

Ancient China's Marine Memories

“Treasure” from 7,500 Years Ago

From 11,000 to 7,500 years ago, the Upper Cave Man in Beijing, Dawenkou People in Shandong, and Hemudu People in Zhejiang all dwelled near the river or on the beachfront. Seashells drilled with holes, accessories made in trumpet shells and fish bones were found in relics, indicating that coastal ancestors at that time subsisted by fishing, and the sea was the vital resource for them to survive. In their labor and life, they created the Longshan Culture and Baiyue Culture with oceanic features. They started to explore the sea with simple carrier-like raft which drifted on the water.



Money Cowry

Not only the people in the coastal regions had close relationship with the sea, but people from inland regions were also concerned with the sea. Before the Xia and Shang Dynasties, the exchange of goods had begun, and people had started to use currency. The currency in circulation at that time was money cowry, using the Tooth Shell and the Tiger Cowrie as the medium

of exchange. In the early Qing Dynasty, the money cowry was still used in Yunnan. In today's vocabulary, the word "Baobei (treasure)" has become a general name for valuables.

The ancients got to understand floatation by seeing the fallen leaves and dead wood floating on the water. The book of "Huai Nan Tzu" says people grasped the principle of floatation while seeing dead wood floating on the water. The book of "Wuyuan" says during the Suirensi Times, people held calabash to go across a river, but during the Fuxishi Times, the raft had been invented. The book of "I-Ching" says people could hold a calabash to go across a river. Then people developed a method of tying several calabashes to their waist, which was called "Yaozhou" (meaning "boat tied to the waist"). During animal-domesticating times, a floating tool made from animal skin had been invented.

Canoe Model in the Stone Age

Rafts are made by tying many floats together, and the real offshore activities can be carried out with rafts. The book "Origins of Objects" says that before boats were invented, people had to use rafts in their offshore activities.

In Yuyao of Zhejiang Province, relics from the Hemudu Stone Age have been found such as a pottery canoe model with a paddle made from a whole wood plank, proving that during the Yellow Emperor times over

The Hemudu culture (5000 B.C. to 4500 B.C.) was a Neolithic culture that flourished just south of the Hangzhou Bay in the lower Yangtze River region. It was first discovered in modern Yuyao, Zhejiang, China in 1973. As a Neolithic matriarchal clan community in Neolithic period, it reflected the clans in the Yangtze River region 7,000 years ago. The wooden paddle found in the relics indicated that they knew how to use boats in transportation or fishing.

7,000 years ago, our ancestors had already invented a canoe with the ability to move forward by using a paddle. The book of “I-Ching” tells the story of when the Yellow Emperor hollowed out a log and made it into a canoe, and archaeological studies have proven the story to be true.

After our ancestors mastered the technology of making a plank, they had the sense to build up a wooden boat, and the advent of the wooden boat indicated a leap forward for shipbuilding technology. Tools such as the axe, chisel and saw were found in relics of the Xia Dynasty, proving people had had the ability to build wooden boats at that time.

The book of “The Analects of Confucius” says Houyi was skillful at archery, and Ao could move a boat along upon the land, proving that there were skilled people who could carry out water activities in the Xia Dynasty.

The Chinese character “Zhōu (舟)” was Found in Oracle Bone Script Shaped like a Boat

The Chinese characters were developed from the hieroglyphic. In the Xia and Shang Dynasty, the character “zhōu (舟)” is a drawing of a boat. We can find out the structure of a boat from the character: several beams were used to reinforce the body of the boat, forming several compartments. This method could increase the strength of the boat, allowing for a larger boat built with fewer materials. Compartmentalization is an important invention, and is the ancestor of watertight compartments of modern ships.

With the surplus materials, people started to trade. Transportation is needed for trade, and boat was an important means of transportation in ancient times. There was a character “dàng (荡)”, in the inscription of a Taotie Design Tripod, drawing a person carrying something on a boat, and another person sailing it, which vividly represented the relationship between boats and transportation. During the Zhou Dynasty, the merchants who sailed boats for transportation were very rich, so “The Book of Odes” says “For noblemen of Zhou, their sons seek furs of bears to wear for fun”. An

unearthed cultural relic “Yuejunqi’s Golden Jie” is a license for sailing boats issued by the King of Chu to a person named “Qi” from Hubei, indicating that the government at that time was encouraging the shipping industry.

After people knew how to build a boat, propulsion was needed. One option was paddling by humans. In water battles at that time, going forward and backward in the boat relied on paddling. Archaeological discoveries show that in the images of bronze wares from the Warring States period, there were scenes depicting overwater battles on the lower part of the “Kettle of Conviviality on Fishing, Hunting and Fighting”: two warships were attacking each other; the soldiers on the deck were fighting with weapons in their hands; the soldiers under the deck were paddling; and there were soldiers in the water who were seemingly attacking the bottom of the enemy’s boat.

The second option is using a sail. There was the character “fān (帆)”



Kettle of Conviviality on Overwater and Land Battle



The character “zhōu (舟)” in Oracle Bone Script



The Character “dàng (荡)” on the Taotie Design Tripod

in Oracle Bone Script, proving that the sail was invented by the Xia and Shang Dynasties. The use of the sail was human's exploitation of wind power resources, and a leap forward for effectiveness.

The third option is using scull, which is a very successful invention. Sculling can provide a continuous pushing force for the boat, and play the role of a rudder. But while paddling, the paddle can only provide a pushing force when you paddle it, and the paddle has to be lifted out of the water and put back into the water, so half of the energy is wasted. Archaeological findings have proved that the scull came about during the Han Dynasty, but the period for developing the invention of the scull had not yet concluded.

300 Boats Were Used to Move the Capital

In the Warring States period, the shipbuilding industry had a considerable size. The "Book of Yue and Jue" recorded that when the State of Yue moved its capital in 468 B.C., 300 boats were used; and when the State of Qin invaded the State of Chu, they used over ten thousand big boats. It is worth noting that the shipbuilding capability at that time was quite considerable, and it was not difficult to use hundreds of boats, or even more, in large movements. The boats had a specific division of labor at that time. A book called "A Critical History Of Institutions" recorded that the boat for the emperor's special use named "Yuhuang"; the book called "Songs of Chu" recorded that the boats used for civil traffic were named "Ling"; and the "Book of Yue and Jue" recorded that the boat named "Weizhou" was made by putting four boats side by side, the boat named "Fang" was made by putting two boats side by side, and the floating bridge made by putting many boats side by side. The boats for military use were further subdivided, such as "Gechuan", "Maotu", "Louchuan", "Qiaochuan", "Dayi", "Zhongyi", "Xiaoyi", and etc. At that time, in the State of Wu, the "Dayi" boat was 10 zhangs (about 26 m) in length, and 1 zhang 5 chis and 2 cuns (about 4 m) in width; the "Zhongyi" boat was 9 zhangs and 6 chis (about

25 m) in length, and 1 zhang 3 chis and 5 cuns (about 3.6 m) in width; and the “Xiaoyi” boat was 9 zhangs (about 24 m) in length, and 1 zhang and 2 chis (about 3.2 m) in width. The capacity of “Dayi” Boat was 93, 50 of whom were paddlers, so the boat had a high speed, and was known as the “Wing Boat”. The “Wing Boat” was the light cavalry in the water, with light weight and agility. So, the large boat at that time should have been even larger than the “Wing Boat”. There was a method to work out the capacity of a boat which was recorded in the book “General Military” from the Ming and Qing Dynasties, in which 2 dans of boat capacity equaled the weight of 1 person, so the load capacity of the “Dayi” would have been around 200 dans.

Navigation by Currents and Tides

The character “Qian (𠄎)” in Oracle Bone Script, means the a strip of cloth tied to a pole to measure the wind. The book “Huai Nan Tzu” says “Qian (𠄎)” reveals information about wind direction and wind power. In Oracle Bone Script, wind was divided into four types: “Xiaofeng”, “Dafeng”, “Daqufeng”, and “Dafengxiong”. “Daqufeng” means hurricane, and “Dafengxiong” means storm. And the book “Rituals of Zhou” recorded the monthly variation of wind direction.

The “Book of Odes” recorded that “When heavy clouds are hanging low, there falls the timely rain and snow”, “There blows the mountain gale; the wind and rain combine”, and “In the west, the sky is red, a sign of rain for the day”, all of which were telling the pattern of rain and wind. The book “Rules and Laws of the Navy” says there were many books on weather forecasting in ancient times, but they could only predict the wind and the cloud. This shows that in the Warring States Period, there were many people studying weather forecasting, and China’s ability in relation to weather forecasting at that time was a in world leading position.

The book “Guan Tzu” completed in the Warring States Period recorded

that the fishermen set sail into the sea for hundreds of miles, although it was risky, they knew how to make use of the sea. The book “Yugong” says the people knew how to take advantage of the currents and tides during navigation.

“Longshan Culture” on Guadalupe Island

The ancestors living in China’s eastern coastal regions could be divided into many clans, but they were generally referred to as “Dongyi”. The “Book of Yue and Jue” recorded that the Yue people called the boat “Xulu”, and lived on the beachfront and that the Dongyi people gained high skills on the sea.

In order to have livelihoods and improve their living conditions, people started to master crafts like building rafts and boats as well as developing basic seagoing skills. At first, they moved along the coastline, so there were traces of them in the coastal regions, but the wind and currents could not be controlled by humans, so the rafts and boats would drift with the wind and currents. In the spirit of perseverance, the ancestors gradually reached the sea, and mastered the basic skills of it, but at the expense of countless lives. Their traces could be found in the regions where the warm Pacific current and westerly winds pass. The archaeological activities found the relics of “Longshan Culture” and “Baiyue Culture” in the Korean Peninsula, Japanese Archipelago, Alaska, Hawaii, Polynesia, Tonga, Samoa, New Zealand, Southeast Asia, and in the Pacific coastal regions, including Guadalupe Island in Mexico, Ecuador, Peru and other places. These relics included blades with holes, stone axes, stepped adzes and potteries, and even the tombs and bones of Dawenkou people and Longshan people. This evidence has fully proven that as early as the Stone Age 5,000 to 6,000 years ago, Baiyue people and Longshan people had drifted in the Pacific Ocean.

In the Shang Dynasty, there were large-scale sailing activities: Gaoxinshi led part of his tribe to move to the south. The “Book of Odes”