



THE
EVOLUTION
OF
BOATS

BY DRISHTI DOSHI

DECLARATION

- I, Drishti Doshi from FYS-Section J hereby declare that all digital and written work appearing in this book as part of my Imaging course 15th week submission under the academic guidance of my course faculty is my own and all sources of knowledge used have been duly acknowledged.
- I will be solely responsible for any irregularity found with respect to non-adherence of academic integrity as per ISDI School of Design and Innovation's standards and requirements.

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INTRODUCTION

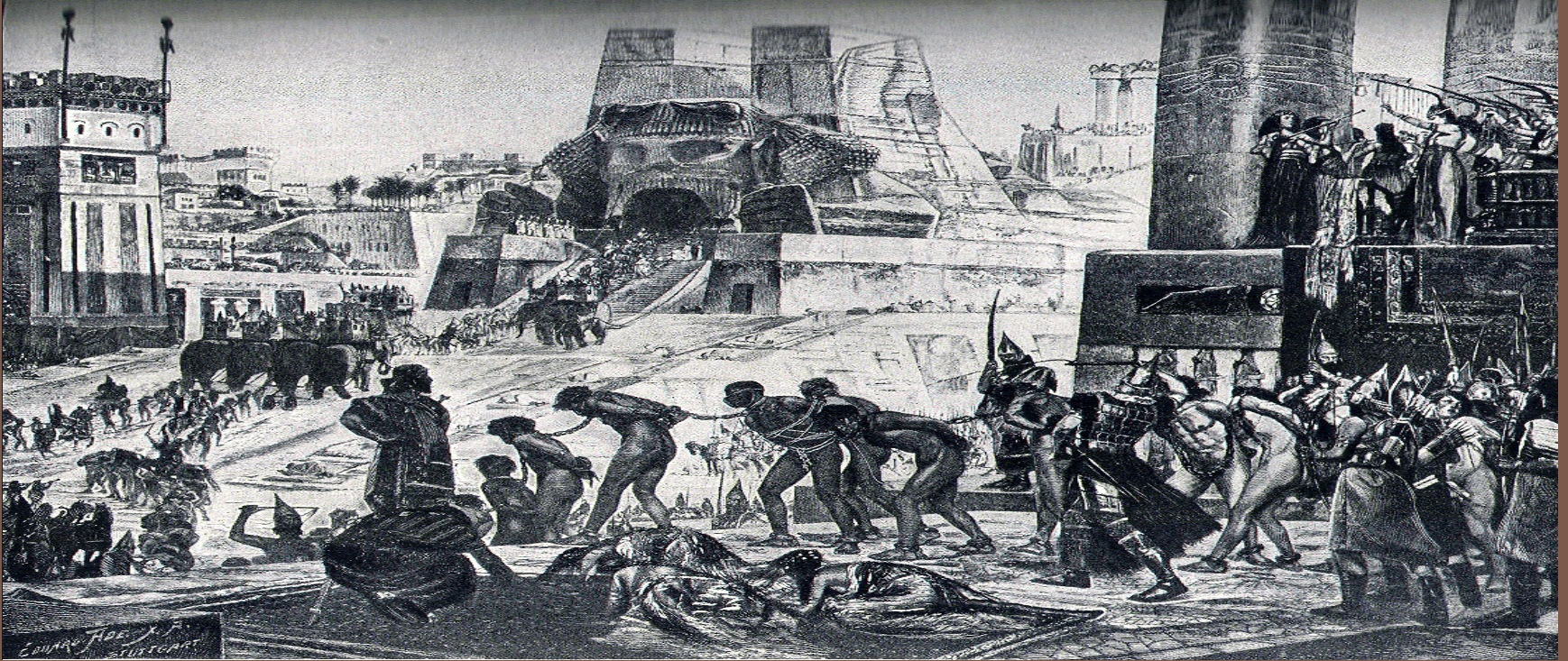
- A boat is a watercraft of a large range of types and sizes, but generally smaller than a ship, which is distinguished by its larger size, shape, cargo or passenger capacity, or its ability to carry boats.
- Boats have served as transportation since the earliest times.
- Boats vary in proportion and construction methods with their intended purpose, available materials, or local traditions. Canoes have been used since prehistoric times and remain in use throughout the world for transportation, fishing, and sport. Fishing boats vary widely in style partly to match local conditions. Pleasure craft used in recreational boating include ski boats, pontoon boats, and sailboats. House boats may be used for vacationing or long-term residence. Lighters are used to convey cargo to and from large ships unable to get close to shore. Lifeboats have rescue and safety functions.
- Boats can be propelled by manpower

PHOENICIAN



- Persian King Cyrus the Great conquered Phoenicia in 539 BC. The Persians then divided Phoenicia into four vassal kingdoms: Sidon, Tyre, Arwad, and Byblos.
- The Phoenicians were the great mariners of the ancient world, and their thalassocracy (maritime realm) was organized into city-states akin to the Greeks.
- It is important to understand there was never a country or empire called “Phoenicia.”
- A possible origin of the historical name for this Semitic/Canaanite culture might have come from the ancient Greek meaning “Purple Land.”
- The Phoenicians were famous in their own time for their dark purple dye—a rare and prized commodity.

CIVILIZATION



- The Phoenician culture originated in the Eastern Mediterranean region of the Levant in the 2nd millennium.
- The Phoenicians founded the coastal city-states of Byblos, Sidon, and Tyre (ancient Canaan).
- Over the centuries, merchants and explorers from these city-states spread across the Mediterranean; and perhaps even navigated as far as the British Isles to bring back tin—a scarcity in the Mediterranean but a crucial ingredient, along with copper (from the island of Cyprus where the Phoenicians also had a foothold), for the making of bronze.



- The Phoenicians built two major types of ships. Trading ships known as *gauloi*, or “round ships,” were built with rounded hulls and curved sterns. The *gauloi* had a giant rectangular sail in its center, which hung from a yard and could turn to catch the wind.
- It used an oar-like blade, attached to the port (left) side of the ship, to steer. Storage, as well as space for the crew, was near the rear of the ship in the quarterdeck.
- Phoenician warships were slightly different; they were longer and narrower than cargo ships, in order to hold large numbers of people.
- The Phoenician warship carried two sails and coverings on the deck to hide officers.
- At the bow (front) of the ship was the forecastle, an area that was used by bowmen or catapults during battle.



- The military ship was equipped with a “rostrum,” a bronze tip fitted on the bow of the vessel in order to ram other ships.
- Phoenician ships were decorated with various carvings and paintings.
- These included eyes that were intended to help the ship “see” and to frighten enemies, as well as horses’ heads to honor their god of the sea, Yamm.
- Phoenician-style ships were so advanced that they were even used after their empire had faded.
- Both the Greeks and the Romans used similar designs in their own fleets.
- Not only did the Phoenicians design great ships, but they also created many new navigational tools. These innovations helped the Phoenicians to maintain their sea power for centuries.

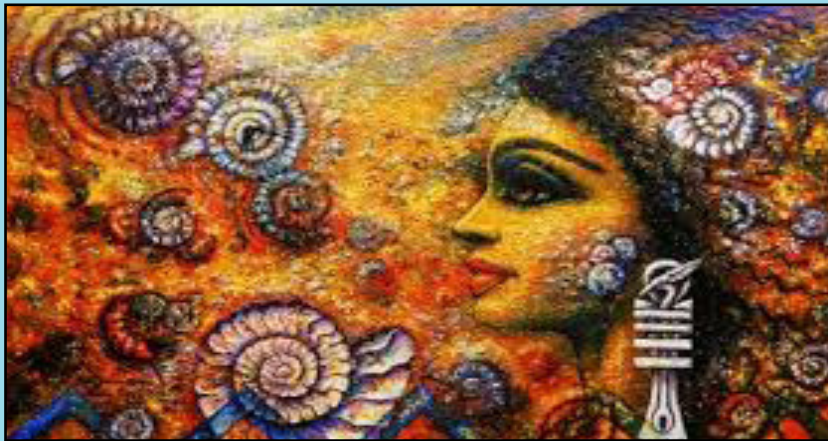


- The ancient Phoenician boatbuilding skills are not a lost art , in fact they are still in use today.
- Phoenician ships have always been a source of astonishment to the many people who believe history is just one long upward sweep from the primitive past to the cultured present.
- Like other races, they began with canoes, roughly hewn out of the trunk of a tree.
- There are models of boats among the Phoenician remains which have a very archaic character,² and may give us some idea of the vessels in which the Phoenicians of the remoter times braved the perils of the deep.
- They have a keel, not ill shaped, a rounded hull, bulwarks, a beak, and a high seat for the steersman. The oars, apparently, must have been passed through interstices in the bulwark.

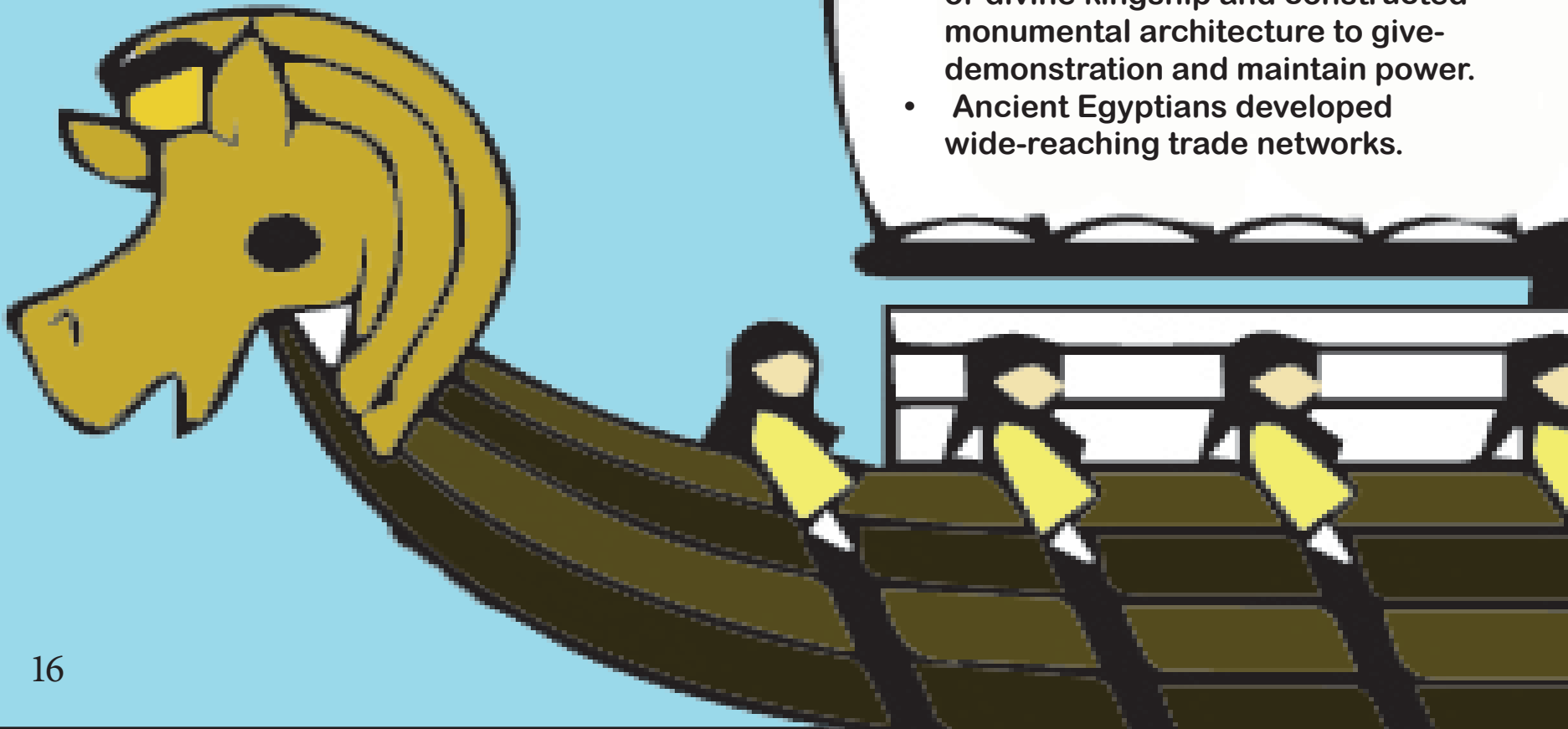


- From this rude shape the transition was not very difficult to the bark represented in the sculptures of Sargon, which is probably a Phoenician one.
- Here four rowers, standing to their oars, impel a vessel having for prow the head of a horse and for stern the tail of a fish, both of them rising high above the water.
- The oars are curved, like golf or hockey-sticks, and are worked from the gunwale of the bark, though there is no indication of rowlocks.
- The vessel is without a rudder; but it has a mast, supported by two ropes which are fastened to the head and stern.
- The mast has neither sail nor yard attached to it, but is crowned by what is called a “crow’s nest” a bell-shaped receptacle, from which a slinger or archer might discharge missiles against an enemy.

EGYPTIAN



- Egyptian civilization developed along the Nile River in large part because the river's annual flooding ensured reliable, rich soil for growing crops.
- The Egyptians kept written records using a writing system known as hieroglyphics.
- The Egyptian rulers used the idea of divine kingship and constructed monumental architecture to give-demonstration and maintain power.
- Ancient Egyptians developed wide-reaching trade networks.



CIVILIZATION

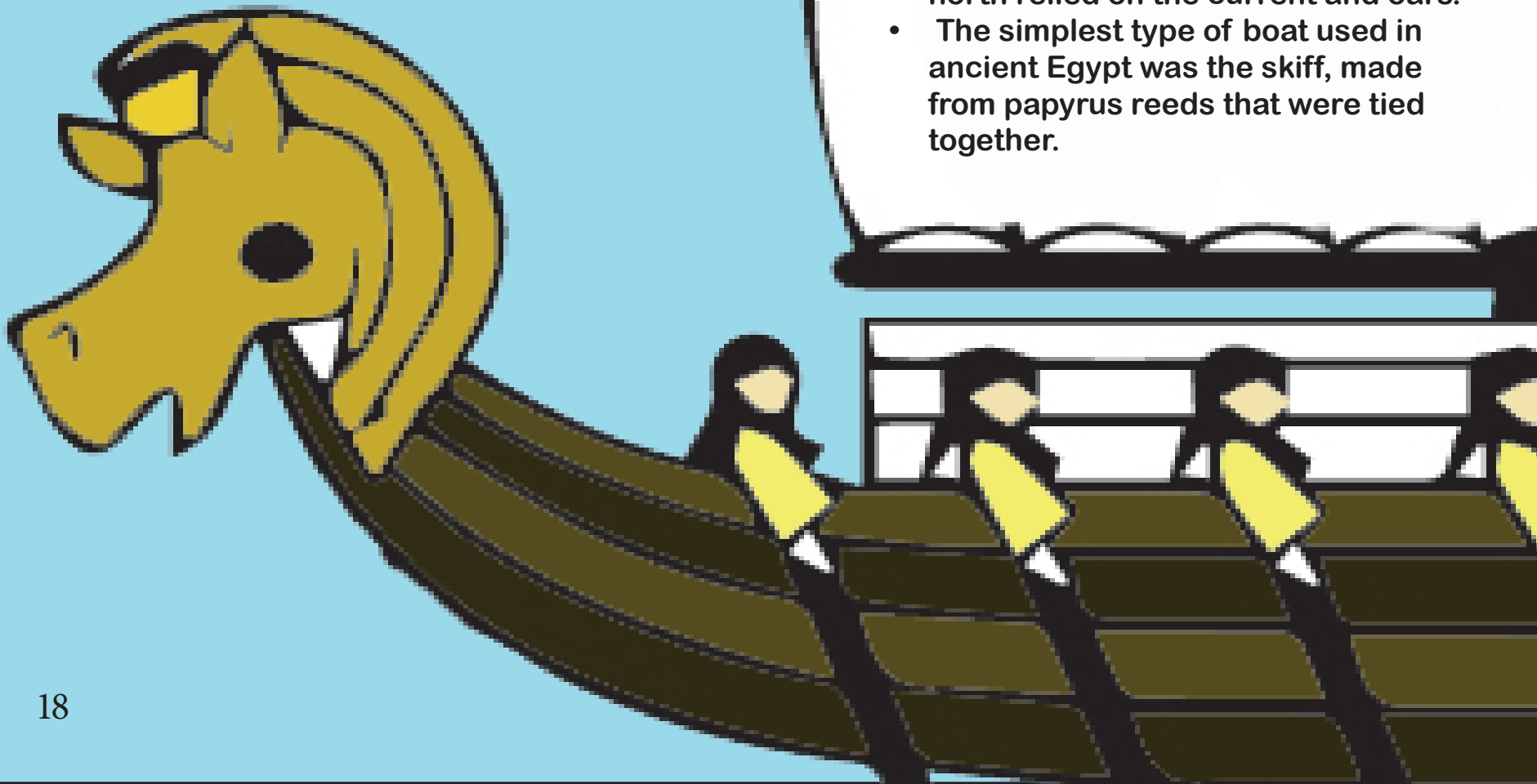
along the Nile, in the Red Sea, and in the Near East.

- The success of ancient Egyptian civilization came partly from its ability to adapt to the conditions of the Nile River valley for agriculture.
- The conventional Egyptology states that the Egyptian civilization would be 5,300 years old and that its the golden age with the building of the pyramids would date back from 4,500 years ago.
- Ancient Egyptians called their land Kemet





- Ships and boats were the main means of transporting people and goods around the country.
- Egyptian watercraft had a high stern and bow, and by the New Kingdom, they were equipped with cabins at both ends. The prevailing winds blew south, propelling boats travelling in that direction, while boats heading north relied on the current and oars.
- The simplest type of boat used in ancient Egypt was the skiff, made from papyrus reeds that were tied together.

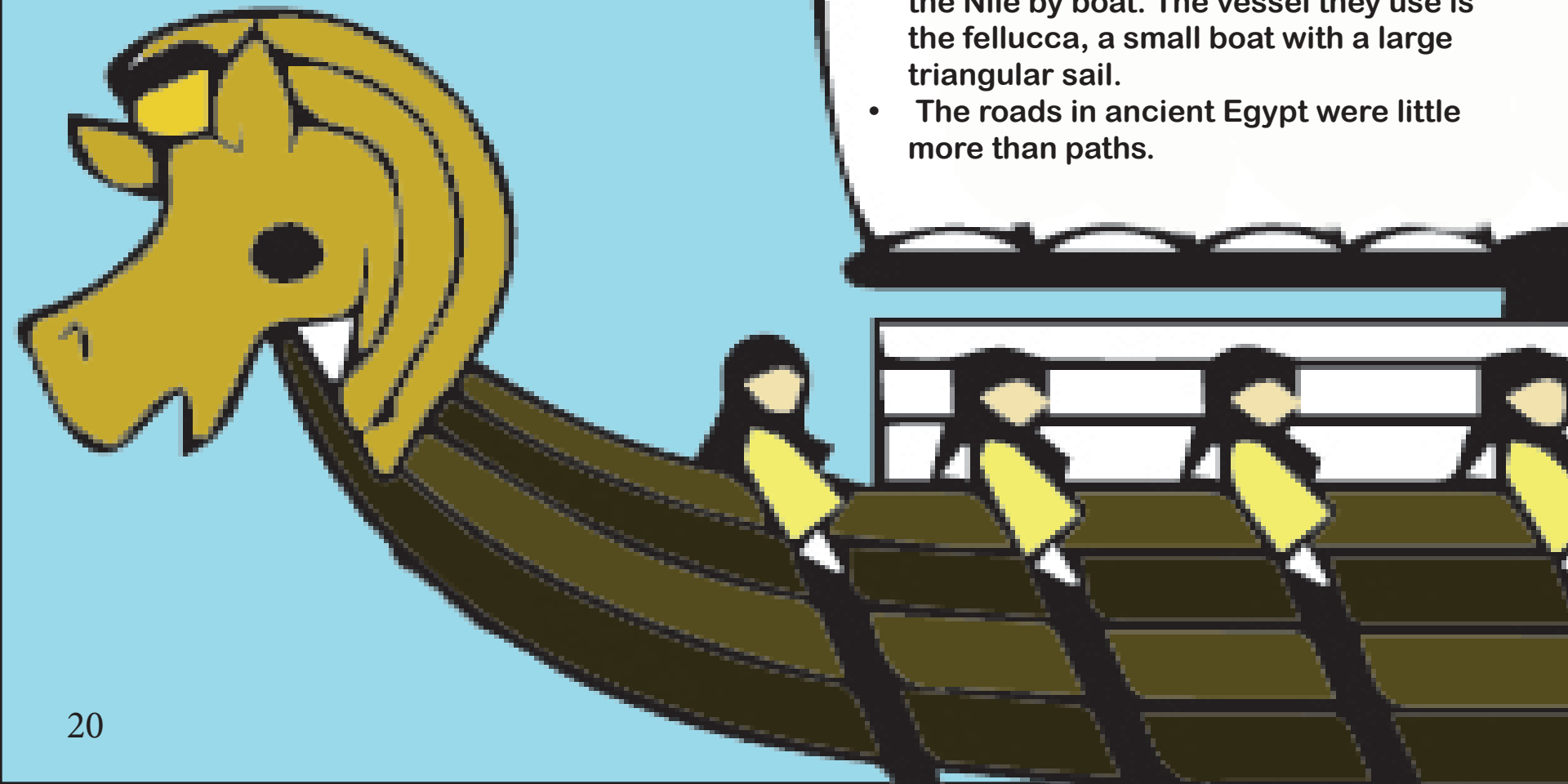


- Since the reeds are filled with air pockets, they are particularly buoyant. Skiffs were used for fishing and hunting game in the marshes, or for travelling short distances.
- Large wooden ships were equipped with square sails and oars.
- Their planks, held together with rope, expanded in the water, making the vessel watertight.
- Ships could travel with ease up and down the Nile from the delta region to the First Cataract at Aswan.





- Boats also served a ceremonial purpose. They were used to move images of gods from temple to temple, and to transport the mummified bodies of royals and nobles across the Nile to their tombs on the west bank.
- Even the sun god travelled by boat (the solar bark) on his daily journey across the sky. Today, the Egyptians still cross the Nile by boat. The vessel they use is the fellucca, a small boat with a large triangular sail.
- The roads in ancient Egypt were little more than paths.



- To get around on land, people walked, rode donkeys or travelled by wagon.
- They carried goods on their head, but the donkeys and wagons hauled heavier loads. Camels were almost unknown in Egypt until the end of the pharaonic period.
- The wheel was probably introduced into Egypt by the Hyksos, an Asiatic people who invaded the country and ruled it in the fifteenth and sixteenth dynasties.



GREEK



Fig 3.1



Fig 3.2



Fig 3.3



Fig 3.4

CIVILIZATION

- **Ancient Greek civilization, the period following Mycenaean civilization, which ended about 1200 bce, to the death of Alexander the Great, in 323 bce**
- **It was a period of political, philosophical, artistic, and scientific achievements that formed a legacy with unparalleled influence on Western civilization.**
- **Classical Greek culture gave great importance to knowledge.**
- **Science and religion were not separate and getting closer to the truth meant getting closer to the gods. In this context, they understood the importance of mathematics as an instrument for obtaining more reliable (“divine”) knowledge.**
- **Greek culture, in a few centuries and with a limited population, managed to explore and make progress in many fields of science, mathematics, philosophy and knowledge in general.**
- **In the 8th century BC, Greece began to emerge from the Dark Ages which followed the fall of the Mycenaean civilization.**
- **The Greeks made important contributions to philosophy, mathematics, astronomy, and medicine.**
- **Literature and theatre was an important aspect of Greek culture and influenced modern drama.**
- **The Greeks were known for their sophisticated sculpture and architecture.**
- **Greek culture influenced the Roman Empire and many other civilizations, and it continues to influence modern cultures today.**



Fig 3.5

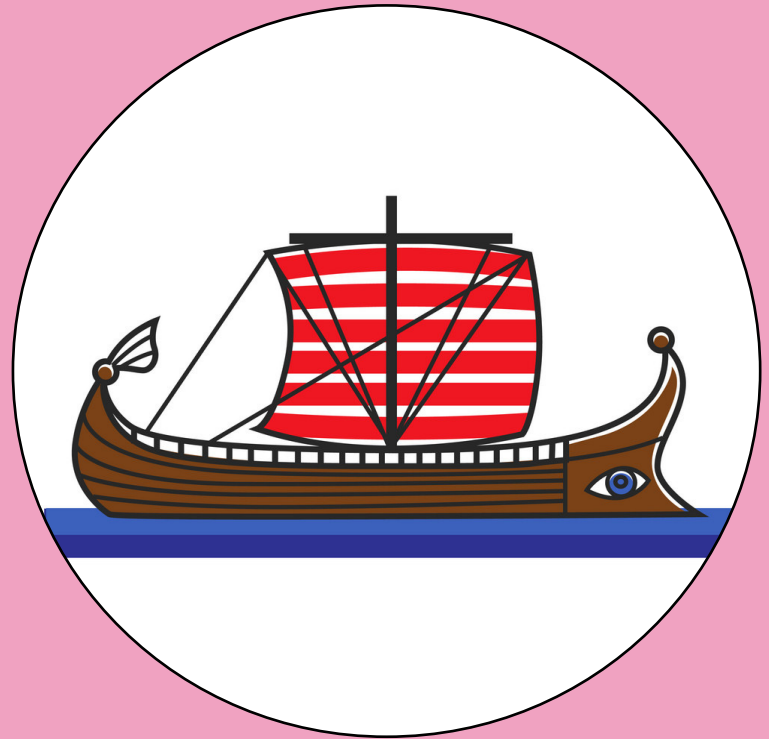


Fig 3.6



Fig 3.7



Fig 3.8

- **Ancient History/Greece/Greek Boats.** Greek boats had two or three sails depending on the size of the craft. These boats were made out of large pieces of hard wood; these boats were large for the time but only could carry 100 – 150 kg of stone used to make statues.
- The usual items carried on the boats were construction supplies to build houses, war supplies such as iron, bronze, etc. the Greeks also carried lots of food, the most items they would trade were almonds.
- Other objects they would carry were fish, olives, barley and other substances they would carry the substances over water by putting them in urns and putting a wax seal food.
- There was a special road called the “Diolkos” it was a special road because it connected two seas so people would be able to travel to the other seas without getting a different boat, the length of this road was 175 km an anonymous writer said that after it was built it started to turn green because of the seaweed and barnacles laying on it because no one would clean it.
- The trireme derives its name from its three rows of oars, manned with one man per oar. The early trireme was a development of the penteconter, an ancient warship with a single row of 25 oars on each side (i.e., a single-banked boat), and of the bireme , a warship with two banks of oars, of Phoenician origin. The word dieres does not appear until the Roman period. According to Morrison and Williams, “It must be assumed the term pentekontor covered the two-level type”. As a ship it was fast and agile, and it was the dominant warship in the Mediterranean during the 7th to 4th centuries BC, after which it was largely superseded by the larger quadriremes and quinqueremes.
- Triremes played a vital role in the Persian Wars, the creation of the Athenian maritime empire, and its downfall in the Peloponnesian War.



Fig 3.9



Fig 3.10



Fig 3.11



Fig 3.12

- Greek ships were long ships that were usually around the same size and they were used to make deliveries and to carry cargo.
- Many of the ships were used to carry trade goods.
- Most of the Greek ships were around 100 feet to 115 feet long.
- Some of them were covered in brass so that they would be strong in case there was a war.
- The ships were made of wood and were usually about the same size.
- If you compared the ships to something today, they would probably be about as long as about three buses in a row.
- Ships today are run on motors but in Ancient Greek times, the ships were usually running by sails or by people called oarsmen.
- Oarsmen would hold the oars and they would power the boat.
- They would use the oars to move the boat and to make the boat turn left or right depending on which direction they wanted to go.
- Since the ships were ran in the Mediterranean Sea, they would move fast along with the current of the water, so the oarsmen had to be strong to handle the ship in the water.
- Many of the people in Ancient Greece depended on their merchandise to be traded with other countries so that they could make a living for their families.
- The ships would be used to make sure that people in the Ancient Greek cities were able to trade and to move cargo from one area to the other.
- Since the ships were large, the Greeks could make trips to other countries and they could bargain and trade items.
- Before people of Ancient Greece would go into any ship and before the ship was even allowed to leave the harbor, they sailors would pray to the god Poseidon to keep them safe while they were in the water.

上海太空上海 CHINESE



- China is one of the world's four ancient civilizations, and the written history of China dates back to the Shang Dynasty (c. 1600–1046 BC), over 3,000 years ago.
- Pre-1600 BC, China is charted mainly by legends and prehistoric evidence. The ancient China era was c. 1600–221 BC.
- The imperial era was 221 BC – 1912 AD, from China's unification under Qin rule until the end of the Qing Dynasty, the Republic of China era was from 1912 until 1949, and the modern China era from 1949 until the present day.
- China was one of the cradles of the human race.

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CIVILIZATION 太空上海

- The Chinese nation is not only the most populous but also one of the oldest in the world.
- China is a vast country with a huge range of terrains and climates within it.
- As well as the country's sheer size, the geographical features such as mountain ranges, deserts and coastlands have all helped shape Chinese history.
- The great river systems of China, Yellow River to the north and the Yangtze to the south, which have given Chinese civilization its distinctive character.
- The Han dynasty lasted until 220 CE, when it broke up into several successor states.



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- A sampan is a relatively flat-bottomed Chinese and Malay wooden boat.
- Some sampans include a small shelter on board and may be used as a permanent habitation on inland waters.
- Sampans are used for transportation in coastal areas or rivers and are often used as traditional fishing boats.
- It is unusual for any sampan to sail far from land, as they do not have the means to survive rough weather.
- Word “sampan” comes from the original Cantonese term for the boats, literally meaning “three planks”. The name referred to the hull design, which consists



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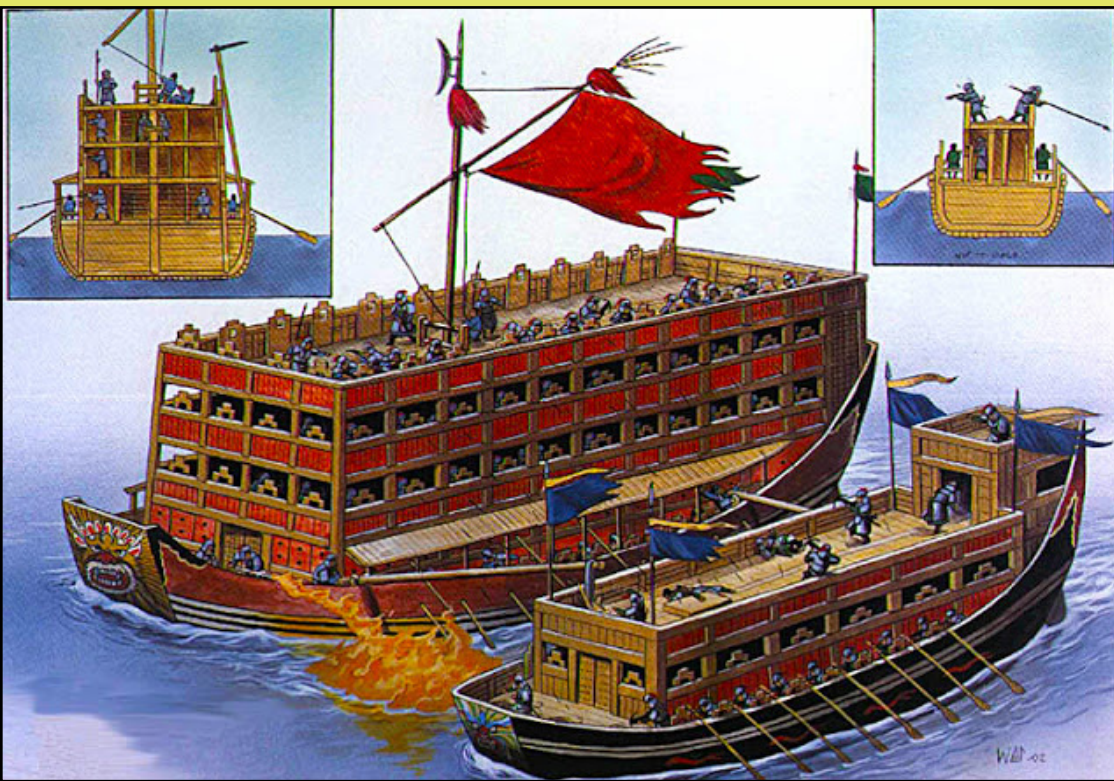
hull design, which consists of a flat bottom (made from one plank) joined to two sides (the other two planks).

- Sampans may be propelled by poles, oars (particularly a single, long sculling oar called a yuloh) or may be fitted with outboard motors.
- Sampans are still in use by rural residents of Southeast Asia, particularly in Malaysia, Indonesia, Bangladesh, Myanmar, Sri Lanka and Vietnam.
- The design resembles Western hard chine boats like the scow or punt.
- In the Malay community in Southeast Asia, they also use the term sampan for their boats.



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- A junk is a type of Chinese sailing ship.
- They were developed during the Song dynasty (960–1279) based on Austronesian ship designs, examples of which have been trading with the Eastern Han dynasty since the 2nd century AD.
- They continued to evolve in the later dynasties, and were used by Chinese traders throughout Southeast Asia. They were found, and in lesser numbers are still found, throughout Southeast Asia and India, but primarily in China.
- Found more broadly today is a growing number of modern recreational junk-rigged sailboats.
- Chinese junks referred to many types of coastal or river ships



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- They were usually cargo ships, pleasure boats, or houseboats.
- They vary greatly in size and there are significant regional variations in the type of rig, however they all employ fully battened sails.
- The term “junk” (Portuguese junco; Dutch jonk; and Spanish joanga) was also used in the colonial period to refer to any large to medium-sized ships of the Austronesian cultures in Island Southeast Asia, with or without the junk rig.
- Examples include the Indonesian and Malaysian jong, the Philippine lanong, and the Maluku kora kora.



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PHOENICIAN CIVILISATION

1550 BCE - 300 BCE

EGYPTIAN CIVILISATION

3100 BCE - 30 BCE



LINE

GREEK CIVILISATION

800 BCE - 300 BCE



CHINESE CIVILISATION

1600 BCE - 221 BCE

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