egypt*.
57. O'Reilly, Karen (2008), *Key concepts in ethnography* (Sage).
58. Pliny, *Naturalis Historia*, Rackham, H. 1938. *Pliny: Natural History, with an English Translation in Ten Volumes*. The Loeb Classical Library. London: William Heinemann.
59. Pococke, Richard (1763), *A Description of the East and some other Countries* (London: J. and R. Knapton).
60. Ptolemy Claudius, *Geographia*: Stevenson, EL. 1932. *Geography of Claudius Ptolemy*. New York: New York Public Library.
61. Richard, S. (Ed.). (2003). *Near eastern archaeology: a reader*. Eisenbrauns.
62. Rifaud, J. J., Bruwier, M. C., & Baum, N. (1998). *L'Égypte au regard de J.-J. Rifaud: 1786-1852; lithographies conservées dans les collections de la Société Royale d'Archéologie, d'Histoire et de Folklore de Nivelles et du Brabant wallon; [l'exposition... au Musée Communal de Nivelles du 17 octobre au 15 novembre 1998]*. Soc. Royale d'Archéologie, d'Histoire et de Folklore de Nivelles et du Brabant Wallon.
63. Said, R (1981), *The Geological Evolution of the River Nile* (New York: Springer-Verlag).
64. --- (1993a), 'The River Nile: Its Origin and Utilization in the Past and Future' نهر النيل: نشأته واستخدام مياهه في الماضي والمستقبل (Cairo: Dar Al-Helal. (In Arabic)).

65. --- (1993b), 'The Nile River: Geology, Hydrology, and Utilization', (Pergamon Press, Oxford, UK).
66. Said, R. (1990a), 'Geomorphology', *In R. Said (ed.) The geology of Egypt* (Rotterdam: A.A. Balkema), pp 9-26.
67. --- (1990b), 'Geomorphology', *In R. Said (ed.) The geology of Egypt* (Rotterdam: A.A. Balkema), 487-507.
68. Smyth, A (1906a), *Mast and Sail in Europe and Asia* (London: John Murray.).
69. Smyth, Herbert Warington (1906b), *Mast and sail in Europe and Asia* (EP Dutton).
70. Steffy, J. (1994), *Wooden ship building and the interpretation of shipwrecks* (Wiley Online Library).
71. Strabo, *Geographica*: Jones, H.L. (tr.) 1917-32. *The Geography of Strabo*. Loeb Classical Library. London: William Heinemann.
72. UTDALLAS <<http://www.utdallas.edu/geosciences/remsens/Nile/>>.
73. Warner C., 1904, *My Winter on the Nile*, Houghton, Mifflin and Company: Boston.
74. Whitehead, Tony L (2004), 'What is ethnography? Methodological, ontological, and epistemological attributes', *Ethnographically Informed Community and Cultural Assessment Research Systems (EICCARS) Working Paper Series, University of Maryland. College Park, MD*.
75. --- (2005), 'Basic classical ethnographic research methods', *Ethnographically Informed community and cultural assessment research systems*.
76. Whitewright, Julian (2007), 'How fast is fast? Technology, trade and speed under sail in the Roman Red Sea'.
77. --- (2009), 'The Mediterranean lateen sail in late antiquity', *International Journal of Nautical Archaeology*, 38 (1), 97-104.
78. --- (2011), 'The potential performance of ancient Mediterranean sailing rigs', *International Journal of Nautical Archaeology*, 40 (1), 2-17.
79. Whitewright, Richard Julian (2008), 'Maritime Technological Change in the Ancient Mediterranean: The invention of the lateen sail', (University of Southampton).
80. Wilkinson , G. (1847a), *Hand-Book for Travellers in Egypt* (London: John Murray).
81. Wilkinson, John Gardner (1847b), *Hand-book for Travellers in Egypt* (J. Murray).
82. --- (1854), *A popular account of the ancient Egyptians* (J. Murray).

83. Woodward, Jamie C, et al. (2007), 'The Nile: evolution, Quaternary river environments and material fluxes', *Large rivers: geomorphology and management*, 13, 712.
84. Yousef, S. and Osman, H. (2000), *The Great Nile Floods of 1998 and 1999; Successful Forecasts Using Solar Terrestrial Relations and Real Data* (Cairo University, Egypt).

FIGURES

	Names of the boats in:		Number	Engine and Sail	Water Draft		Dimensions				Carriage in		Months of navigation/year
	Arabic	French			FT	M	Length		Width		Ardebs	Tons	
							FT	M	FT	M			
North Egypt	Merkeb	Grand kayasse	10	2 Masts	7.8	2.4	54.8	16.7	18.3	5.6	1000	200	5
	Felouka	Kayasse	50	7.0	2.1	50.6	15.4	16.6	5.1	800	160	5
	Nousf-Felouka	Demi-kayasse	500	Lateen Sail	6.0	1.8	47.8	14.6	15.4	4.7	500	100	7
	Felouka-sougayar	Petite kayasse	600	Lateen Sail	4.6	1.4	37.0	11.2	10.0	3.05	200	40	9
		Les plus petites	300	1 mast with Lateen sail	1.6	0.5	19.0	5.8	7.0	2.1	30	6	12
South Egypt	Kangeh-kebyr	Grand Mäch	50	Lateen Sail	4.6	1.4	50.6	15.4	13.9	4.2	300	60	7
	Nousf-kangeh	Demi-mäch	50	2 Masts	3.10	0.9	43.9	13.4	12.6	3.8	150	30	10
	Kangeh-sougayar	Kanje	60	1 Mast with Lateen Sail	1.6	0.5	40.6	12.4	5.0	1.5	40	8	12
	Kebyr-kayasse	Grand kayasse	600	2 Masts	4.0	1.2	48.0	14.6	13.0	3.8	300	60	8
	Nousf-kayasse	Demi-kayasse	800	2 Masts	3.2	1	39.0	11.9	11.6	3.5	150	30	10
	Kayasse-sougayar	Petit kayasse	1000	1 Mast with Lateen Sail	1.6	0.5	19.0	5.8	7.0	2.1	30	6	12
Mediterranean													
Red Sea	Kayasse	Kayasse		3 Masts									

Table1: Adopted from Description of Egypt, is a collective table of all boat names, dimensions, propulsion, capacity and months of navigation on the Nile.

Figures

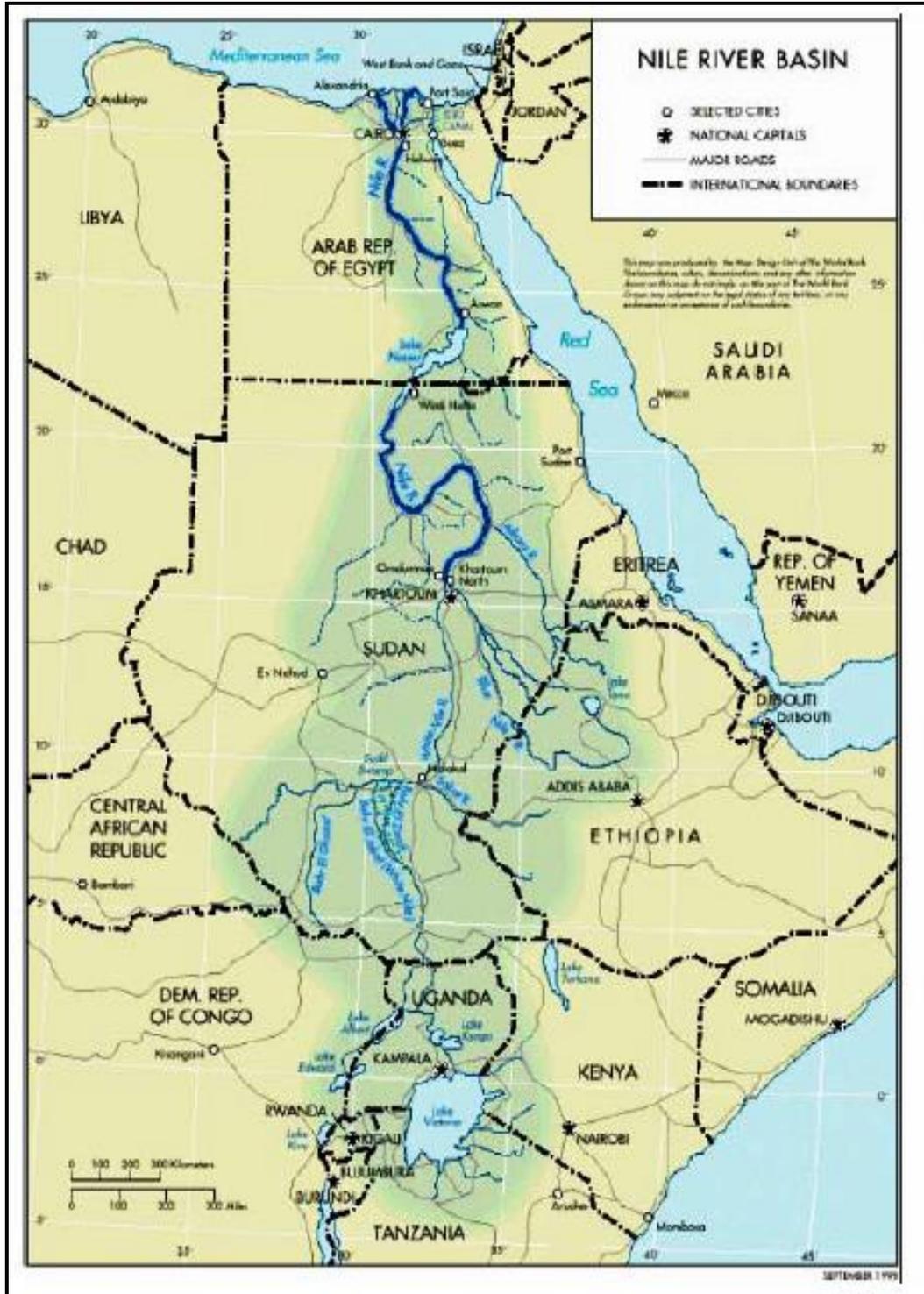


Figure 1 : general map on the Nile Basin

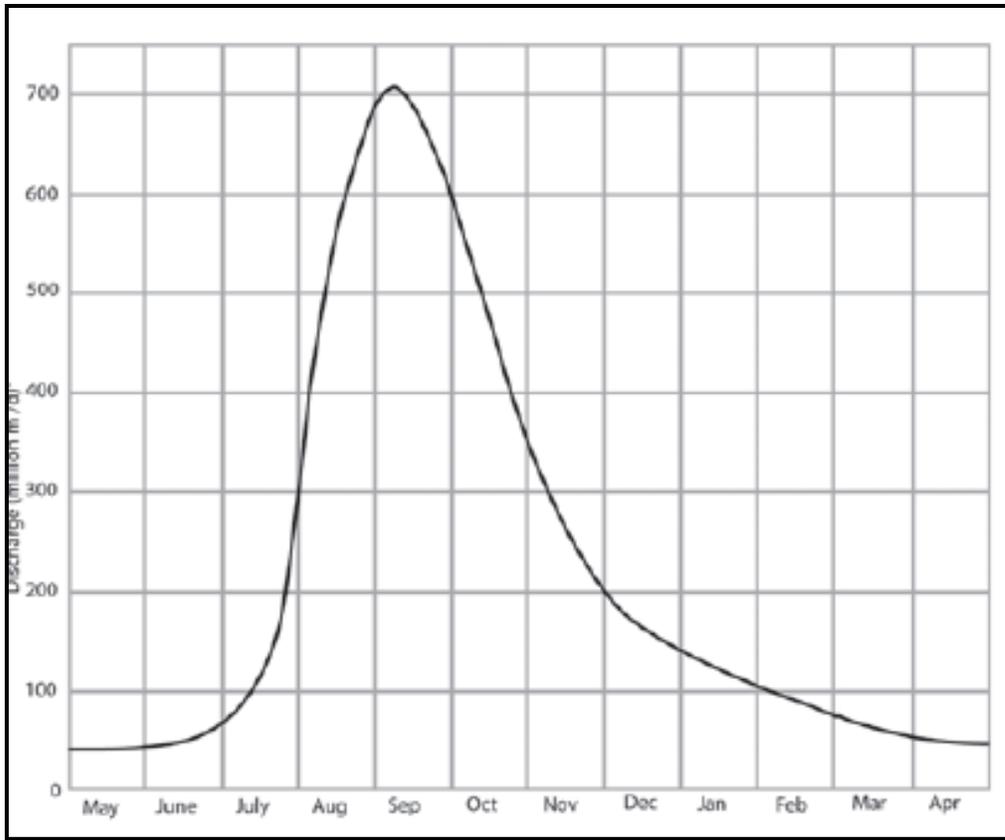


Figure2 : Chart showing Nile flooding, The volume of water discharged through Aswan (After H E Hurst 1952:241)

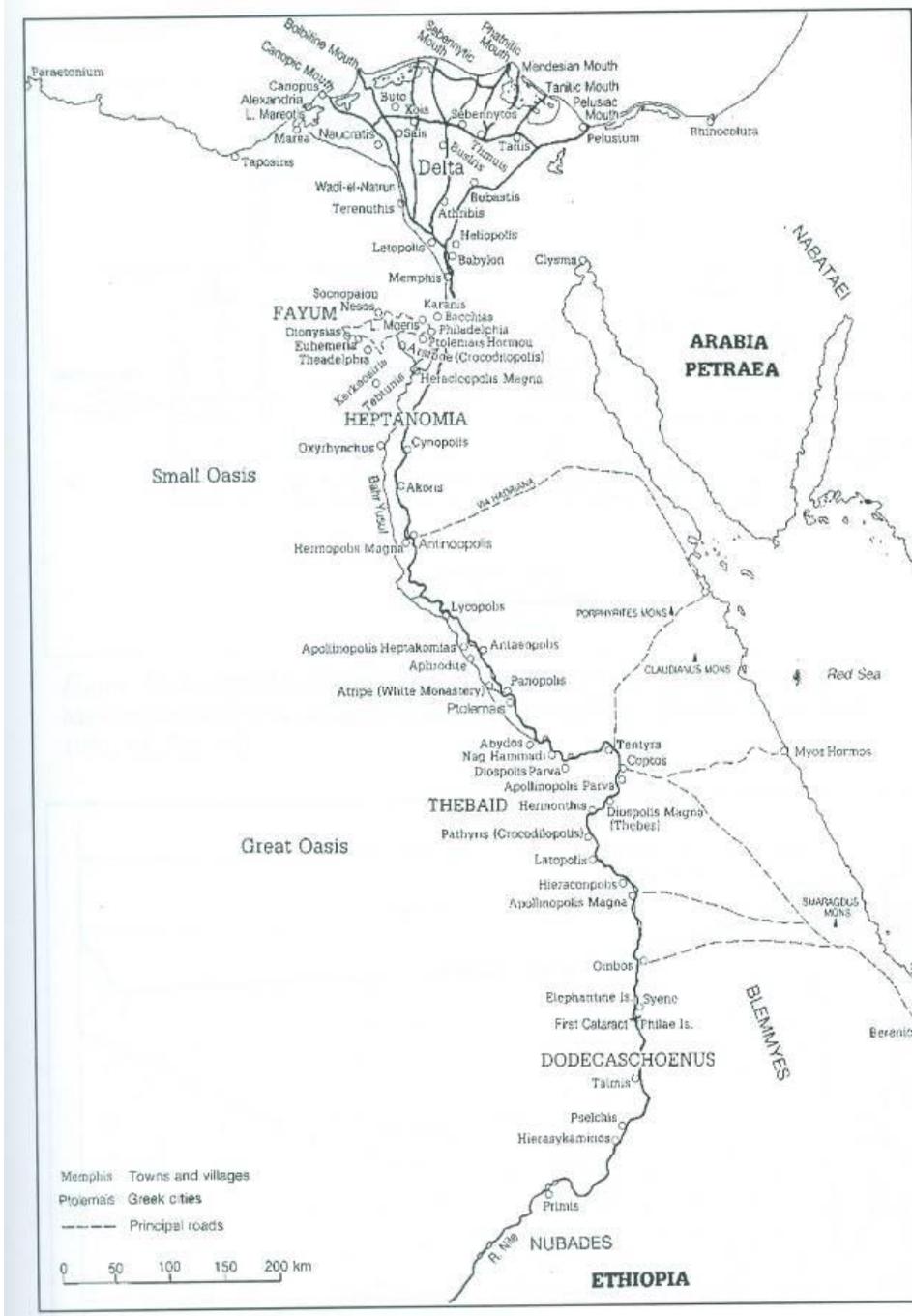


Figure3 : Nile Valley in The Greco-Roman Period (After Khalil 2002:205)

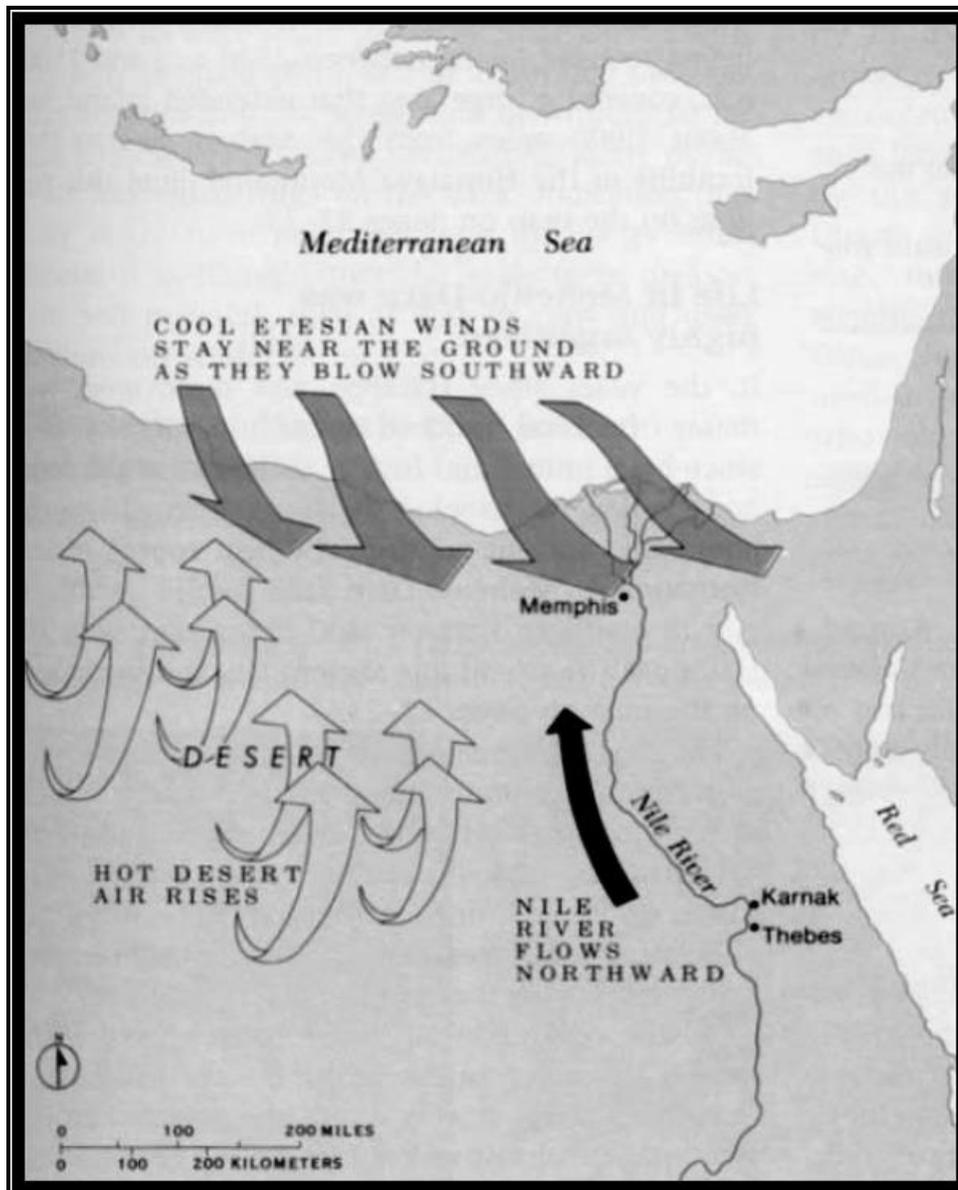


Figure 4 : Dominant wind on Nile Valley

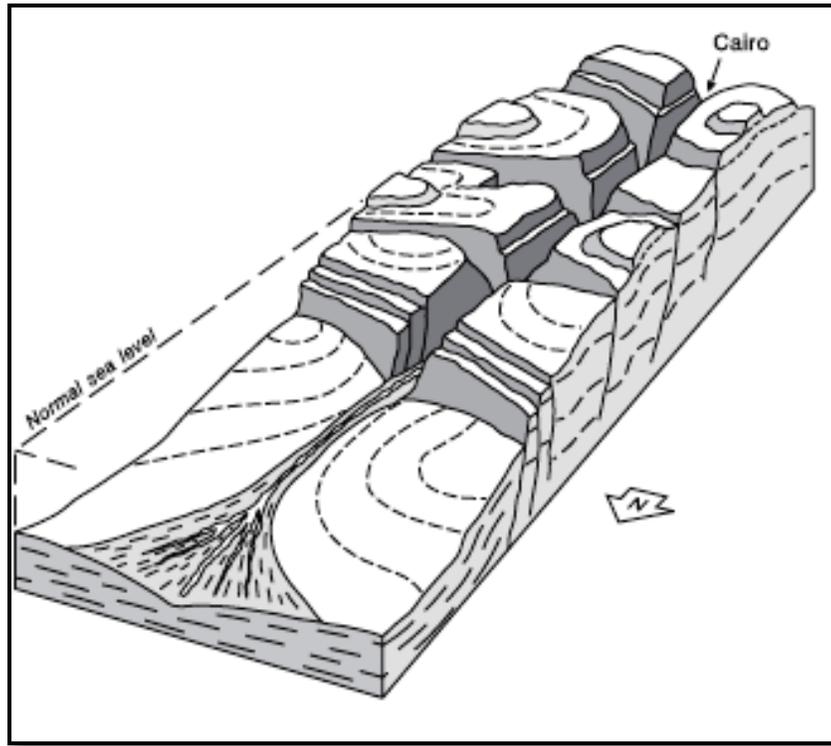


Figure5 : Shape of Nile valley (After Woodward)

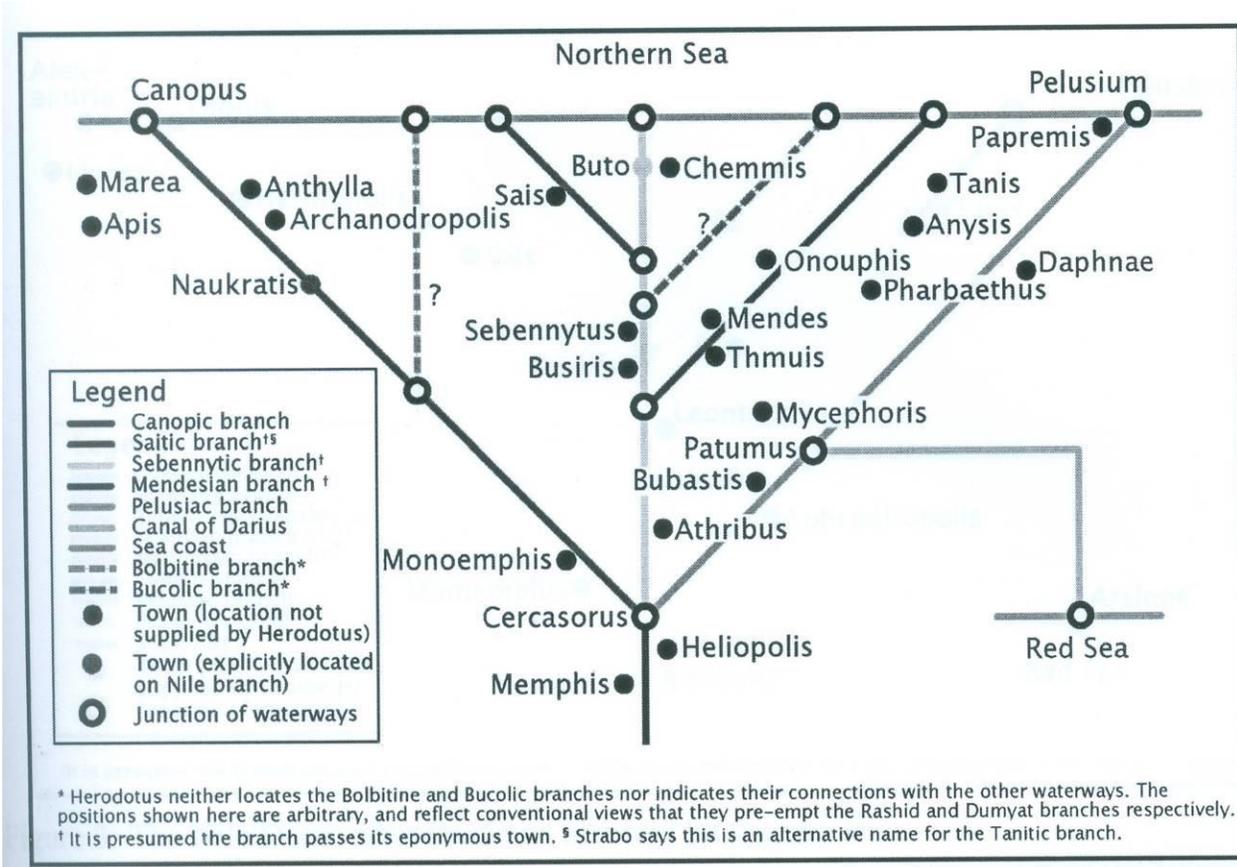


Figure 6 : Nile Branches after Herodotus (by Cooper 2008: 243)

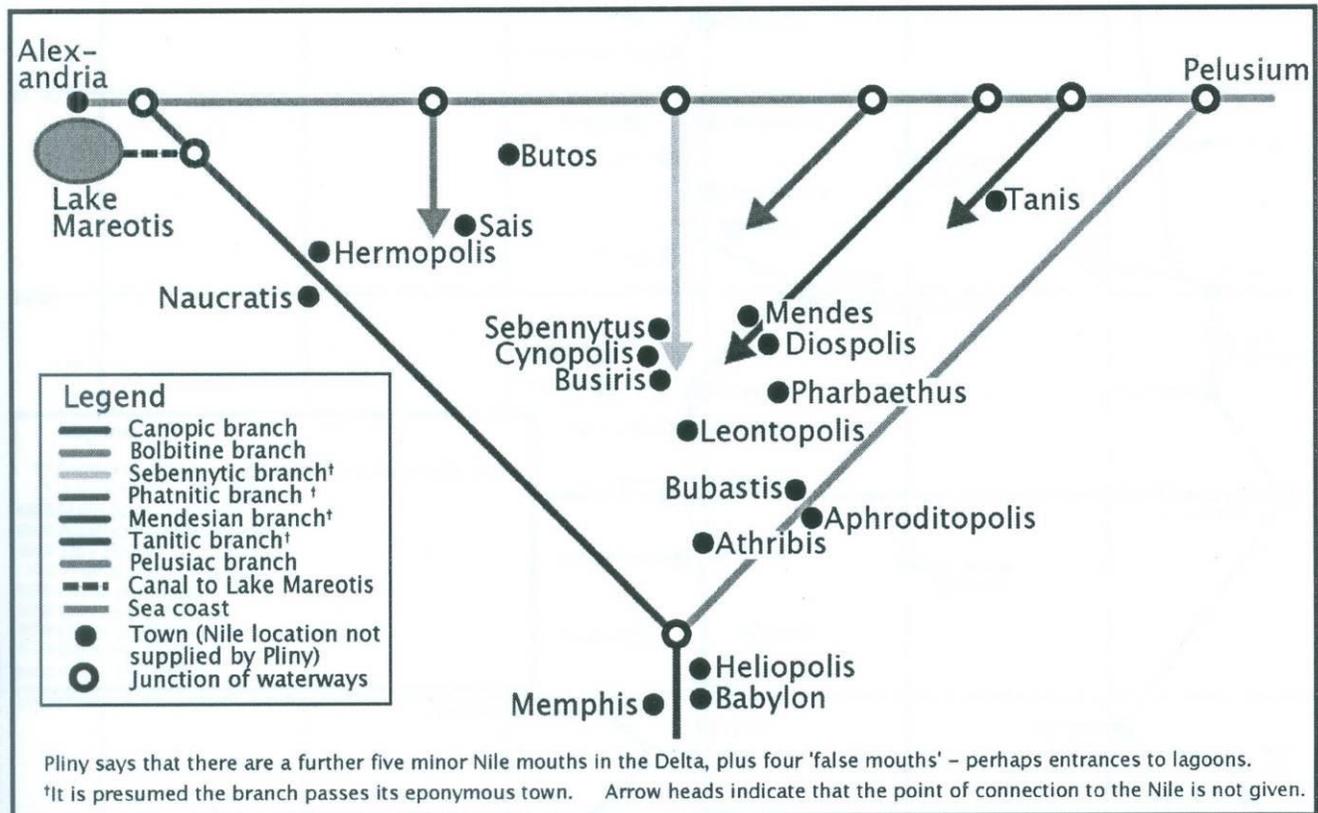


Figure7 : Nile delta after Pliny (by Cooper 2008: 245)

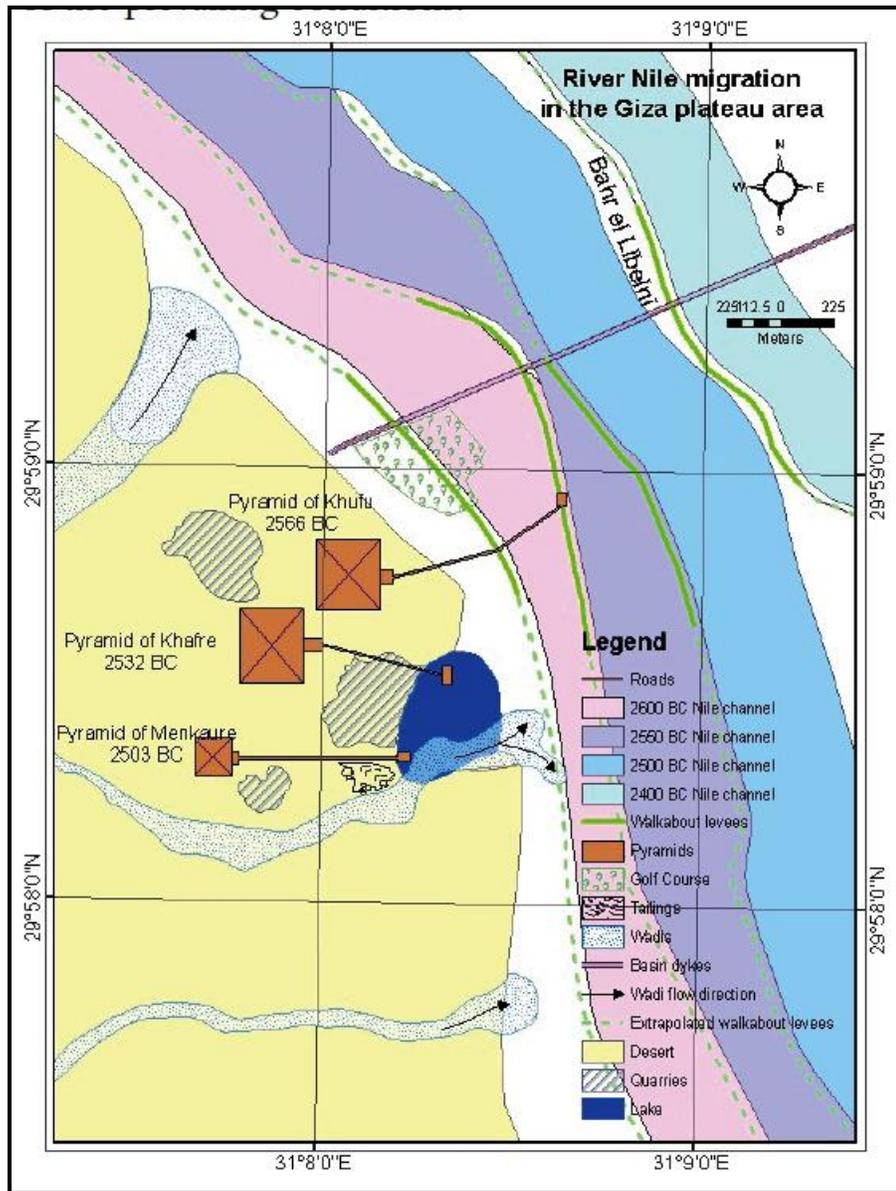


Figure 8: Relation of these towns with the Nile today

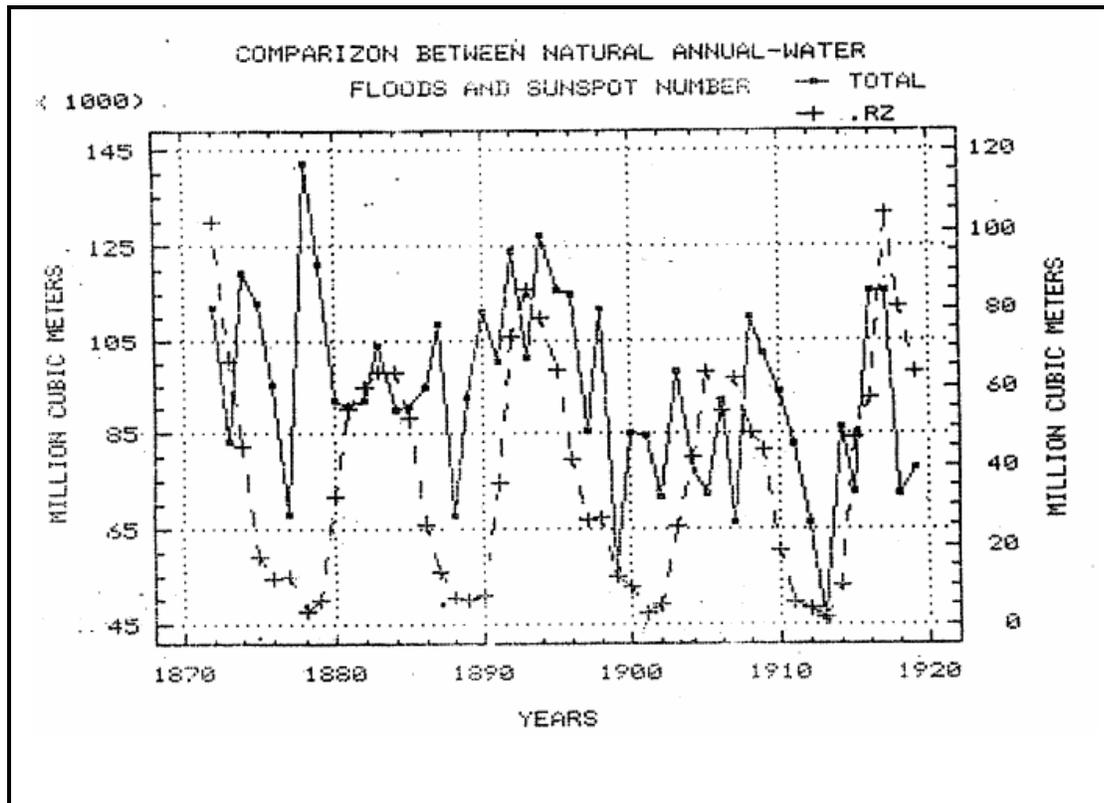


Figure9 : Chart of Highest and lowest Nile flood (After Yousef et al. 2000, Fig. 3)

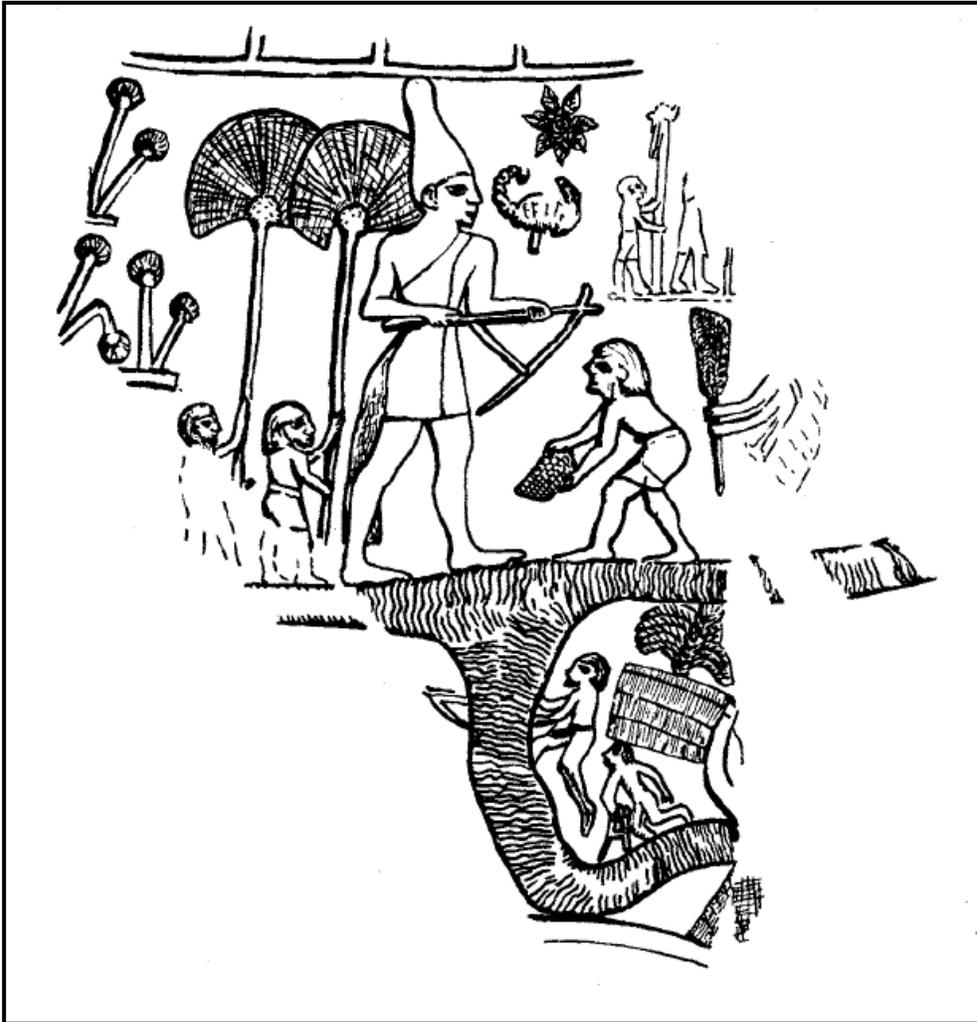


Figure10 : Picture of the Macehead (after Butzer 1976: 50, Fig. 2)

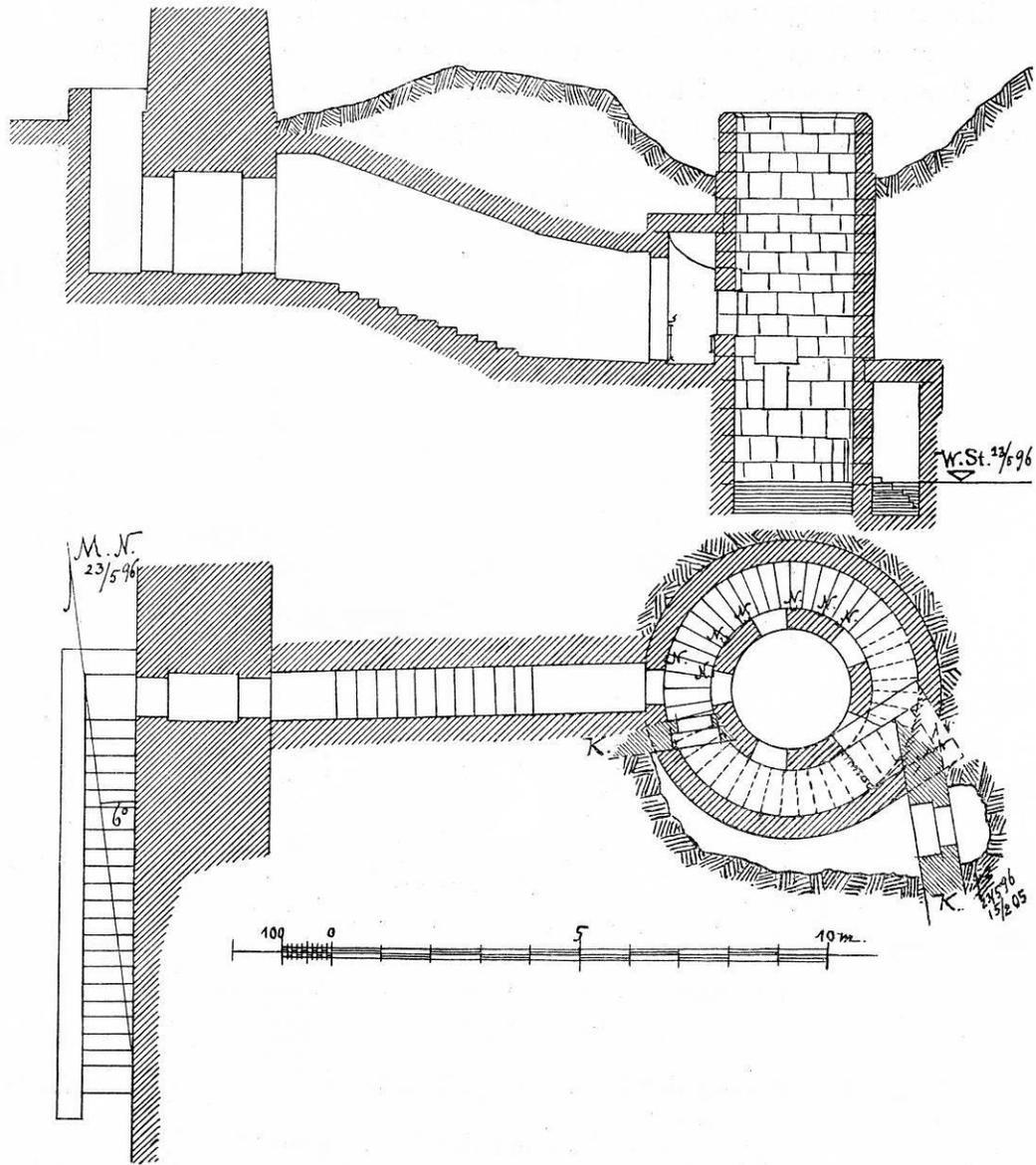


Figure 11: Picture of the Nilometer in Philae (after Borchardt 1906)

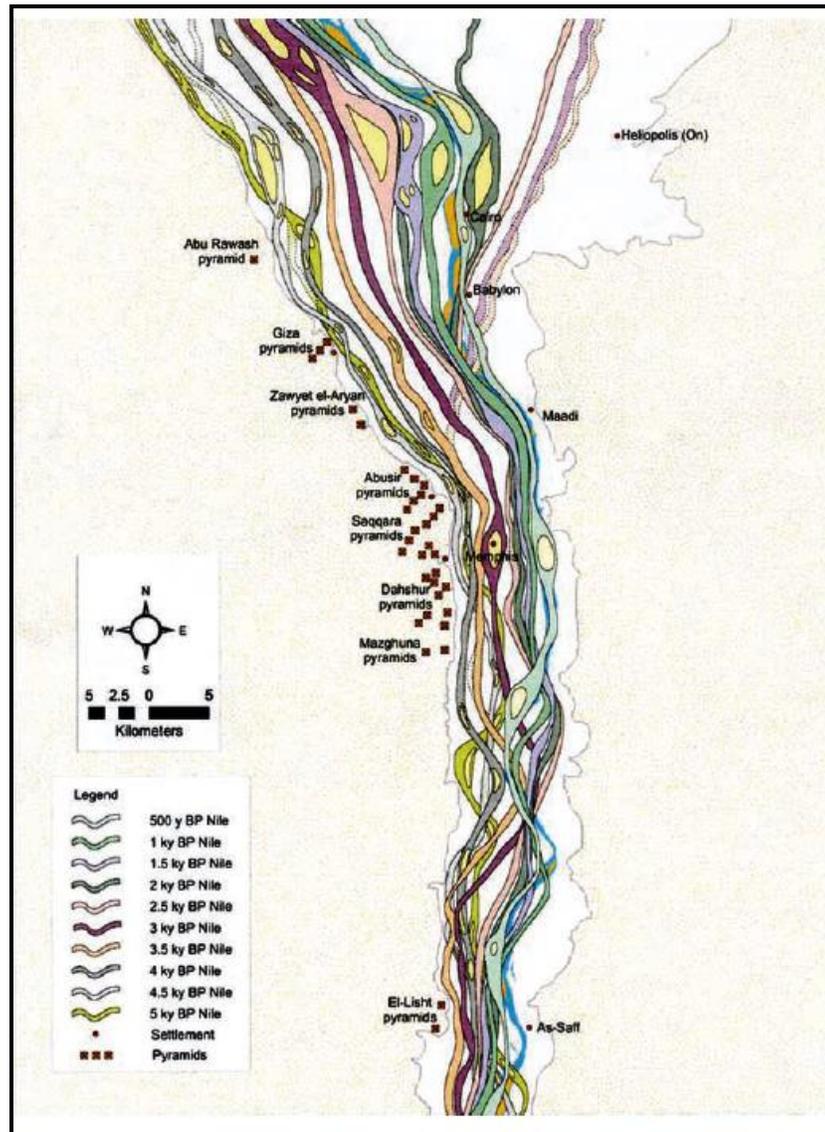


Figure 12: Map of the movement of the Nile bank (after Bunbury and Lutley 2008)



Figure13 : Masandah boats moored by the river bank

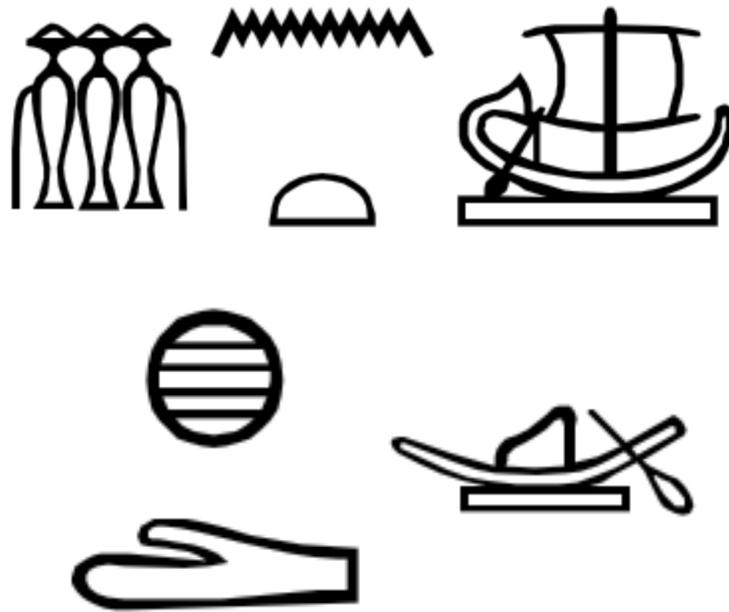


Figure14 : Hieroglyphic representation of sailing north and south



Figure15 :The Naqada II jar containing what is among the first clear-cut images of a boat under sail. (British Museum Online Gallery)

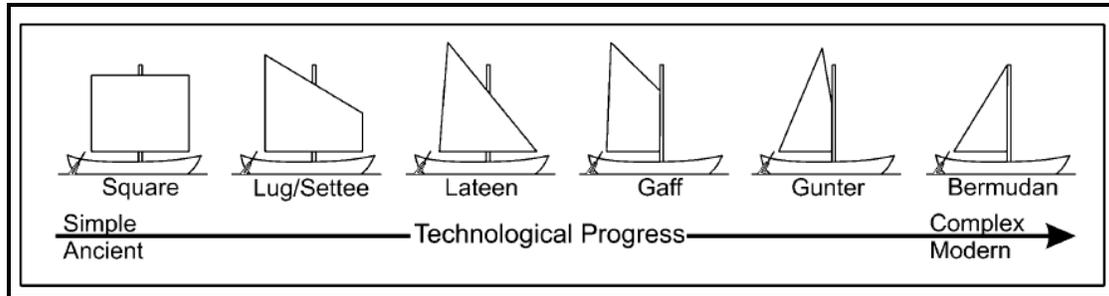


Figure 16 :Whitewright's progression of sail development (after J. Whitewright 2011)

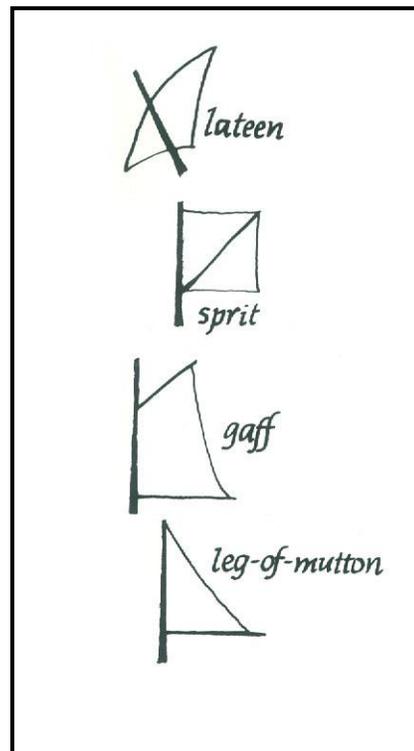


Figure 17 : Drawing of sails (after Casson)

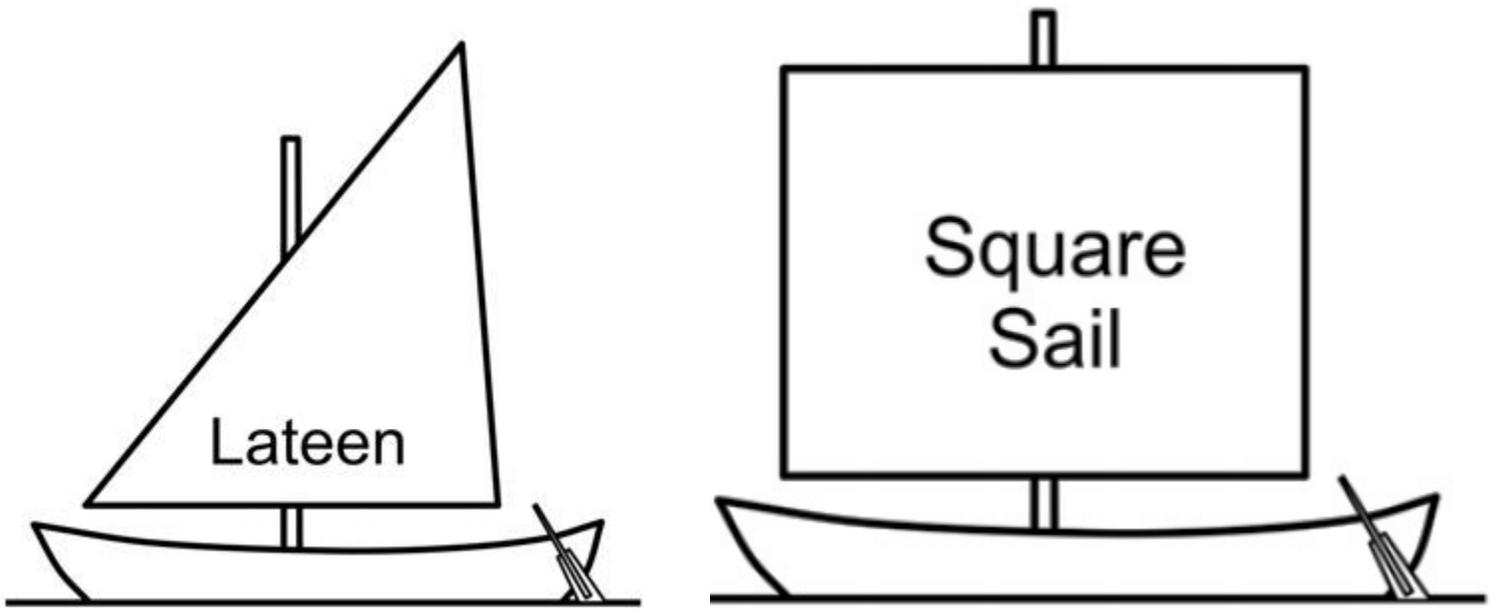


Figure19 : Square Sail and Lateen sail (after J. Whitewrighte)

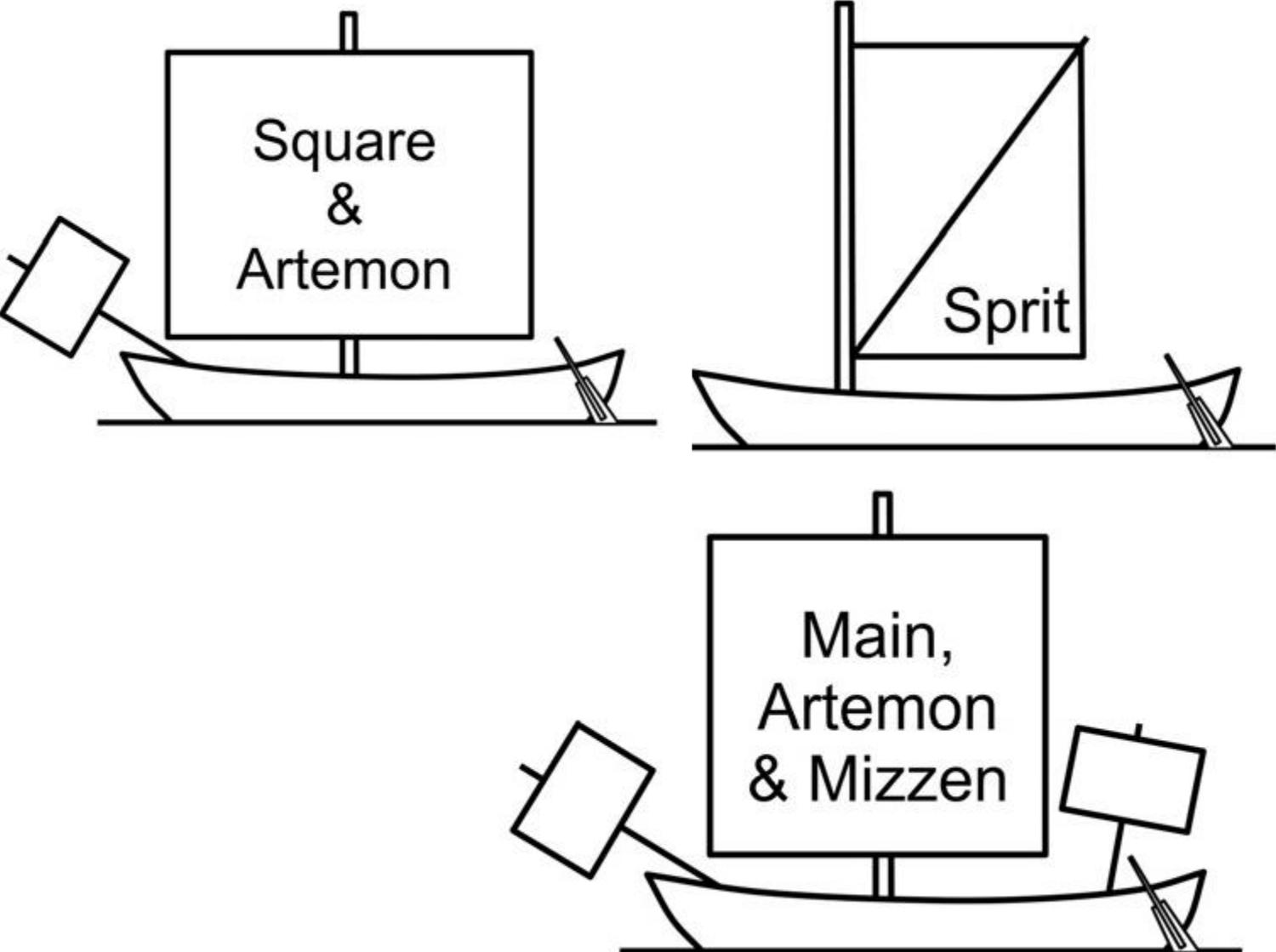


Figure18 : Whitewright's progression of sail development (after J. Whitewright 2011)



Figure20 : Dahshur Boat



Figure 21: A Dongola(after Hornel)

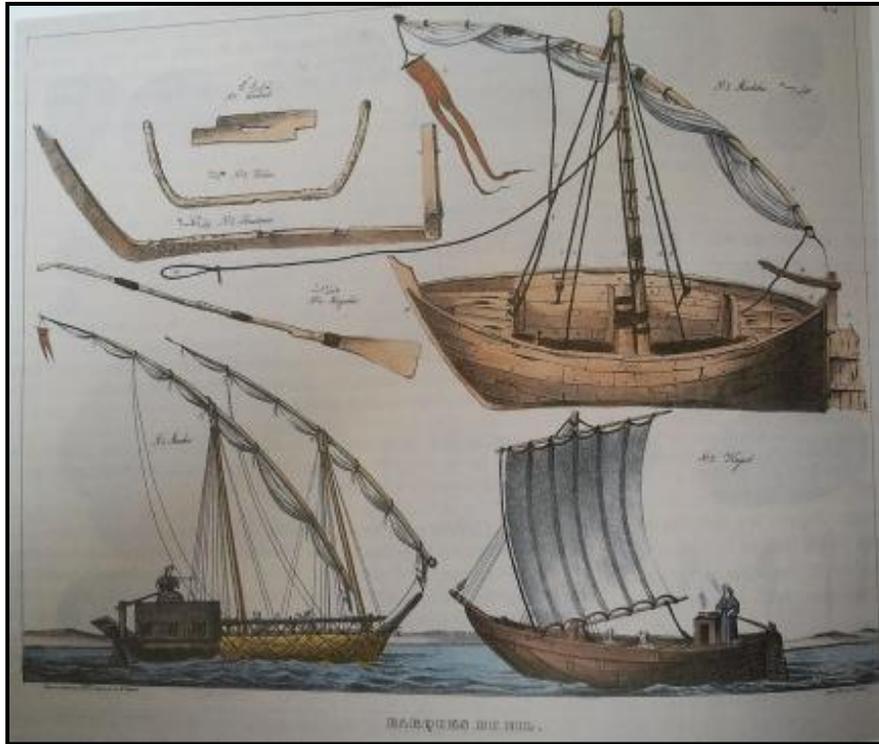


Figure 22: Rifaud drawing of a number of Nile boats after (Bruwier 1998) P.145



Figure23 : Sail boat near Dendara (after National geography online archive)

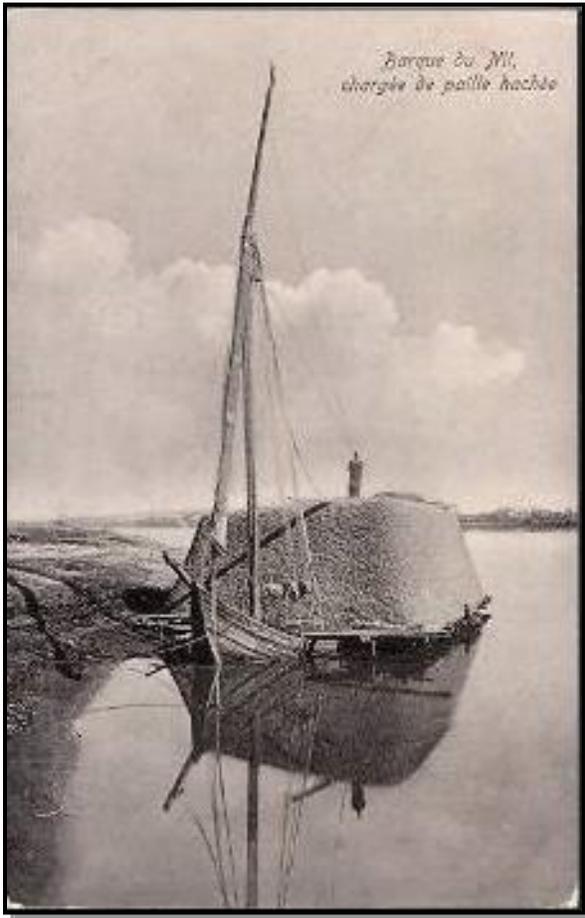


Figure24 : djerm laden with cargo

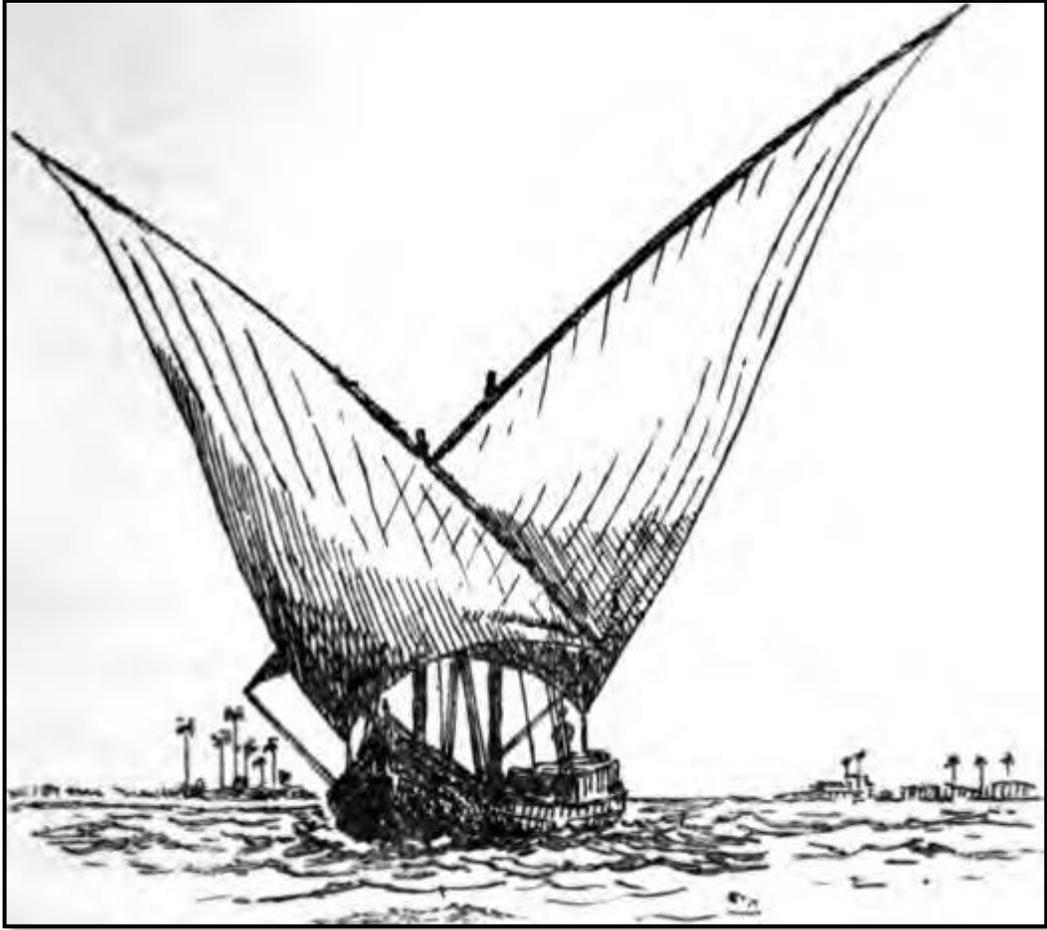


Figure25 : drawing by Smyth of Gyassa



Figure26 : Photograph of a Gyassa



Figure27 : Photographs of Maadia

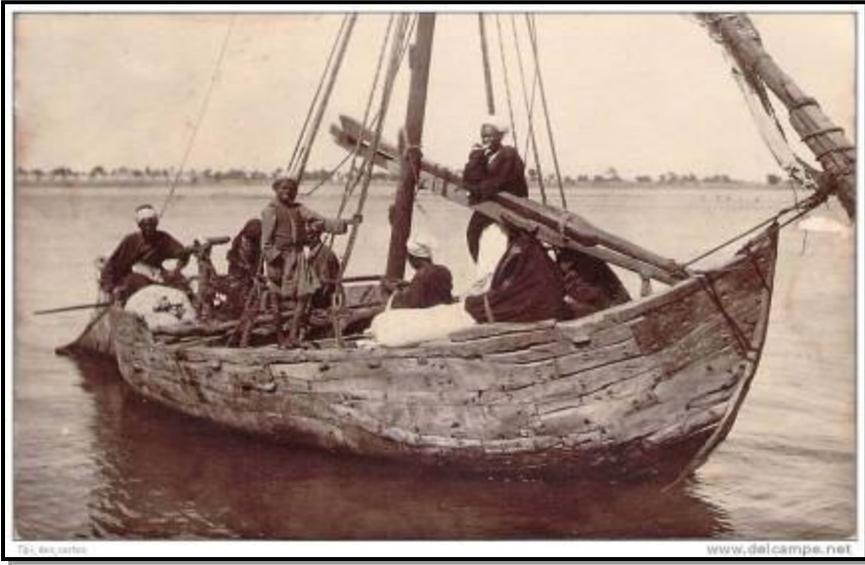


Figure 28: Photographs of different shapes of Maadia

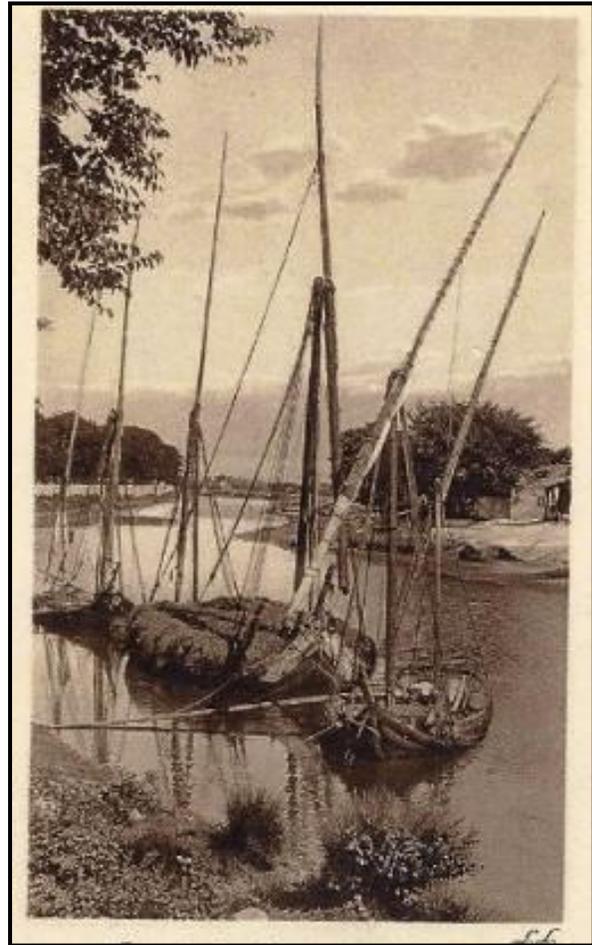


Figure29 : Photographs of cargo vessel used along the Mediterranean coast and in Al Mahmūdiyah canal



Figure30 : Photograph of Naggr (after Hornell Plate XXXV B)



Figure 31: Drawing of a Naggr sailing (after Smyth P. 296)



Figure32 : General view of the Nile with dahabeahs laid on the surface of the river

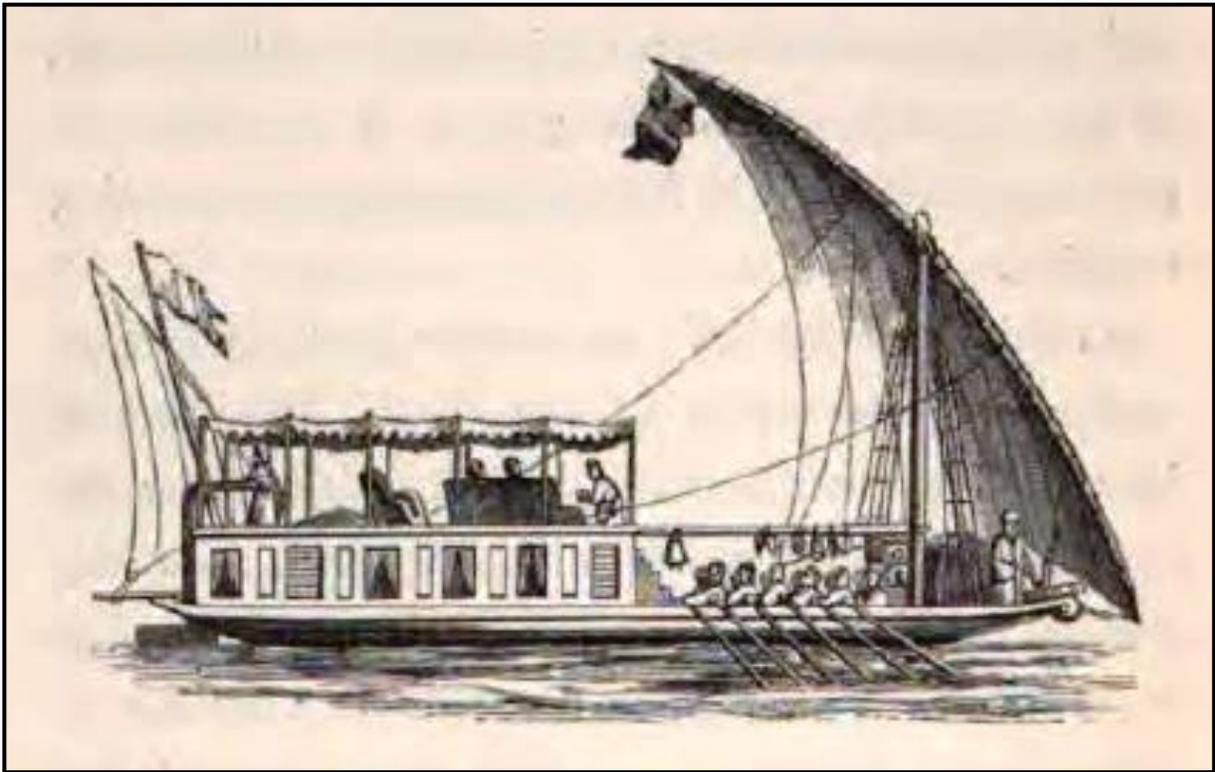
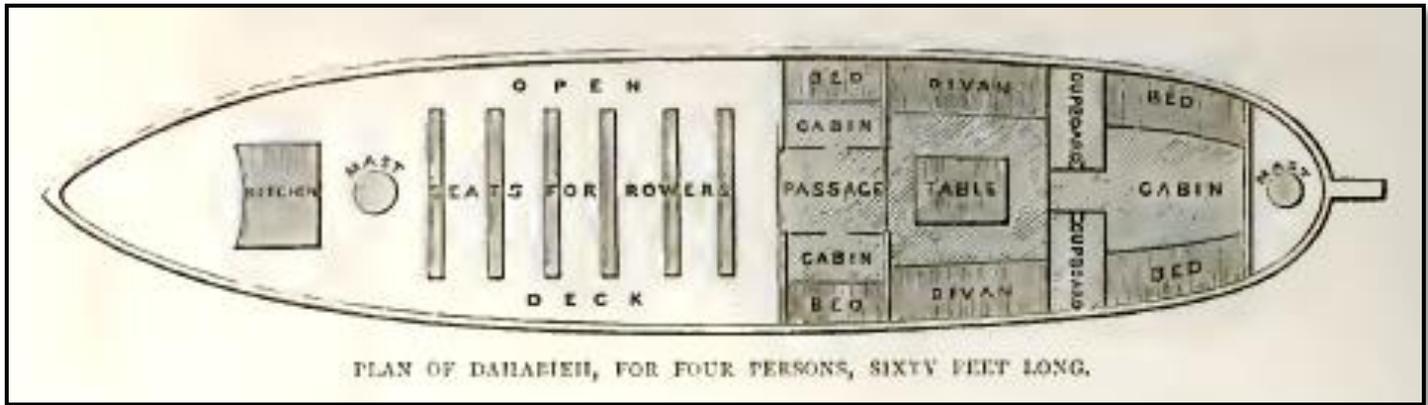


Figure 33: Plan View Drawing by Manning 1875: 68

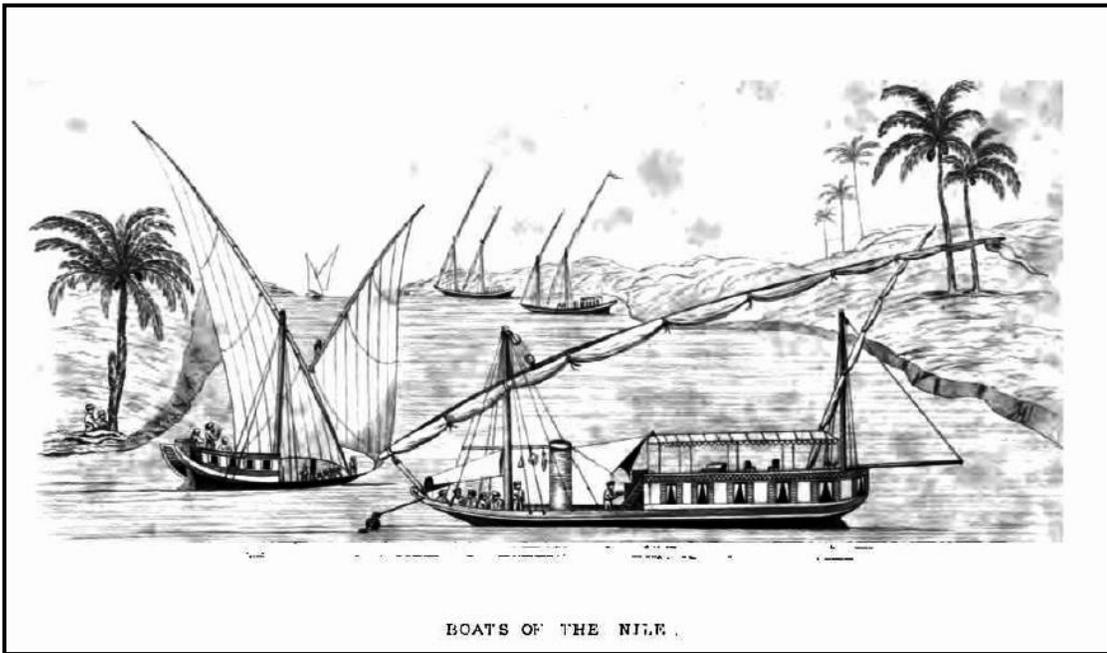


Figure34 Laport drawing of the two boats

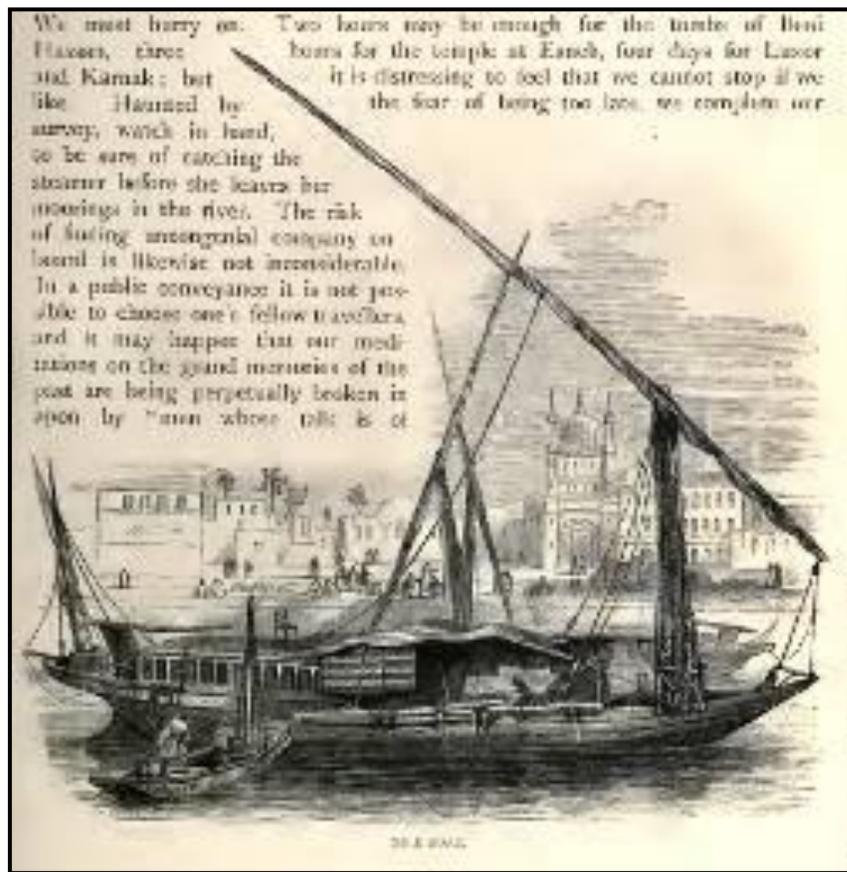


Figure35 : Drawings by Manning

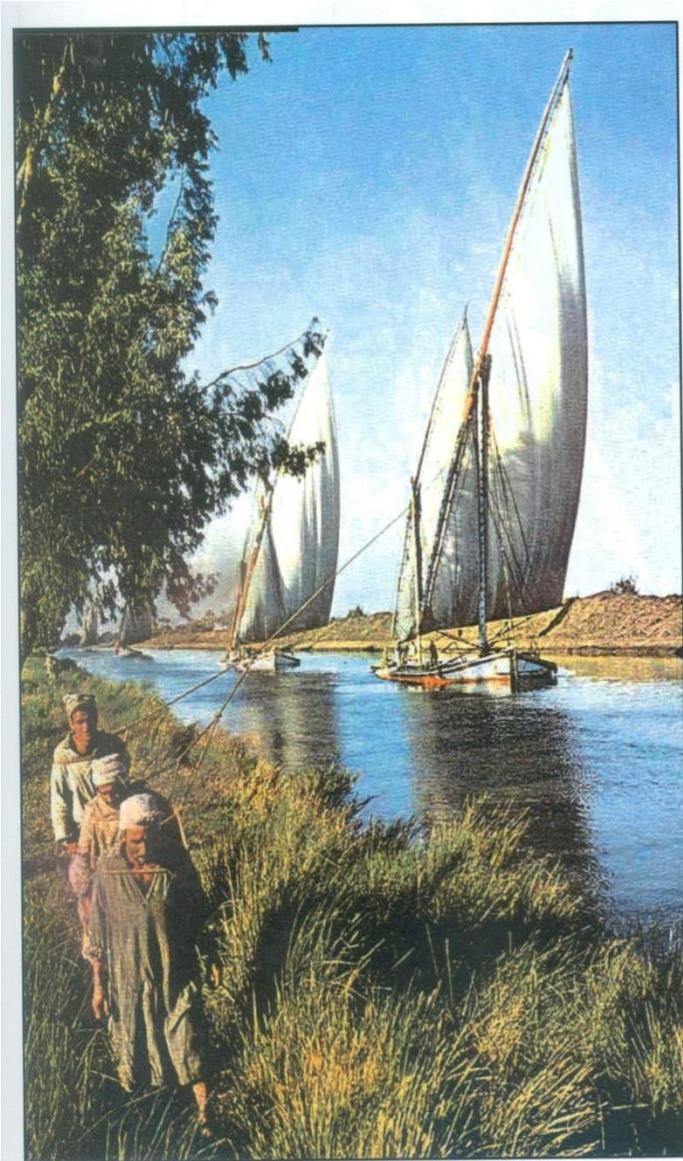


Figure36 : Men towing a sailboat (After Khalil 2002: 234)



Figure38 : Elmasanda Boats



Figure37 : The oldest boat



Figure39 :The researcher during the interview



Figure40 : one of the boatmen repairing the yard

Questionnaire for the completion of ethnographic report for
MA thesis "Egypt's Traditional Sailing Boats: A Maritime
Ethnographic Research of the 19th and 20th centuries boats".
By: Ziad M. Morsy

1. General form

- 1.1. Name:
- 1.2. Age:
- 1.3. Profession:
- 1.4. For how long have you been doing this job:
- 1.5. Where did you obtain this skills:
- 1.6. Have you been working somewhere else:

2. Photos questions

- 2.1. Have you seen this boat before:
- 2.2. What was it's name:
- 2.3. Do you have any idea why was it called that way:
- 2.4. Where have you seen it:

3. Sailors

- 3.1. Boat types you used to work on:
- 3.2. Other boat types in the area you may have known or seen:
- 3.3. Boat names:
- 3.4. Why does it called like that:
- 3.5. What are the differences between the boats you've worked on:
- 3.6. Have you worked on motorboats or just sail:
- 3.7. Have you worked on a sail boats build out of metal:
- 3.8. Why you still use sail boats:
- 3.9. Do you have any idea about the same boat type which is used somewhere else:
- 3.10. How is the water in the area:

- 3.11. Which months or seasons you prefer to work:
 - 3.12. What kind of fish you see:
 - 3.13. How do you navigate your boat:
 - 3.14. When is the best time to navigate a sail boat:
 - 3.15. When or where you cannot navigate:
 - 3.16. Steering:
 - 3.17. Do you use tacking:
 - 3.18. How many people can this boat take:
 - 3.19. Can it hold cargo, or it's just for fishing/transporting:
 - 3.20. How many people are working on one boat:
 - 3.21. Partnership of the boat (who own the boat):
 - 3.22. In times of no sailing what do you do with the boat:
 - 3.23. After retiring what will you do with your boat:
 - 3.24. What about reusing the wood from boats:
 - 3.25. What do you think about burying your boat with you:
- 4. Boat builders**
- 4.1. What kind of wood you use:
 - 4.2. Where you get the wood from:
 - 4.3. Which kind of wood is used for which part of the boat:
 - 4.4. Why you use this kind:
 - 4.5. How many boats per year you build:
 - 4.6. How long does it take to build one boat:
 - 4.7. What technique do you use in building your boats:
 - 4.8. Why you use it:
 - 4.9. Why do you build it like that:
 - 4.10. How you design your boats:
 - 4.11. Do customers ask you to build them an exact boat:
 - 4.12. Can you do a shell-first boat (show some photos):
 - 4.13. The tools which are used:
 - 4.14. How many people are used for building a boat:

Figure41 : A sample of the questionnaire used during the fieldwork

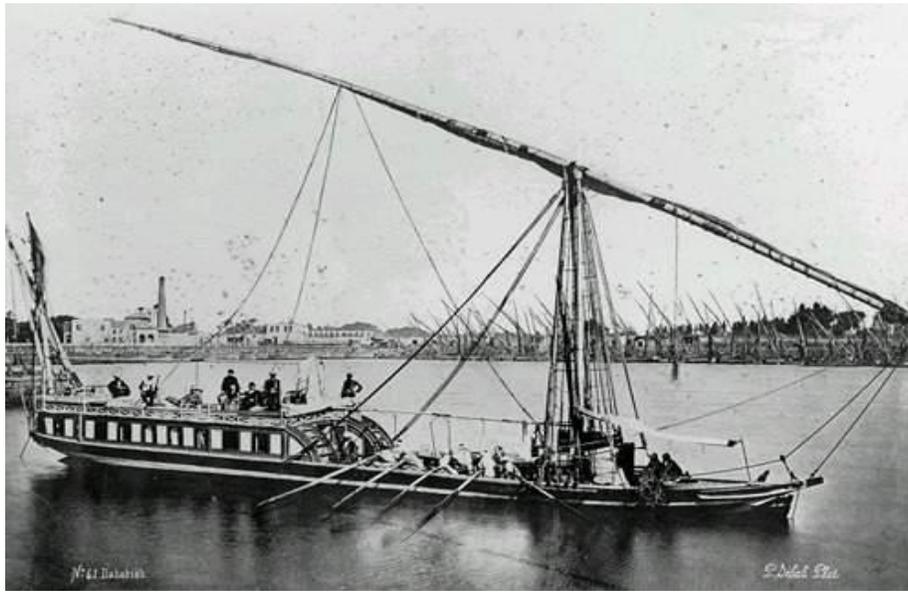


Figure42 : The sample photographs used in the interview



Figure43 : The sample photographs used in the interview



Figure44 : The sample photographs used in the interview

GLOSSARY

GLOSSARY OF NAUTICAL TERMS

This glossary is adopted from the “Illustrated Glossary of Ship and Boat Terms” in Steffy (1994: 266-282). The Arabic terms included in this glossary are gathered by the researcher during the interviews, discussed in Chapter Three.

No.	Term	Arabic equivalent	Description
1	Anchor	مُخْطَاف	A wooden, stone, or metal device that, when connected to a vessel with a cable or chain, was used to secure the vessel to the bed of a waterway to prevent it from drifting
2	Ballast	صَانِبُورَة	Heavy material, such as iron, lead, or stone, placed low in the hold to lower the center of gravity and improve stability
3	Bilge	جَمَّة/ملاصق البر	The area of the hull's bottom on which it would rest if grounded; generally, the outer end of the floor. Bilge refers to the various cavities between the frames in the floor of the hold where bilge water tends to collect
4	Boom sail	قلع ببوم/رنده	A boom is a spar (pole), along the foot (bottom edge) of a fore and aft rigged sail, which greatly improves control of the angle and shape of the sail.
5	Bow	بروّه	The forward part of a hull, specifically, from the point where the sides curve inward to the stem.
6	Brails	حبال الطي	A number of ropes which were used for folding, unfolding and semi-folding the sails in order to control the ship's speed

7	Butt	القورة	The lateral end of a hull plank or timber
8	Caulk	قَلْفَطَةٌ	To drive oakum, moss, animal hair, or other fibrous material into the seams of planking and cover it with pitch to make the seams watertight
9	Centerboard	الصُّقَّاطَةُ	A wooden or iron plate that could be raised and lowered within a watertight housing called the trunk; the trunk was built over a slot in the keel or in the hull bottom next to the keel. Centerboards increased lateral resistance and therefore reduced leeway when tacking or sailing off the wind
10	Crossbeam	عتبة	Wooden beams which extend athwartships and supporting the deck planks
11	Deadwood	البِطَّانَةُ	Blocks of timber assembled on top of the keel, usually in the ends of the hull, to fill out the narrow parts of a vessel's body.
12	Draft	الغاطِس	The depth of which a hull is immersed; also, a drawing or plan
13	Frame	عود	A transverse timber, or line of assembly of timbers, that described the body shape of a vessel and to which the planking and ceiling were fastened
14	Futtock	الوَصَلَةُ	A frame timber other than a floor timber, half-frame, or top timber; one of the middle pieces of a frame

15	Garboard strake	حصيرة	The strake of planking next to the keel; the lowest plank. Also, the lowest side strake of a flat-bottomed hull
16	Gunwale	الباطوس	The upper edge of a vessel's side. In sixteenth-century vessels, the wale against which the guns rest
17	Half-frame	الغماغي	A frame whose heel began at or near one side of the keel or dead-wood and spanned part or all of that side of the hull; half-frames normally were used in pairs
18	Hatch	الطارمة/الباطونسه	A rectangular opening in a vessel's deck, which is used as a small cabin
19	Keel	أريئة/ ترابل	The main longitudinal timber of most hulls, upon which the frames, deadwoods, and ends of the hull were mounted; the backbone of the hull
20	Keelson	الهيدير	An international longitudinal timber or line of timbers, mounted atop the frames along the centerline of the keel, that provided additional longitudinal strength to the bottom of the hull; an internal keel
21	Lateen Sail – Arab Sail	قلع ترنكيت	A triangle sail which is used heavily on sail boats nowadays. It started replacing square sail in the Mediterranean during the end of the late Roman period. However it was mainly used by Arabs in the Indian ocean and the Mediterranean sea
22	Mast	صاري	Is a cylindrical wooden beam which was attached to the boat in order to fix the sails on it. Normally its length is the same as the boat's length.

23	Midship	بطن المركب	A contraction of amidships and consequently, in a general sense, it refers to the middle of the ship. In construction, however, it is often used as an adjective referring to the broadest part of the hull, wherever it may be.
24	Mizzen Sail	مِزَّان	The Mizzen is the secondary or the small sail on a sailboat; normally it is located in the aft part of the boat.
25	Mortise	النَّقْر	A cavity cut into a timber to receive a tenon. Large mortises were sometimes referred to as steps
26	Mortise-and-tenon joint	عاشقو معشوق	A union of planks or timbers by which a projecting piece (tenon) was fitted into one or more cavities (mortises) of corresponding size
27	Outboard	الطلجة/ الشناح	Situated near or on the outer side of a vessel; toward the outer side
28	Punting pole	الأنطروس	A long piece of pool, which was used to free the boat when is stuck in the mud
29	Rib	ضلع	A small transverse member, often flexible and composed of one or several piece that stiffened the outer skin of a hull.
30	Rigging	أرمة	A number of ropes which were used for masts, sails and yards.
31	Rudder	الدَّفَّه	A timber , or assembly of timbers, that could be rotated about an axis to control the direction of a vessel underway

32	Scarf	وصلة	An overlapping joint used to connect two timbers or planks without increasing their dimensions
33	Seam	صير	The longitudinal joint between two timbers or planks; the term usually refers to planking seams, the longitudinal juxtaposition of the edges of planks in the sides or decks, which were made watertight
34	Sheathing	التصفيح	A thin covering of metal or wood, to protect hulls from marine life or fouling, or to stabilize and protect surface material applied for that purpose
35	Shroud	شغل	A rope or wire support used to steady a mast to the side of a hull
36	Square Sail	الشرع المربع	It was the ancient shape of sails. It was fixed on a yard on the ships. It was used as it is until the appearance of the lateen sail.
37	Stanchion	القدة	An upright supporting post, including undecorated supports for deck beams and bulkheads
38	Stern	المؤخر	The after end of a vessel
39	Tacking	الملاوعة	Tacking or coming about is a sailing maneuver by which a sailing vessel (which is sailing approximately into the wind) turns its bow into the wind through the 'no-go zone' so that the direction from which the wind blows changes from one side to the other.

40	Wale	الباطوس	A thick strake of planking, or a belt of thick planking strakes, located along the side of a vessel for the purpose of gridding and stiffening the outer hull
41	Yard	الجارية	A yard is a spar on a mast from which sails are set. It may be constructed of timber or steel or from more modern materials like aluminum or carbon fiber.