Sino-Arabian Economic and Cultural Exchanges from the 8th to the 15th centuries

Lin Meicun, Peking University

Ran Zhang, Durham University

1. Introduction

The maritime zone between China and the Islamic world and their respected hinterlands at the two ends of Asia encompass some of the most crucial archaeological evidences of the economic and cultural exchanges of the early globalization from the 8th to the 15th centuries. It is no accident that large number of the consistent settlements and large quantity of archaeological culture materials were seen in this vast territory. Those remains, in certain cases, represented and also were characterized by the cultural influences, economic trade and political conflicts between the countries during the centuries.

It is difficult to well-define the Silk Road and Maritime Silk Road. This is because, on the one hand this early globalization stage was involved in a complicated history with the massive exchanging activities via both land routes and sea lanes from the 8th to the 15th century; and meanwhile information on the commercial activities has been increasing as the historical and archaeological research outcomes have come out year by year, and are re-shaping our understanding towards to the definition of the Silk Road.

By no means has this chapter aimed to an all-inclusive research of the Sino-Arabian exchanging activities from the 8th to the 15th centuries. Mainly based on the historical records

and archaeological evidence, the authors suggest a sketched pattern of the development of changing of economic and cultural exchanges between China and the Islamic world. As one of the most ideal archaeological materials in terms of maritime trade studies, Chinese ceramic finds from the western Indian ocean are large in quantity, well-dated and well-identified. As a proxy it can provide us with a comparable and consistent pattern to explore the developments of economic changes. Beyond Chinese ceramics, other archaeological materials, such as incense, ceramic wares and jewelries, are also discussed. Different from ceramic commodities, these luxury items not only can reveal the elite-life trading between China and the Islamic world, but also indicates the cultural exchanges between them. Indeed, the accumulation of archaeological evidence for the Sino-Arabian exchanges has now reached a point where is possible to attempt to sketch the development and change of the exchanging activities between China and the Islamic world from the 8th to 15th centuries CE.

2. The Shift from the Silk Road to the Maritime Trading Routes

The archaeological evidence on the Silk Road and its trade can go back to and earlier than the Zhang Qian's voyages to the Western Regions in the Western Han dynasty. The Silk Road played an important role in terms of economic and cultural exchanges between China and the central Asia for many centuries until the 9th century CE (Liu, 2010, Lin, 2011, Lin, 2006, Waugh, 2007: 4, Hansen, 2012, Wood, 2004). The prosperity of the Silk Road was due to many different reasons. From the standpoint of Chinese economic and political background from the 2nd century BC to about the 9th century CE, the North China was definitely the core area of the Chinese civilization. In the Han dynasty, the word of 'south' means nowadays Yangtzu River

Valley, and it referred to an undeveloped and barbarous area with poisonous plants and beasts. Till the middle and late of Tang dynasty (8th to 9th centuries), the reference of South China was clearly pushed southwards to the area in nowadays Guangdong and Guangxi provinces. The Yangtzu River Valley became the agricultural base of China with vast tax incomes. As the official and scholar Han Yu mentioned: 'Nine-tenth of the tax revenue of China come from the Jiangnan area of the South （当今赋出于天下，江南居十九）. This historical-landscape change tells that the economic center of China was moved southwards, and South China with a prosperity of agriculture and economy provided the maritime trade with a developed hinterland.

The development in south China cannot be the only reason for the shift from the Silk Road to the Maritime Trading Road. The political instability, including the loss of the Talas Battle to the Abbasid Caliphate (751 CE), the rebellions of the north Chinese local authorities and many attacks to the Capital of Tang China, the Chang'an City, by the rebels, were also influential triggers for this shift.

During the reign of Tang Xuanzong (唐玄宗) (712-756 CE), Tang Chinese territory reached its maximum. Then, just few years before the death of Xuanzong, Chinese armies lost the Battle of Talas, the first war between China and Islamic empire (Lewis, 2009: 158, Park, 2012: 191-92). Historical records cannot provide a precise number and scale of the losses on the side of China, but it appears that no fundamental harm or destruction was suffered by the Tang military, political and economy power inside China, especially in the North China. This battle also brought about a limited positive impact for the victorious Abbasid Caliphate, where it is simply recorded via the description: 'decisive defeat of Tang China' (Bartol'd and Bosworth, 1988:

195-96, Ge, 2003: 51). In general the loss of the Talas Battle had a negative impact on the Tang Chinese geopolitical economy, that is to say that Tang military power in Central Asia began to decline gradually.

Losing control of the Silk Road was not simply due to this battle, which has even been described as a more of a 'skirmish' (McNeill, 1998: 227). Another important event, the An Lushan Rebellion (安史之乱), strongly influenced and fundamentally limited Chinese control of the land trade route and also the economic patterns of China. In the middle of the 8th century, the famous An-Shi rebellion greatly weakened the Tang China and its political, economic and agricultural powers in the North China. The Tang Emperor, Xuanzong, fled to Sichuan from the Capital Chang'an when the rebels closed in. Much populations in the North China also had fled at the approach of the rebels since 756 CE. The Chinese military troops who were defending in the Western Regions had to run back to attempt to crush the rebellion. Therefore the Silk Road was abandoned and the Tang Chinese Western Regions were occupied by Tibet (Franke and Twitchett, 1994: 5-6, Lewis, 2009: 157-58). At least from 790 CE, the Tang central court lost most of the control over the Silk Road and the Western Regions (Beckwith, 1987: 157).

Geographical features of South China have both advantages and disadvantages for maritime trade. Advantages are that three provinces from Zhejiang to Guangdong encompass over half of the whole Chinese coastal lines, with over thousands of natural islands and bays for ship-docking (Lo, 1955). In particular from the 8th century CE, the natural port cities in southern China grew in size and importance and large-scale maritime trade from China to the Persian Gulf via the Indian Ocean started in about CE 800 (Whitehouse and Williamson, 1973). The

disadvantages are also clear. These three provinces mentioned above are all in the hilly zone of China, thus the coastal regions have few fine land/river routes of transportations from the littoral areas and port cities to the hinterland and the North of China (Lo, 1955).

In the 7th century, as a Chinese official Cui Rong described, the Grand Canal built by Emperor Yang of Sui (604-618 CE), linked almost every region of China (Lewis, 2009: 23). It should be noted that the Grand Canal was not always in function, particularly before the middle of the 8th century CE. In the early part of Tang dynasty, north China had fully food supply by local agriculture in the Guanzhong Area (关中地区) as well as that of the North China Plain (华北平原). After the An Lushan rebellion, however, when most of the North Chinese rebels and independent military governors withheld food supply from the capital, the only source of additional grain for the Tang capital was South China. Consequently, the Grand Canal had eventually been a useful supplement and even the national lifeline for the Tang China (Lewis, 2009: 23-24).

The economy and culture of the Tang rule were partly damaged by the An-Shi Rebellion, the loss of Talas Battle and the lost-control of the Western Regions. When the industry and economy of northern China was ruined during the rebellion (Wei, 1999: 53, DeBlasi, 2001: 7), the economic centre moved to the south, which was the turning point in the development of the Tang exporting trade (Chen, 1981: 96, Lewis, 2009: 2).

3. The Shift of Maritime Trading Roads in the Western Indian Ocean

The maritime trade for both China and the Middle Eastern civilizations could trace back to

the 2nd century CE at least. Although the maritime trade route from the Gulf to China existed during the Sasanian period (Whitehouse and Williamson, 1973, Chaudhuri, 1985: 37, Piacentini, 1992: 124-25, Hourani, 1995: 38), it was not always in prosperity (e.g. sometimes with regional declines, see Kennet, 2007) and meanwhile the landed Silk Road played a more important role in trade between the East and West. This has been suggested by archaeological studies on the distribution of Sasanian silver coins in China, where nearly 2,000 Sasanian coins have been found with the majority unearthed in the modern province of Xinjiang and in northern China (Xia, 1974, Sun, 2004). In total, 468 coins date to the Peroz period (459-484 CE) and most were unearthed from 18 tombs dating from the 5th to the early 8th centuries in the North China. In contrast, only three tombs dated to the late 5th century, yielding no more than 20 coins, have been found in Guangdong in the South China (Sun, 2004: 42). This may tell that both land and maritime route between China and the Near East were established, but the land route obviously played a rather crucial role connecting them.

From the 7th century and onwards, with the rise of Abbassid Caliphate, the maritime zone between China and the Islamic world was mainly in the hands of Arab merchants. The Islamic expansion of trade in the Indian Ocean involved China from at that time and onwards, while traditional land route-based trade gradually declined, as it has been mentioned above. During the 8th to 10th centuries, the Gulf played a leading position as the trading centre that connected China, India, Africa and the Mediterranean (Hourani, 1995: Chapter 2). This was supported by a massive state-sponsored canalization program, which brought the unutilized land into use for the first time (e.g. Adams, 1962, Adams, 1965, Adams, 1981, Neely, 1970, Neely, 1974, Wenke, 1975-76, Christensen, 1993). Whilst in the 8th century CE, the newly founded capital of the

Abbasid Caliphate, Baghdad, was developed into a true commercial emporium, the port city of Basra linked to port cities such as Siraf and Sohar (Chaudhuri, 1985: 46-47). Basra was described by al-Mansur (1901: 206-07) as:

"*This is the Tigris, there is no obstacle between us and everything on the sea can come to us on it.*"

Hourani (1995: 75-76) suggests that no Chinese merchant ships traded between China and the Gulf during the 8th and 9th centuries, in spite of the record in *The Accounts of China and India* informs that 'Chinese Ships (al-Sufun al-Ṣīnīyah)' were trading in the Gulf (Abu Zayd 1733). However, the description of the structure of these 'Chinese ships' actually better fits the characteristics of dhows, the indigenous boats that come from Arabia, Persia and India and which sailed the Indian Ocean, rather than Chinese built ships (Park, 2012: 65). Geographical knowledge of the Tang time was limited to the information from foreign traders. Although the mapping of Indian Ocean trade and travel routes was initially performed by a Tang Chinese minister and geographer, Jia Dan (贾耽), he collected information based on the descriptions of Arab merchants without actually visiting any foreign countries (Li, 1996: 118, Park, 2012: 31).

Chinese travellers, monks and officials all visited India and the Near East via sea-routes during the Tang period. The Tang Chinese monk, I-Ching (义净), visited India boarding on an Arab merchant ship in 671 CE (Wang, 1988: 8). A Chinese general, Du Huan (杜环), taken prisoner in the Battle of Talas, travelled back from *Abbasid Caliphate* to Guangzhou by a merchant ship in 762 CE (Li, 1996: 120, Park, 2012: 29). In terms of the official visit, the mission of Yang Liangyao (杨良瑶), a Tang Chinese ambassador to the Abbasid Caliphate, had been well-recorded on a stone stela unearthed in front of his tomb in Jingchuan County in

Shaanxi Province (Figure 1). The inscription of this stela provided us with some new archaeological evidence and might be helpful to further understand Chinese official visits to the Gulf (Rong, 2012, Schottenhammer, 2014).

Limited archaeological evidence partly supports this point through the Belitung shipwreck, which is the earliest archaeological find of a trade ship in the Indian Ocean that dated to the 9th century (Flecker, 2001, Guy, 2005, Krahl et al., 2010). This wreck has been confirmed as belonging to Arab merchants (Omani, Yemeni or Iranian) (Flecker, 2001: 345-48, 53, Krahl et al., 2010: 118), and was probably built in Arabia or in India, but it was full of Chinese cargo. It contained over 67,000 pieces of Tang Chinese artefacts, including about 58,000 pieces of Chinese ceramics and nearly 70 pieces of metalwork and other luxuries (Krahl et al., 2010, Flecker, 2001) (Figure 2). Once again there was nothing on the ship to indicate that Tang Chinese merchants participated in Indian Ocean trade.

This archaeological discovery verifies that the Belitung shipwreck followed the Arab shipbuilding traditions. The Arab people living in the coastal areas of the Indian Ocean had an ingenious invention of sewn up wooden ship for ocean going voyage. The seams in the hull were filled with a fixture of fibre and oil to ensure water tightness and firmness of the vessel. The famous Arab navigator Sinbad sailed as far as Guangzhou in China with a sewn up wooden ship (Figure 3). The sewn up wooden ship was pliable, more capable of withstanding impact from reefs than ships of rigid bottom, and easy to repair, so that it was plied far and wide to the Madagascar Island and Sri Lanka on the Indian Ocean and the areas of Southeast Asia, even to the Hainan Island of China, thus rated as one kind of fine ships with unique features in the ancient world.

From the late 9th century, this trading trend sharply changed. In China the Tang dynasty prosperous maritime trade was interrupted by the Huang Chao Rebellion (黄巢起义) (877-880 CE). Muslim merchants were massacred in Guangzhou following an attack by Huang Chao's armies. No Chinese historical literature records this event but it can be found within Arabic accounts (Twitchett and Fairbank, 2007: 736-40, Lewis, 2009: 161). According to one Arabic writer, 'In 877 CE, Huang Chao killed one hundred and twenty thousand people including Muslims, Christians, Jews and Zoroastrians who had sought refuge in the city (Guangzhou)' (Abu-Zayd 1733). This led to a decline in the maritime activities of Arab merchants in the late Tang period and subsequently ships from the Islamic world began to meet the Chinese halfway on the Malay Peninsula (Park, 2012: 70). In the middle of the 10th century (945 CE) the weakening of the power of the Abbasid Caliphate is manifested through the conquest of Baghdad by the Buyid dynasty. Shortly afterwards a well-documented earthquake in 977 CE badly destroyed Siraf (Chaudhuri, 1985: 49) significantly reduced the importance of the city in the Indian Ocean trade from the 11th century CE onwards (Whitehouse, 1975).

It should be noted that the decline of the role of Guangdong and Siraf in the Indian Ocean trade occurred over a long period of time, from the 9th to the 11th century, and could be attributed to a complicated historical process rather than a solo event, such as the Huang Chao Rebellion in China or the earthquake in Siraf. These events could not solely cause such a significant change in the trade between China and western Asia. The political and economic changes in the Abbasid Caliphate played a greater role in changes to maritime trade across the Indian Ocean. The Huang Chao Rebellion, in fact, resulted in the formation of a new networked trade which relied on segmented trade routes which replaced the old form of a single sea passage

trade from the Persian Gulf to China (Park, 2012: 70-71).

Although it is been believed that the town centre of Siraf was already declining by the 10th century, it can be seen that there was a gradual decline as it was still involved into the long-distance trade from China to the Gulf all they way to the 13th century. Archaeological excavations revealed that Chinese ceramics, such as Longquan celadon date to the later period of the 14th century (Kennet et al., 2011). Although the quantity of these goods from the east had decreased, this nevertheless demonstrates that Siraf continued to be involved in Indian Ocean trade (Rougeulle, 1991: 94, Rougeulle, 1996: 169). Meanwhile, the great trading city of Sohar, in Oman, also declined during the period of about the 10th century (Williamson, 1974).

Behind this gradual decline at Siraf were changes of traders from the empire of the Abbasid Caliphate as well as states of Oman, Aden and the Fatimids in Egypt (Chaudhuri, 1985: 49, Rougeulle, 1996: 167-71). During the period from the late 10th century to the 15th century, the political and religious traditions and Indian Ocean trade routes changed due to the decline of the Abbasid Caliphate and the rise of the Fatimid Caliphate in Egypt (Chaudhuri, 1985: 58).

In the Red Sea, the Cairo Geniza documents support the notion that this newly founded Fatimid Egypt participated in Indian Ocean trade, so do archaeological evidences of large amounts of Chinese ceramics unearthed at Fustat dating around the 11th to 12th centuries (Rougeulle, 1996: 170, Yuba, 2014). During the 13th to 14th centuries there were further developments in the areas around the Red Sea and Yemen (Rougeulle, 1996: 171-73), which played the role of a middleman for China, India, the Gulf, east Africa and the Mediterranean (Rougeulle, 1996: 167, Zhao, 2006).

Shifting of the trade centres in the Gulf can be seen from the archaeological evidence: the cities of Kish, Minab and Julfar located closer to the entrance to the Gulf played a more important role replacing Siraf during the 11th to the 14th centuries (Morgan, 1991, Sasaki and Sasaki, 1992, Kennet, 2002, Pirazzoli-t'Serstevens, 2003, Priestman, 2005). The moving of the Hormuz Kingdom from Minab to Hormuz Island in 1300 CE facilitated the city to develope to reach its peak in the 14th to 15th centuries (Wiesner, 1979). This economic boom is detailed in historical literature (Kauz and Ptak, 2001: 34-39, Lin and Zhang, 2015). Hormuz Island was considered a world-trading centre by the 15th century historian al-Samarkandi (Thackston, 2001: 69) (Figure 4):

> ***Hormuz is a port without equal on the face of the earth. The merchants of Egypt, Syria, the lands of Rum, of Azerbaijan, Khorasan, of the Ma wara'al-Nahr and Turkestan direct their paths to this port. The inhabitants of maritime countries arrive from China, Java, Tanasserim, from Bengal, Malabar, Zanzibar, Abyssinia, Aden, Jeddah…. With the goods they bring they may buy anything they wish. People of all religions, and even idolaters, meet in this city, and nobody permits any hostile gesture or injustice against them.***

Also it is noted that from the 13th century, the Mongol conquests of Asia and Eastern Europe were a watershed in Asian and world history. The connection of commercial and cross-cultural interactions around the Indian Ocean and in the Mediterranean region resulted in the formation of complex political, religious and mercantile networks (Morgan, 1990: 5, Sen, 2006: 299). The Mongol invasion had partly interrupted Islamic trade, and the Mongol commercial network grew across the Eurasian lands, with the contribution of Jewish, Indian and Southeast

Asian as well as Muslim merchants (Abu-Lughod, 1989: 300, Sen, 2006).

With these commercial networks established between the West and East, rather than Arabs only trading system, a diversity of people including many travellers and envoys could move around and trade. Famous travellers, such as Marco Polo, Yang Tingbi, Wang Dayuan and Ibn Battuta, have been very well discussed and described in historical and archaeological studies (Ibn Battuta, 1929, Polo, 1938, Wang, 1981, Chaudhuri, 1985, Abu-Lughod, 1989, Sen, 2006: 301-12, Park, 2012, Lin and Zhang, 2017). Pope Clement V also sent a group of missionaries, via India, to Yuan China in 1307 CE, which was well recorded in both historical and archaeological evidence (Moule, 1914: 540, Zhang and Zhu, 1977: 266-67, Lin, 2013: 271-78). In 1338 CE a delegation of envoys carrying gifts such as Jingdezhen fired Qingbai porcelain and the so-called 'Fonthill Vase' from the Yuan Imperial went to visit Pope Benedict XII and their visits also included a meeting with Louis the Great of Hungary (Finlay, 2010: 156-57).

In China from early Ming times, during the late 14th to the early 15th centuries, goods in Chinese foreign trade, such as pepper, sapanwood and other luxuries, were under imperial monopoly, closely guarded to ensure that all the profits went to the Ming court (T'ien, 1981: 188). In terms of the official maritime trade, Emperor Yongle (永乐) (1360-1424 CE) sponsored maritime expeditions led by Zheng He (郑和) with the aim of projecting Ming Chinese power as far afield as Java, Sri Lanka and the East African coast (Dreyer and Stearns, 2005, Chao, 2012). This was a new and significant period of increased Indian Ocean trade, when the two far ends of Asia, the Hormuz Kingdom and Ming China, linked together and reached new limits of discovering each other in terms of culture, commerce and communication. This time can be viewed as a return to the trade between China and Islam, comparable to trade

during the 8th to 9th centuries.

In the early 15th century, the Emperor Yongle attempted to monopolise tribute and foreign trade by Zheng He's expeditions (1371-1435 CE) (Kerr, 2002: 125, Park, 2012: 169). This trade actually had thrived since the earliest years of the Ming Dynasty, but was enhanced enormously through the seven voyages of Zheng He, a Muslim from Yunnan whose Arabian ancestors had migrated to China during the Yuan Dynasty. Zheng He's voyages involved several hundreds of large vessels sailed from China that four times they travelled as far as the Persian Gulf and East Africa (Lin and Zhang, 2015, Park, 2012, Kauz and Ptak, 2001). Zheng He's Expeditions consisted of 27,400 men and 62 fleets of treasure ships supported by 190 smaller ships (Kauz and Ptak, 2001, Dreyer and Stearns, 2005: 122-24, Park, 2012).

4. Changing patterns of Chinese ceramic trade: from China to the Islamic World

In terms of an archaeological approach, Chinese ceramic finds from the western Indian Ocean can be the most ideal material to investigate the maritime activities between ancient China and the Islamic world from the 9th to the 15th centuries. This is because they had been vastly discovered, as well as can be well identified and dated. The 8th to 16th centuries dated Chinese ceramic finds from over 120 littoral sites in the western Indian Ocean show the changes and development of the trade between China and the Islamic World (Figures 5 & 6)[1].

From the 9th century CE, large quantities of Chinese ceramic find and frequent occurrences in many sites around the western Indian Ocean are evidence that a sudden rise in Chinese ceramic trade occurred by the middle of the 8th century. Such evidence has not been found for

[1] The data of these two figures is based on Ran Zhang's PhD thesis: Appendix 3 (Zhang, 2016).

previous centuries, although small volumes of Chinese ceramics are known to have been traded to Southeast Asia in the pre-7th century period (Guy, 1986: 1-2). This sudden rise was probably due to several reasons: (1) as it has been mentioned above, the decline of the land-based Silk Road in the 8th century offered Tang China an incentive to develop maritime trade; this decline was caused mainly by instability and conflicts in central Asia and economic collapse and political chaos in northern China (Wei, 1999: 53, Franke and Twitchett, 1994: 5-6, DeBlasi, 2001: 7, Lewis, 2009: 42-44, 157-58); (2) the gradual improvement in Chinese ceramic manufacturing techniques in the 8th century meant that Chinese ceramics were more in demand from foreign markets and became one of the common/luxury commodities in long-distance trade (Chaudhuri, 1985: 39; also see section 2.2.2 in Chapter 2); (3) the expansion of seafaring by the Sasanians was unprecedented in Arab maritime travel; they reached South Asia and China by the pre-Islamic period (Whitehouse and Williamson, 1973, Chaudhuri, 1985: 37, Piacentini, 1992: 124-25, Hourani, 1995: 38), and after that small quantities of exotic imports first appeared in the Gulf (Priestman, 2013: 404-06).

From the 11th to 13th century, a reduced number of finds have been found but at an increased number of sites. This situation might be linked with the unstable political and economic environments in the Gulf: with the gradual and general decline of Siraf and the status of the medieval port cities in the Gulf after the late 10th century (Whitehouse, 1975), the trading centres started to shift from the Gulf to the Red Sea (Rougeulle, 1996). Overall, there is a relatively unclear picture of the presence of the Chinese ceramic trade, in comparison with the evident sudden rise in the trade in the earlier period. Ceramic trade patterns became more complicated during this period as well. At the late 13th century, the Western Indian Ocean was

marked by widespread changes in the ceramic assemblage in circulation represented by the decline of Iranian Sgraffiato, mainly because of Mongol invasions, and the development of new categories of glazed wares such as Blue Speckled Ware, Yemeni Yellow pottery, Underglaze Painted Wares and Underglaze Painted Fritwares (Priestman, 2013: 106), as well as Chinese Longquan celadon wares.

In contrast, the Chinese ceramic trade reached its peak during the 14th century, with Longquan celadon playing an important role among all traded Chinese ceramics (Figure 7). This development at that time seems to be an echo of the so-called 'mid-13th to mid-14th century world-system' suggested by Abu-Lughod (1989) – which was really a globalising maritime trade network. The archaeological evidence of this Chinese ceramic trade peak in the 14th century could suggest that there was an economic boom in long-distance trade from the Far East to the Near East.

From the late 14th to early 15th centuries, it can be seen a drop in both sherd and site numbers of Chinese trade ceramics occur in the western Indian Ocean, which could be blamed to the decline of Ming Chinese maritime trade and economy at that time (Lo, 1958: 340-41, Abu-Lughod, 1989, Brown, 2009, Zhang, 2018).

As it has been introduced above, Zheng He's voyages can be fairly considered as a highlight of Chinese maritime activities to the Indian Ocean. On one hand that Zheng He's visits to and trade with Hormuz clearly had been involved in the economic boom in the Indian Ocean including south India, the Gulf, the Red Sea and the East Africa. Chinese historical accounts as recorded in the books of Xi Yang Fan Guo Zhi (西洋番国志), Ying Ya Sheng Lan (瀛涯胜览), and Xing Cha Sheng Lan (星槎胜览) described that Zheng He's first visit to

Hormuz was around 1413 CE. It also recorded that, separately, in 1417 CE and 1433 CE, the Hormuz Kingdom had paid tributes and treasures to Ming China, including pearls, gemstones, and animals such as lions, leopard, war horses, and giraffes (Chao, 2012: 112-19).

However, one the other hand, by the general view of ceramic evidence from 1368 to 1430 mentioned above, there was a clear dip of Chinese ceramic trade. This sharp decline may have been caused by the 'sea ban' policy in the early Ming dynasty. Although Zheng He's voyages to the Indian Ocean marked one of the most ambitious displays of Chinese maritime power, they did not result in even minor improvements of trade between Ming China and the Indian Ocean (Deng, 1995: 19).

5. Beyond the Chinese ceramic finds

On the maritime trade between China and the Islamic world, doubtlessly other types of commodities were playing crucial roles rather than Chinese ceramics, including the Islamic potteries, textiles, incense, glass, jewelry and luxury metal wares. Although many of them had been well stated (c.f. Lin and Zhang, 2015, Kadoi, 2009, Priestman, 2013, Priestman, 2016), this section aims to introduce some other selected trading commodities between China and the Islamic world in the Indian Ocean trade.

(1) Turquoise pottery:

Before the blue and white porcelains gained popularity in Asia, celadon and blue glazed pottery represent two of the most extensively distributed glazed ceramic products in the Indian Ocean. The history of Chinese celadon stoneware can be traced back to at least the second century CE, and as mentioned above that in the Indian Ocean trade the Longquan celadon reached the peak during the 14th century. The blue glazed pottery, namely the Turquoise pottery,

was also playing an important role in terms of economic and cultural life in Asia (Zhai, 2018: 18).

Manufactured with a long-lived Middle Eastern ceramic technique, the turquoise blue and green coloured alkaline-glazed pottery wares can be dated to the period from the 3rd century BC to the 10th century CE (Kennet, 2004: 29). It may highly likely they were produced in the area close to the key port of Basra in southern Iraq (Mason and Keall, 1991: 52-53, Hill et al., 2004: 597) In terms of its archaeological distribution they can be found in both of the East Asia and the Middle East. In the western Indian Ocean, the relative archaeological discoveries can be seen from Kush and Jazirat al-Hulaylah of Ras al-Khaimah, Sir Bani Yas of Abu Dhabi, al-Qusur of Kuwait, Siraf of Iran, Manda and Shanga of Kenya, and Unguja Ukuu of Zanzibar (Kennet, 2004, Sasaki, 1995, Sasaki, 1996, Sasaki, 1998, Carter, 2008, Patitucci and Uggeri, 1984, Whitehouse, 1968, Whitehouse, 1979, Chittick, 1984, Horton et al., 1996, Juma, 2004). In the western Indian Ocean trade this type of wares was in the low-value/high-bulk commercial exchange (Priestman, 2013).

In the Far East, the earliest evidence could trace back to the 2nd century CE. A turquoise glazed pottery jar produced in modern South Iraq has been found from a tomb at Hepu of Guangxi Province of the South China (GXWWKGYJS et al., 2012). This single evidence cannot fully support the direct maritime trade contact between the Han China and the Parthian Empire. However, according to a recent research the tomb owner might be a foreign merchants who settled down in the South China, because not only the burial practice is similar to the tombs of Seleucia on the Tigris, but other burial objects, such as beads and glasses were all exotic imports (Huang et al., 2013).

All other evidence of the turquoise potteries from China and Japan, however, are mainly dated to the 7th to 10th centuries. In China around 300 sherds and some complete Turquoise jars are discovered from the port of Yangzhou in Jiangsu Province, and from the two Buddhist monasteries at Yongxian and Guilin from Guangxi Province. In Guangdong, a 9th/10th century dated palatial sites 10 pieces of Turqouise pottery sherds have been found. In Fujian, the CE 930 dated-tomb of Liu Hua, the wife of the local governor of the Min Kingdom, yielded three vessels (Wang, 2012, Glover, 2002, Feng, 1986, Ho, 1995). This distribution pattern is similar in Japan: a large quantity of the finds come from the foreign guesthouses of the key ports of Japan, particularly in Kyushu, and the other finds are associated with the temples and religious institutions (Priestman, 2016). Both in China and Japan the turquoise jars dated from the 7th to the 10th centuries may represent that they were used by the local native to serve a local traditional function, and the religious connections attached higher values to them than that in the western Indian Ocean (Ho, 1995: 27, Priestman, 2016: 25).

From the 11th century, the manufacturing technique of Turqouise glaze started to combine with the fritware, a pottery in which ground glass is added to clay with high quartz and other siliceous materials in the formula. From the 13th to 14th centuries, not only did this improved ceramic technique is applied on the constructions of great mosques and palaces in Iran, but also was introduced to the Chinese ceramic industries. The north Chinese common kiln sites, such as in Pacun Kilns and Dangyanyu Kilns of Hunan Province and Zhangzhi Kilns in Shanxi Province, all had the products of turquoise glaze stoneware. The technique then was further introduced and adopted to the Jingdezhen kilns for glazing porcelains, architectural tiles and bricks (Kerr and Wood, 2004: 512).

(2) Incense & Jewelry:

Historically the trade of incense between China and the Gulf, such as Frankincense and myrrh, can be traced back to the Han dynasty (from the 2nd century BC to the 2nd century CE), and lasted to the 9th century and onwards (Schottenhammer, 2010: 130). In south Arabia, including Dhofar of Oman and Hadramawt of Yemen, was one of the centres of incense trade (Groom, 1981). Oman had been known throughout the world for its rich resources of frankincense (Figure 8). This perfume looks like a nipple so the Chinese call it *ruxiang*, meaning "perfume in the shape of nipple". One of the earliest record of frankincense came from an early Tang dated book called *Guang Yi Ji* (广异记), and the name was “the incense in the shape of nipple (乳头香) (Dai, 2000: Chapter of the Monk Zeng Dao Xian)”. According to Le Maguer (2015) over 13 types of incense were mentioned in the Arabic textual accounts, rather than only Frankincense and myrrh: Frankincense was too common and myrrh was often used in medicine. This tells that a wide range of products as incense were in the production, consumption and trade in the western Indian Ocean.

Archaeological evidence of frankincense in China can be seen from the Mausoleum of the Nanyue kinglet found at the Xianggang Hill near Guangzhou City. The findings include not only elephant teeth from Africa and silver boxes from Persia, but also corals and frankincense from the Red Sea. This mausoleum belongs to Zhao Mei, the second king of the Nanyue kingdom, who was buried in 122 BC (the first year of the Yuanshou reign of Emperor Wudi of the Western Han Dynasty (206 BC-24 CE) in China, which indicates that Guangzhou began its communication with the Middle East states through the sea routes earlier than Zhang Qian (?-

114 BC), an envoy from the Han court, went to Central Asia. In the period of the Han and Tang dynasties, frankincense was chiefly used in joss sticks to be burned at Buddhist ceremonies and was burnt at home to improve the air. It was imported in large quantities during the Song Dynasty (960-1279 CE) and the import reached its peak during the Ming Dynasty (1368-1644 CE).

The wide spread of burning incense in Arabian Peninsula is mainly derived from an ancient tradition. The incense burners were mainly made of soapstone, pottery and metal. The variety of incense-burners shows that the social context of the use of incense: pottery burners were simply designed and cheaper. On the other end metal incense-burners were more complex and more expensive (Le Maguer, 2011). It is very rare to see the use of Chinese porcelain burners in the western Indian Ocean. One example of a 14th century dated Longquan celadon sherd might be identified as an incense burner and collected in the Surface Survey in Minab of South Iran (Zhai and Zhang, 2019: 55 & Figure 18). Another example came from Ras al-Khaomah of the UAE, a late Ming-dated Chinese blue and white porcelain incense-burner had been collected from the Julfar site (Figure 9).

In terms of jewellery imports from the Arabian Gulf to China, a significant part of the finest jewellery and gemstones from the so-called treasures of the vassal states (诸藩宝物) imported from the Gulf to Ming China by Zheng He's voyages were given to a member of Ming royal families, the King of Liang Zhuang (1411-1441 CE) (Figure 10). Over 3,400 pieces of jewellery and decorated gems were recovered from the excavation of the mausoleum of the King of Liang Zhuang in Hubei province in southern China in 2001. This is the second largest known and excavated mausoleum dated to Ming Dynasty. The King of Liang Zhuang was the ninth son of

the Emperor Hongxi (1378-1425 CE), who had become King in 1424 and died in 1443 CE. According to the excavation, the whole pattern of the mausoleum including the outside architectures above ground is about 250m long and 70m wide. The southern part of the outside architectures has been destroyed. The crypt of the mausoleum is built beneath a hill in the shape of "中", which consists of a central hall and corridors. It is about 15.4m long, 7.88 wide and 5.3m high, excluding the corridors. It is a brick structure and has been perfectly preserved (Liang, 2003).

The treasures of the vassal state unearthed from the mausoleum include 589 pieces of gold works weighting 16 kilograms, 392 pieces of silver works weighting 13 kilograms and jade ornaments weighting 14 kilograms. The treasures consist of 18 kinds of gemstones, such as chrysoberyl, emeralds, sapphires, and rubies. Some of the gems were the products from the Gulf. For example, the Nishapur turquoise gems have been confirmed to be originally from Iran (Yang et al., 2004). Moreover, a gold ingot was also unearthed, with the carved inscription '永乐十七年四月□日，西洋等处买到 (' on…day of April of the Seventeenth Year in Yongle reign, purchased in the Western Oceans)'. The 17th year of the Yongle reign can be dated to 1419 CE and *Western Oceans* is an ancient Chinese term for the Persian Gulf, indicating the ingot was imported from the Gulf.

The Red Sea is also rich in corals and China had imported large quantities of Red Sea corals since the Han Dynasty. There is an account in the Han literary writings that in Shanglin Garden, the imperial garden outside the wall of Chang'an, were planted coral trees. According to the *An Overall Survey beyond the Ocean* by Ma Huan, the corals from the Red Sea were very big. In the 19th year of Yongle reign (1421 CE), Zheng He's fleet saw in Aden of present Yemen that

"several coral trees are as tall as two *chi* (a traditional Chinese unit of length equivalent to 0.333 meter). They bought five boxes of coral branches."

It is clear that the luxury trade from the Arabian Gulf to China was strongly linked to Zheng He's voyages. Beginning from Zheng He 's fourth expedition to the western seas, the overseas naval base of the Ming fleet shifted from Calicut on the western coast of India to the Strait of Hormuz in the Persian Gulf. Therefore, during the fourth (the 11th to 13th years of Yongle reign, 1413-1415 CE), the fifth (the 15th to 17th years of Yongle reign, 1417-1419 CE), the sixth (the 19th to 20th years of Yongle reign, 1421-1422 CE), and the seventh (the 6th to 8th year of the Xuande reign, 1431-1433 CE) expeditions, Zheng He set up his headquarters at Hormuz and from there directed the navy of the Ming Dynasty. Although there is no evidence to prove that Zheng He personally came to Oman, the contingent of his fleet visited Oman four times. When the Ming Chinese ships arrived, the envoy read an imperial edict and announced the official offers from the Ming court. Then the Omni king sent out his officials throughout the country to inform the people of the event, and the Omani merchants showed with their frankincense, dragon's blood, barbados aloe, myrrh, benzoin storax and Quercus infectoria to exchange for Chinese ramie, silk and porcelains. As recorded in an Islamic account of the history of *Tarikh-i Ja'far* (Kauz and Ptak, 2001: 55), it describes the trades as follows:

During his (Saif ad-Din's) reign, many ships (jank) from China (Chïn), with Chinese products and many silken fabrics, came [to Hormuz] on several occasions. He (again Saif ad-Din) sold countless [normal] pearls and royal pearls to them, and he received many riches in return – gold, silver, silks and ceramics – filling the treasuries [with them].

6. Concluding remarks

Mainly based on archaeological and historical evidence, this short chapter attempt to sketch the development and change of the trade between China and the Islamic World from the 8th to the 15th centuries. It aims to serve an assemblage of the most recent archaeological understanding and illustrate how much information has been accumulated over the past many decades. It is hoped that the *longue durée* and early globalized development of Asia during this significant period:

From the 7th century it was a time of great economic prosperity when the arts flourished and economy boomed, especially in the capitals of Chang'an and Luoyang of China, and in Bagdad and Basra of the Abbasid Caliphate. The trade between the two ends of Asian through the Silk Road established from the era even as early as the pre-history, although never ceased, started to shift to the maritime route in the 8th century, and eventually it directly linked China and the Islamic world.

From the 14th century the expansion of the Mongol Empire played an important role in maritime trade in the Indian Ocean, as well as re-connecting the land-based route from China to West Asia which had been disrupted for over a hundred years during the Chinese Song periods due to the unstable diplomatic relationships between Song China, Liao, Jurchen and Mongol (Franke and Twitchett, 1994, Kuhn, 2009). With re-connection under the Mongol Empire, travel, trade and other communications could be dispatched between China and Mesopotamia. A Yuan Chinese geographer, Zhu Siben (朱思本) (1989: 666) stated that:

> *The West Sea is too far away but ambassadors and merchants could reach there occasionally* (西海虽远在数万里外，而驿使、贾胡时或至焉).

The historical records from the 8th to the 15th centuries had already provided us with the extensive narratives to re-construct the past of the Sino-Arabian economic and cultural exchanges. More importantly, we allow the archaeological evidence to speak out not only as a historical echo but also its own voices, such as economic trading trends and cultural influences from each other between the two ends of Asia. The sketch pattern made by this paper is just an outline, and there still is a long way from being complete.

References:

ABU-LUGHOD, J. L. 1989. *Before European hegemony: the world system CE 1250-1350*, Oxford University Press.

ADAMS, R. 1962. Agriculture and urban life in early southwestern Iran. "*Science",* 136**,** 109-22.

ADAMS, R. 1965. *Land behind Baghdad: a history of settlement on the Diyala Plains,* Chicago, Chicago University Press.

ADAMS, R. 1981. *Heartland of Cities: Surveys of Ancient Settlement and Land Use On the Central Floodplain at the Euphrates,* Chicago, Chicago University Press.

AL-MUQADDASI 1901. *Ahsan al-Taqasim fi ma'rifat al-aqalim, Arabic text in Goeje, III,* Calcutta.

AL-SIRAFI, A. Z. H. 1733. *Ancient Accounts of India and China by Two Mohammedan Travellers, Who Went to Those Parts in the 9th Century,* London, Sam. Hrading at the Bible and Anchor on the Pavement in St. Martins-Lane.

BARTOL'D, V. V. & BOSWORTH, C. E. 1988. *Turkestan down to the Mongol Invasion,* Oxford, The E.J.W. Gibb Memorial Trust.

BATTUTA, I. 1929. *The Travels of Ibn Battuta CE 1325-1354,* Cambridge, Cambridge University Press.

BECKWITH, C. I. 1987. *The Tibetan Empire in Central Asia: A History of the Struggle for Great Power among Tibetans, Arabs, and Chinese during tthe Early Middle Ages.,* Princeton, Princeton University.

BROWN, R. M. 2009. *The Ming Gap and Shipwreck Ceramics in Southeast Asia: Towards a*

Chronology of Thai Trade Ware, Bangkok, Siam Society.

CARTER, R. A. 2008. Christianity in the Gulf during the first centuries of Islam. "*Arabian archaeology and epigraphy",* 19**,** 71-108.

CHAO, Z. [晁中辰], 2012. *明代海外贸易研究 Mingdai Haiwai Maoyi Yanjiu,* Beijing, Gugong Chubanshe Press.

CHAUDHURI, K. N. 1985. *Trade and Civilization in the Indian Ocean: an Economic History from the Rise of Islam to 1750,* Cambridge, Cambridge University Press.

CHEN, G. [陈高华], 1981. *宋元时期的海外贸易 Song Yuan Shiqi De Haiwai Maoyi,* Tianjin, Tianjin Renmin Chubanshe Press.

CHITTICK, N. 1984. *Manda: excavations at an island port on the Kenya coast*, British Institute in Eastern Africa Nairobi.

CHRISTENSEN, A. P. 1993. *mperial investment and agricultural development in Parthian and Sasanian KhuzestanThe Decline of Iranshahr. Irrigation and Environment in the History of the Middle East 500 BC to CE 1500,* Copenhagen, Museum Tusculanum Press.

DAI, F. [戴孚], 2000. *Guang Yi Ji [广异记],* Beijing, Beijing Publishing Press.

DEBLASI, A. 2001. Striving for Completeness: Quan Deyu and the Evolution of the Tang Intellectual Mainstream. "*Harvard Journal of Asiatic Studies",* 61**,** 5-36.

DENG, G. 1995. An evaluation of the role of Admiral Zheng He's voyages in Chinese maritime history. "*International Journal of Maritime History",* 7**,** 233-45.

DREYER, E. L. & STEARNS, P. 2005. *Zheng He: China and the Oceans in the Early Ming Dynasty 1405-1433,* New York, Pearson Longman.

FENG, X. 1986. Persian and Korean Ceramics Unearthed in China. "*Orientations",* 17**,** 47-53.

FINLAY, R. 2010. *The Pilgrim Art: Cultures of Porcelain in World History*, University of California Press.

FLECKER, M. 2001. A ninth-century CE Arab or Indian shipwreck in Indonesia: First evidence for direct trade with China. "*World Archaeology",* 32**,** 335-54.

FRANKE, H. & TWITCHETT, D. 1994. *The Cambridge History of China: Alien regimes and border states, 907-1368,* Cambridge, Cambridge University Press.

GE, T. [葛铁鹰], 2003. 阿拉伯古籍中的中国 (七) A La Bo Guji Zhong De Zhongguo, part 7. "*阿拉伯世界 A La Bo Shi Jie",* 5**,** 50-55.

GLOVER, I. 2002. West Asian Sassanian-Islamic ceramics in the Indian Ocean, South, Southeast and East Asia. "*Man and Environment",* 27**,** 165-77.

GROOM, N. S. J. 1981. *Frankincense and myrrh: a study of the Arabian incense trade*, Addison-Wesley Longman Ltd.

GUY, J. 1986. *Oriental Trade Ceramics in South-East Asia, Ninth to Sixteenth Centuries*, Oxford University Press.

GUY, J. 2005. Early ninth century Chinese export ceramics and the Persian Gulf connection: the Belitung shipwreck evidence. "*Chine-Méditerranée, Routes et échanges de la céramique avant le XVIe siècle. Taoci,(Editions SFECO-Findalkly, Suilly-la-Tour, France)",* 4**,** 145-52.

GXWWKGYJS, HPXBWG & GXSFDXWLXY [**广西文物考古研究所**, **合浦**县博物馆 & **广西**师范大学文旅学院], 2012. Guangxi Hepu Liaowei Donghan Zhi Sanguo Mu Fajue Baogao [**广西合浦寮尾**东汉至三国墓发掘报告] (The Excavation of the Tombs of the Eastern Han Dynasty and the Three-Kingdoms Period at Liaowei Village in Hepu County, Guangxi). "*Kaogu Xuebao",* 4**,** 489-545.

HANSEN, V. 2012. *The Silk Road: A New History*, Oxford University Press.

HILL, D. V., SPEAKMAN, R. J. & GLASCOCK, M. D. 2004. Chemical and mineralogical characterization of Sasanian and early Islamic glazed ceramics from the Deh Luran plain, southwestern Iran. "*Archaeometry",* 46**,** 585-605.

HO, C. 1995. Turquoise Jars and Other West Asian Ceramics in China. "*Bulletin of the Asia Institute",* 9**,** 19-39.

HORTON, M. C., BROWN, H. W. & MUDIDA, N. 1996. *Shanga: the archaeology of a Muslim trading community on the coast of East Africa*, British Inst in Eastern Africa.

HOURANI, G. F. 1995. *Arab seafaring: in the Indian Ocean in ancient and early medieval times*, Princeton University Press.

HUANG, S., XIONG, Z. & ZHAO, C. [**黄珊**, **熊昭明** & 赵春燕], 2013. Guangxi Hepuxian Liaowei Donghan Mu Chutu Qinglv You Taohu Yanjiu [**广西合浦**县寮尾东汉墓出土**青**绿釉陶壶研究]. "*Kaogu",* 8**,** 87-96.

JUMA, A. 2004. *Unguja Ukuu on Zanzibar: An archaeological study of early urbanism.* Afrikansk och jämförande arkeologi.

KADOI, Y. 2009. *Islamic Chinoiserie: The Art of Mongol Iran*, Edinburgh University Press.

KAUZ, R. & PTAK, R. 2001. Hormuz in Yuan and Ming sources. "*Bulletin de l'Ecole française d'Extrême-Orient",* 88**,** 27-75.

KENNET, D. The development of northern Ra'ṣ al-Khaimah and the 14th-century Hormuzi economic boom in the lower Gulf. Proceedings of the Seminar for Arabian Studies,

2002. 151-64.

KENNET, D. 2004. *Sasanian and Islamic pottery from Ras al-Khaimah: classification, chronology and analysis of trade in the Western Indian Ocean*, Archaeopress.

KENNET, D. 2007. The decline of eastern Arabia in the Sasanian period. "*Arabian archaeology and epigraphy",* 18**,** 86-122.

KENNET, D., RAN, Z. & PRIESTMAN, S. 2011. **近**东地区考古已发现的龙泉窑瓷器—**英国威廉姆森藏品及斯拉夫一直**调查藏品中的龙泉窑青瓷简介 Jindong Diqu Kaogu Yizhi Faxian De Longquan Yao Ciqi. *In:* CERAMICS, I. O. C. (ed.) *Longquan Yao Yanji.* Beijing: Gugong Chubanshe.

KERR, R. 2002. Chinese Porcelain in the Gulf Region. "*Journal of Oman Studies",* 12**,** 125-31.

KERR, R. & WOOD, N. 2004. *Science and civilisation in China, vol. 5, chemistry and chemical technology. Part 12, ceramic technology*, Cambridge University Press.

KRAHL, R., GUY, J., WILSON, J. K. & RABY, J. 2010. *Shipwrecked: Tang Treasures and Monsoon Winds,* Singapore, Arthur M. Sackler Gallery, Smithsonian Institution.

KUHN, D. 2009. *The age of Confucian rule*, Belknap Press of Harvard University Press.

LE MAGUER, S. 2011. Typology of incense-burners of the Islamic period. "*Proceedings of the Seminar for Arabian Studies",* 41**,** 173-85.

LE MAGUER, S. 2015. The incense trade during the Islamic period. "*Proceedings of the Seminar for Arabian Studies",* 45**,** 175-84.

LEWIS, M. E. 2009. *China's cosmopolitan empire: the Tang dynasty*, Harvard University Press.

LI, J. [**李金明**], 1996. **唐代中国与阿拉伯的海上**贸易 Tangdai Zhongguo Yu Alabo De Haishang Maoyi. "***南洋****问题研究 Nanyang Wenti Yanjiu",* 1**,** 1-7.

LIANG, Z. [**梁柱**], 2003. Hubei Zhongxiang Mingdai Liangzhuangwangmu Fajue Jianbao [**湖北**钟祥明代梁庄王墓发掘简报]. "*Wenwu",* 5**,** 4-23.

LIN, M. [**林梅村**], 2006. *丝绸之路考古十五讲 Sichou Zhilu Kaogu Shiwu Jiang*, Peking University Press.

LIN, M. [**林梅村**], 2011. ***蒙古山水地****图 Menggu Shanshui Ditu,* Beijing, Wenwu Chubanshe.

LIN, M. [**林梅村**], 2013. ***大朝春秋：蒙元考古与****艺术 Dachao Chunqiu: Mengyuan Kaogu Yu Yishu,* Beijing, Gugong Chubanshe Press.

LIN, M. & ZHANG, R. 2015. Zheng He's voyages to Hormuz Island: the Archaeological Evidence. "*Antiquity",* 89**,** 417-32.

LIN, M. & ZHANG, R. 2017. A Chinese Porcelain Jar Associated with Marco Polo: A

Discussion from an Archaeological Perspective. "*European Journal of Archaeology"*, 39-56.

LIU, X. 2010. *The Silk Road in world history*, Oxford University Press.

LO, J.-P. 1955. The Emergence of China as a Sea Power During the Late Sung and Early Yuan Periods. "*The Far Eastern Quarterly",* 14**,** 489-503.

LO, J.-P. 1958. The Decline of the Early Ming Navy. "*Oriens Extremus",* 5**,** 149-68.

MASON, R. B. & KEALL, E. J. 1991. The 'Abbāsid Glazed Wares of Sīrāf and the Baṣra Connection: Petrographic Analysis. "*Iran",* 29**,** 51-66.

MCNEILL, W. H. 1998. *A World History,* New York, Oxford University Press

MORGAN, D. 1990. *The Mongols,* Cambridge, Wiley-Blackwell.

MORGAN, P. 1991. New thoughts on Old Hormuz: Chinese ceramics in the Hormuz region in the thirteenth and fourteenth centuries. "*Iran",* 29**,** 67-83.

MOULE, A. C. 1914. XV. Documents relating to the Mission of the Minor Friars to China in the Thirteenth and Fourteenth Centuries. "*Journal of the Royal Asiatic Society of Great Britain & Ireland (New Series)",* 46**,** 533-99.

NEELY, J. 1970. 'An Archaeological Reconnaissance of the Deh Luran Plain, 1968–1969. "*Iran",* 8**,** 202-03.

NEELY, J. 1974. Sassanian and early Islamic water-control and irrigation systems on the Deh Luran plain, Iran. *In:* DOWNING, T. E. & GIBSON, M. (eds.) *Irrigation's Impact on Society, Anthropological Papers.* Tucson: Arizona: University of Arizona Press.

PARK, H. 2012. *Mapping the Chinese and Islamic Worlds: Cross-Cultural Exchange in Pre-modern Asia*, Cambridge University Press.

PATITUCCI, S. U. & UGGERI, G. 1984. *Failakah: insediamenti medievali islamici: ricerche e scavi nel Kuwait*, " L'Erma" di Bretschneider.

PIACENTINI, V. F. 1992. Merchants - Merchandise and Military Power in the Persian Gulf (Suriyanj / Shahriyaj - Siraf). *Memorie dell'Accademia dei Lincei 9th series, vol. 2, fasc. 2.* Accademia Nazionale dei Lincei.

PIRAZZOLI-T'SERSTEVENS, M. 2003. *La Céramique Extrême-Orientale a Julfar Dans l'Emirat de Ra'S Al-Khaimah (Xive-Xvie Siecle), Indicateur chronologique, economicque et culturel,* Beijing, Centre de Pekin.

POLO, M. [MOULE, A. C. & PELLIOT, P.], 1938. *The Descriptioin of the World,* London.

PRIESTMAN, S. 2005. *Settlement & ceramics in Southern Iran: An analysis of the Sasanian & Islamic periods in the Williamson collection,* Unpublished, Durham University.

PRIESTMAN, S. 2013. *A Quantitative Archaeological Analysis of Ceramic Exchange in the Persian Gulf and Western Indian Ocean.* Ph.D Thesis, University of Southampton: Southampton.

PRIESTMAN, S. 2016. The Silk Road or the Sea? Sasanian and Islamic Exports to Japan. "*Journal of Islamic Archaeology",* 3**,** 1-35.

RONG, X. [荣新江], 2012. 唐朝与黑衣大食关系史新证 Tangchao Yu Heiyi Dashi Guangxishi Xinzheng. "*Wenshi 文史",* 3**,** 231-43.

ROUGEULLE, A. 1991. Les importations de céramiques chinoises dans le Golfe arabo-persique (VIIIe-XIe siècles). "*Archeologie islamique",* 2**,** 5-46.

ROUGEULLE, A. 1996. Medieval trade networks in the western Indian Ocean (8-14th centuries): some reflections from the distribution pattern of Chinese imports in the Islamic world. *In:* RAY, H. P. & SALLES, J.-F. (eds.) *Tradition and Archaeology: Early Maritime Contacts in the Indian Ocean.* New Delhi: Manohar.

SASAKI, T. 1995. 1994 Excavation At Jazirat al-Hulaylah, Ras al-Khaimah. "*金沢大学考古学紀要 Bulletin of Archaeology, the University of Kanazawa",* 22**,** 1-74.

SASAKI, T. 1996. 1995 Excavation At Jazirat al-Hulaylah, Ras al-Khaimah. "*金沢大学考古学紀要 Bulletin of Archaeology, the University of Kanazawa",* 23**,** 37-178.

SASAKI, T. 1998. 1997 Excavation At Jazirat al-Hulaylah, Ras al-Khaimah. "*金沢大学考古学紀要 Bulletin of Archaeology, the University of Kanazawa",* 24**,** 99-196.

SASAKI, T. & SASAKI, H. 1992. Japanese Excavation at Julfar: 1988, 1989, 1990 and 1991 Seasons. "*Proceedings of the Seminar for Arabian Studies",* 22**,** 105-20.

SCHOTTENHAMMER, A. 2010. Transfer of Xiangyao from Iran and Arabia to China – A Reinvestigation of Entries in the Youyang zazu. *In:* KAUZ, R. (ed.) *Aspects of the Maritime Silk Road: From the Persian Gulf to the East China Sea.* Otto Harrassowitz Verlag.

SCHOTTENHAMMER, A. 2014. *Yang Liangyaos Reise von 785 n. Chr. zum Kalifen von Bagdad: Eine Mission im Zeichen einer frühen sino-arabischen Mächte-Allianz?,* Gossenberg, Ostasien Verlag.

SEN, T. 2006. The Yuan Khanate and India: Cross-Cultural Diplomacy in the Thirteenth and Fourteenth Centuries. "*Asia Major"***,** 299-326.

SUN, L. [孙莉], 2004. 萨珊银币在中国的分布及其功能 Distribution of Sassanian Silver Coins and Their Functions in China. "*Kaogu Xuebao",* 1**,** 35-54.

T'IEN, J.-K. 1981. Chêng Ho's Voyages and the Distribution of Pepper in China. "*Journal of*

the Royal Asiatic Society of Great Britain and Ireland", 186-97.

THACKSTON, W. M. 2001. *Album prefaces and other documents on the history of calligraphers and painters*, Brill.

TWITCHETT, D. & FAIRBANK, J. K. 2007. *The Cambridge History of China, Volume 3, Sui and T'ang China, 587-960, Part I,* Cambridge, Cambridge University Press.

VON RICHTHOFEN, F. 1877. Über die zentralasiatischen Seidenstrassen bis zum 2. "*Jh. N. Chr. Verhandlungen der Gesellschaftfür Erdkunde zu Berlin"*.

WANG, B. [王邦维], 1988. *大唐西域求法高僧传校注 Da Tang Xiyu Qiufa Gaoseng Zhuan Jiaozhu,* Beijing, Zhonghua Shuju Press.

WANG, B. [汪勃], 2012. Zaitan Zhongguo Chutu Tangdai Zhongwanqi Zhi Wudai De Xiya Yisilan Kongquelan Youtao Qi [再谈中国出土唐代中晚期至五代的西亚伊斯兰孔雀蓝釉陶器]. "*Kaogu"*, 85-96.

WANG, D. [汪大渊], 1981. *Daoyi Zhilue 岛夷志略 circa 1349,* Beijing, Zhonghua Shuju Press.

WAUGH, D. C. 2007. Richthofen's "Silk Roads": toward the archaeology of a concept. "*The Silk Road",* 5, 1-10.

WEI, M. [魏明孔], 1999. 隋唐手工业与我国经济重心的南北易位 Sui Tang Shougongye Yu Woguo Jingji Zhongxin De Nan Bei Yiwei. "*中国经济史研究 Zhongguo Jingjishi Yanjiu",* 2, 49-58.

WENKE, R. J. 1975-76. Imperial investments and agricultural developments in Parthian and Sassanian Khuzestan: 150 BC to CE 640. "*Dissertation abstracts international. A. The humanities and social sciences",* 36.

WHITEHOUSE, D. 1968. Excavations at Sīrāf; First Interim Report. "*Iran",* 6, 1-22.

WHITEHOUSE, D. The decline of Siraf. *In:* BAGHERZADEH, F., ed. Proceedings of the Annual Symposium on Archaeological Research in Iran, 1975 Tehran. 263-70.

WHITEHOUSE, D. 1979. Islamic glazed pottery in Iraq and the Persian Gulf: the ninth and tenth centuries. "*Annali. Istituto Orientale di Napoli Roma",* 39, 45-61.

WHITEHOUSE, D. & WILLIAMSON, A. 1973. Sasanian maritime trade. "*Iran"*, 29-49.

WIESNER, U. 1979. *Chinesische Keramik auf Hormoz: Spuren einer Handelsmetropole im Persischen Golf*, Museum für Ostasiatische Kunst.

WILLIAMSON, A. Harvard archaeological survey in Oman, 1973: III-Sohar and the sea trade of Oman in the tenth century CE. Proceedings of the Seminar for Arabian Studies, 1974. JSTOR, 78-96.

WOOD, F. 2004. *The Silk Road: Two thousand years in the heart of Asia*, Univ of California Press.

XIA, N. [**夏鼐**], 1974. 综述中国出土的波斯萨珊银币 Zongshu Zhongguo Chutu De bosi Sashan Yinbi. "*Kaogu Xuebao",* 1.

YANG, M., DI, J., ZHOU, Y., FAN, L., LIANG, Z., LI, L. & ZHU, H. [杨明星, **狄敬如**, **周颖**, **范**陆薇, **梁柱**, **李玲** & **朱**红], 2004. Hubei Zhongxiang Mingdai Zhuangliangwangmu Chutu Baoshi De Zhuyao Tezheng [**湖北**钟祥明代梁庄王墓出**土宝石的主要特征**]. "*Baoshi Yu Baoshixue Zazhi [寶石和寶石學雜誌]",* 22-24.

YUBA, T. 2014. Chinese Porcelain from Fustat based on Research from 1988-2001. "*Transactions of the Oriental Ceramic Society",* 76**,** 1-17.

ZHAI, Y. 2018. A Comparative Study on Manufacturing Techniques of Chinese and Islamic Ceramics from the 12th to the 15th century [12-15 **世**纪中国与伊斯兰世界陶瓷器的对比研究——**以技**术交流为中心]. Post-Doctoral Report, Unpublished: The Palace Museum.

ZHAI, Y. & ZHANG, R. [**翟毅** & 张然], 2019. Yingcang Weilianmusen Bosiwan Bei'an Diaocha Suohuo De Zhongguo Gudai Cipian[**英藏威廉姆森波斯湾北岸**调查所获的**中国古代瓷片**]. "*Wenwu",* 5**,** 53-81.

ZHANG, R. 2018. Chinese Ceramic Trade Withdrawal from the Indian Ocean: Archaeological Evidence from South Iran. "*Heritage: Journal of Multidisciplinary Studies in Archaeology",* 6**,** 73-92.

ZHANG, X. & ZHU, J. [张星烺 & **朱杰勤**], 1977. *Zhongxi Jiaotong Shiliao Huibian [中西交通史料汇编 (Compilation of Data of China-West Contact)],* Beijing, Zhonghua Shuju Press.

ZHAO, B. 2006. **中世**纪时期贸易中转港 - **也**门舍尔迈遗址出土的中国瓷片 Zhongshiji Shiqi Maoyi Zhongzhuan Gang-Yemen Sheermai Yizhi Chutu De Zhongguo Cipian. *In:* CHEN, X. & BUSSOTTI, M. (eds.) *考古发掘与历史复原 Kaogu Fajue Yu Lishi Fuyuan.* Beijing: Zhonghua Shuju.

ZHU, S. [**朱思本**], 1989. *北海释 Bei Hai Shi,* Taipei, Xin Wen Feng Chubanshe Press.