

Historical Glimpse of China's Ancient Treasure Ships

Historical Summary by Geoff Walker

Admiral Zheng He 郑和

China has always been a major maritime nation, conducting voyages of exploration and discovery dating back to the treasure ships. These were very large wooden ships that were the focal ships in the fleet of the eunuch and Court Admiral **"Zheng He"**, who led seven voyages of exploration and discovery, seeking treasures from foreign lands, during the early 15th-century Ming dynasty.

Admiral **"Zheng He"** (1371 – 1435) was a Chinese mariner, explorer, diplomat, fleet admiral, during the early part of China's Ming dynasty. He was originally born as **"Ma He"** into a Muslim family, but later assumed the surname **"Zheng"** conferred on him by the Yongle Emperor. **"Zheng He"** commanded expeditionary treasure voyages to Southeast Asia, the Indian subcontinent, Western Asia, and East Africa over a three-decade period between 1405 to 1435.

As a favorite of the Yongle Emperor, whom **"Zheng"** had assisted in the overthrow of the previous Jianwen Emperor, he rose to the top of the imperial hierarchy and served as commander of the southern Chinese capital of Nanjing. In the new administration, the new emperor was very ambitious, he built a new imperial capital in Beijing, including the Forbidden City, and extended the Great Wall. Since he was determined to control trade in the Indian Ocean, one of his first acts was to commission the construction of large fleet of ships, with **"Zheng He"** supervising the construction and then commanding the fleet. **"Zheng He"** served in the highest posts, not only as an Admiral, but also as Grand Director and later as Chief Envoy during his exploratory sea voyages.



According to Ancient Chinese legend, **"Zheng He's"** larger treasure ships carried hundreds of sailors accommodated in four decks and were almost twice as long as any wooden ship ever recorded in maritime history. However, the actual size of the treasure ships is a matter of conjecture, some scholars claiming they were somewhat smaller than popular knowledge infers. Traditional accounts of **"Zheng He's"** voyages have described a great fleet of gigantic ships far larger than the then world, had ever seen. The fleet was formidable, being fully self-sustaining, and consisting of a variety of ships designed to support the voyages of discovery .

(Unsigned scroll depicting Emperor Yongle – public Domain)

the fleets would typically deploy a range of ship types, such as:

Chinese treasure ships, the largest ships, mother ships used by the commander of the fleet and his deputies, nine-masted, about 127 meters (417 feet) long, 52 meters (171 feet) wide, with four decks.

Equine ships, used for carrying horses and tribute goods and repair material for the fleet, eight-masted, about 103 m (338 ft) long and 42 m (138 ft) wide.

Supply ships, which as the name implies, carried staple foods for the crew, seven-masted, about 78 m (256 ft) long and 35 m (115 ft) wide.

Troop transports, self-explanatory roles, six-masted, about 67 m (220 ft) long and 25 m (82 ft) wide.

Fuchuan warships, used for raiding and defense of the fleet, five-masted, about 50 m (160 ft) long.

Patrol boats, eight-oared, about 37 m (121 ft) long.

Water tankers, with a combined capacity to carry 1 month's supply of fresh water for the fleet.



(Unknown – Public Domain)

Depiction of Admiral “**Zheng He**” and his Treasure Fleet of the early 15th Century.

Having been entrusted by the emperor to undertake voyages of discovery, by 1405 the first large Chinese fleet was ready to set sail. It consisted of 62 treasure ships plus ancillary vessels, although some sources differ over the actual number of vessels making up the fleet, but it is estimated to be in the hundreds, with a following of 28,000 people, including ship’s crew, a small army of soldiers as well as other personnel required to support such a large fleet. On his first voyage “**Zheng He**” traveled far and wide through Vietnam, Java, Sri Lanka, South Indian sub-continent, where he delivered luxury goods such as exquisite Chinese porcelain and silks in exchange for spices, exotic animals previously unknown to the Chinese, such as ostriches, giraffes, zebras, and camels. Subsequent voyages took him further westward, to the Persian Gulf, Arabia, and the east coast of Africa, from where he returned with ivory from the Swahili Coast, flora, and fauna, as well as other treasure items, and curiosities, presented to China as gifts from foreign countries.

The soldiers carried by the fleet became valuable assets to help counter pirates encountered during the voyage and any local rulers who refused to cooperate. History records the following voyages of discovery undertaken by “**Zheng He**” and his treasure fleet:

First voyage of Zheng He (1405-1407)

Second voyage of Zheng He (1407-1409)

Third voyage of Zheng He (1409-1411)

Fourth voyage of Zheng He (1412-1415)

Fifth voyage of Zheng He (1416-1419)

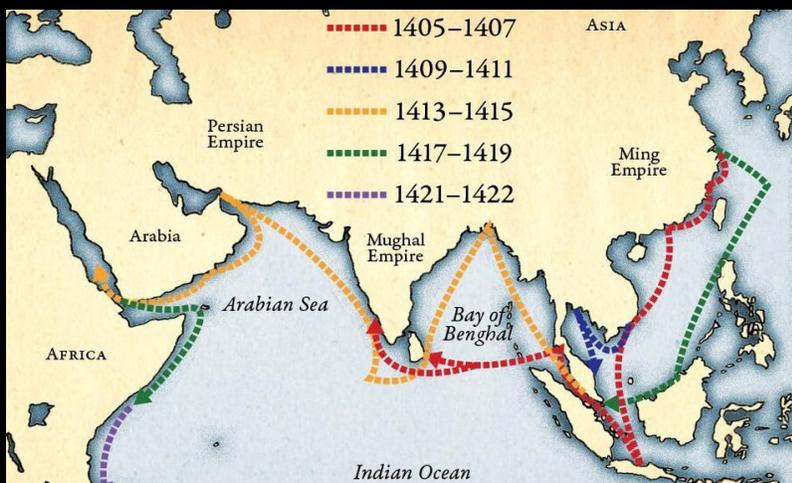
Sixth voyage of Zheng He (1421-1422)

Seventh voyage of Zheng He (1431-1433)

During his voyages “**Zheng He**” also acted as a diplomat, on behalf of the Imperial Chinese Court, and over the course of several of his voyages, brought back to China various envoys from the countries he had visited, in order they pay homage to the Chinese emperor and establish formal links.

In 1402-1424, during the reign of Emperor **Zhu Di**, the imperial court ordered the building and modification of 25 batches of sea-faring boats, totaling 2860. They included four batches of what are defined as “Treasure Ships”, totaling 343 in number, large seagoing vessels especially designed and intended for the voyages to the western world.

Showing the sea routes used by “**Zheng He**” on 5 of his voyages of discovery.



During 1422 a new expedition was planned that would take “**Zheng He**” halfway across the world, perhaps even discovering the Americas, but the expense of such voyages was by now weighing heavily on the emperor’s purse. In 1424 the Admiral’s mentor and imperial emperor suddenly died. The late emperor’s celestial son was no longer interested to continue funding China’s expeditionary policy. Hence, sea

voyages of discovery were no longer a priority, and scaled back, with agriculture returning to the spotlight, to the detriment of mariners. The ships were brought to ports, and laid-up, the sailors sent home, and the admiral reverted to his earlier bureaucratic functions, whilst awaiting further orders from the emperor.

The objectives or motivation of “**Zheng He’s**” voyages can be divided into two main categories: the first three voyages, and the next fourth to seventh voyages. The first phase, the aim was to stabilize the emperor’s ruling status, as well as show off China’s richness and military strength. For the latter phase,

the objective was to establish friendly international relationships with other countries, and meanwhile placing an emphasis on tribute trade. It is believed that the search for a Giraffe was also a purpose of the latter phase, because it was the favored symbol of power and auspice in ancient China.

Some historical records show that the seagoing fleet under the command of Admiral **“Zheng He”** consisted of more than 200 vessels and 61-63 Treasure Ships. As the boats were built in different places, they varied in types and design, such as **“FU”** boats, **“WU”** boats, **“GUANG”** boats and **“SHA”** boats. The huge **“Treasure Ships”** allegedly measured 133 meters long; medium size one’s measured 111 meters long, and the smallest ones measured 60 meters long for carrying supplies. In **“Zheng He’s”** fleet, there were also eight-rowing boats, which measures about 24 meters long, with two masts. They used masts and sails in following winds, and when becalmed, they used oars.

Never in the world had there been such adventurous voyages of such a scale, lasting for such a long time, and with so many people under an Admiral’s command, ventured so far into the unknown oceans, and used such advanced navigation techniques. Fortunately for **“Zheng He”** he inherited the vast knowledge and maritime practices of former navigators in Chinese history and assimilated their ocean-going knowledge. He selected excellent sailors, prepared his fleet well, and built various types of seaworthy ships designed for different purposes, equipped with well-designed devices such as reinforced bows, keels running the entire length of the ships, watertight compartments, precise compasses, and star boards. Based on the knowledge of his predecessors and the sea-going practice of his own, he prepared scientific navigation charts. He inherited and innovated the Chinese tradition of celestial navigation through observations. By inventing the technique of star board measurement for determining the elevation of celestial bodies and thus positioning, he developed the navigation technology to a new level for the times. **“Zheng He”** also had studied meteorology, in particular the general patterns of monsoon in the China sea area, Indian Ocean and Arabian Sea and he made effective use of these studies during his voyages.

The first voyage sailed in a large orderly formation, forging ahead under full sail day and night. In order to take advantage of following winds and seas of the Northeast monsoon, **“Zheng He”** had completed preparations for the voyage in less than one month and set sail on his first voyage from Port of Taicang (today known as Suzhou).

By the time of the third expedition, 1409 to 1411, **“Zheng He”** had established a routine for his fleet. The fleet used Malacca as its forward base and there the fleet was divided into squadrons, which sailed independently to their separate destinations.

The fourth voyage was the largest scale expedition ever. After departing from Vietnam, the fleet split into two. One visited the Malaysian Peninsula. The other, led by **“Zheng He”**, continued the journey coasting along the islands of Java, Sumatra, to Palembang and to Malacca.

The objective of **“Zheng He’s”** fifth voyage was to escort envoys of 19 countries he had brought to China, back home, at the same time procuring an assortment of rare animals, herbs, herbal medicines, and spices from the Arabian Peninsula and East Africa.

“Zheng He” was also directed by the emperor to undertake a sixth voyage, to escort the remaining foreign envoys back to their homelands, including Mogadishu and Barawa (Somalia) in East Africa.

In order to sail the most direct route to the eastern coasts of Africa, **“Zheng He”** used stellar charts and primitive observations to measure the height of the stars to fix the position of his fleet.

To navigate the fleet **“Zheng He”** used Polaris in the northern hemisphere. But when they were in Indian Ocean, and altered course to the southwest, towards southern Africa. Polaris, their guiding star, would sink closer and closer to the horizon and become invisible at 3°40’N, north of Mogadishu in Somalia. Until they found another guiding star in the southern hemisphere to fulfil the same purpose as Polaris in the north, they were sailing into the unknown.

The Chinese needed a star in the southern hemisphere to replace **Polaris** in the north, and in the final analysis they selected two: **Canopus** (the brightest star in the southern constellation) for latitude and the Southern Cross constellation for navigation. Only once the positions of Canopus and the Southern Cross had been located could new lands in the southern hemisphere be accurately placed on charts. When they finally ascertained these factors were they able to complete their calculations. By cross-referencing Canopus to Polaris, they could establish Canopus’s height and then use that star to obtain their latitude anywhere in the southern oceans.



Typical of the compass that would have been used by **“Zheng He”** on his voyages of discovery. Invented by the Chinese and used as far back as the Qin Dynasty (221-207 BC). In ancient times, a compass was made with lodestone, or magnetite, that was carved in the shape of a spoon and placed upon a bronze plate. The plate had carvings of constellations and each of the cardinal points. It wasn’t until the Song Dynasty that the compass was used as a tool for navigation. A dry compass as we know it today wasn’t used in ancient China; rather, the compass used in a Treasure Ship was a kind of “liquid compass”, that is a needle floating in water contained in a circular box, with the compass points carved on wooden rim. On the compass there are 24 scales. Each scale, marked by different Chinese characters, represents a direction. (Unknown – Public Domain)

Admiral **“Zheng He’s”** fleet used hourglasses to measure time and distance covered. It was the standard instrument widely used for measuring time by the trickling of sand through small opening from one glass bulb to another below it, depicting a fixed period, known as a “Geng”. A “Geng” was a time recording unit, representing one of the five two-hour periods of a night, but here it was graduated into units of distance. Usually, one full “Geng” of the instrument indicated 60 Li, about 30 kilometers in modern measurement. Simply put, when measuring speed through the water, a crewmember threw a small piece of wood or small plank into the sea from the bow of the ship, and then walked towards the stern of the ship at a certain fixed pace; the number of steps taken until the piece of timber passed the stern, enabled the navigator to approximately calculate the ship’s speed. Then, course and distance were calculated, and laid on a scroll map.

On the final voyage back towards China, when the fleet was carrying rare animals, native produce, and artifacts, when sailing toward Calcutta, Admiral **“Zheng He”** died due to illness. According to tradition, he was buried at sea.

The legacy and voyages of **“Zheng He”**, are frequent topics for today’s world historians. They clearly demonstrate Chinese ships could have ruled the Indian Ocean for many more decades and possibly they may have been able to undertake voyages to the Americas. How different would the world be, had they done so?

Admiral **“Zheng He”** was the greatest navigator in the history of China, and a momentous pioneer in the great geographical discoveries he made. **“Zheng He’s”** voyages were magnificent feats in maritime history. Not only did he command the largest fleets the world had seen at the time, but he also developed and employed the most advanced shipbuilding technology available in his time. The most sophisticated and systematic navigation techniques were fully demonstrated in his voyages and are recorded in the navigational annals of the world

End

References: Chinese Treasure Ships, The Man who put China on the Map, Zheng He-wiki, various historical data available in the Public Domain from which additional information has been sourced.

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Tin Hau - Chinese Goddess of the Sea