Dhows and Epidemics in the Indian Ocean Ports

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History of diseases in Indian Ocean area has received scholarly attention very recently. David Arnold in ‘The Indian Ocean as a Disease Zone, 1500-1950’ discusses the diffusion of cholera, smallpox, plague and influenza in the Indian Ocean area. He noted that Muslim and Hindu pilgrimages and fairs, the long established maritime trade activities between Indian Ocean ports, imperial expansion through movements of soldiers and migrant labourers, and the rise of trading metropolises such as Calcutta contributed to the spread of these diseases. This paper examines the role played by dhows in the diffusion of diseases in the Indian Ocean in the 19th century. I will demonstrate that dhows facilitated the transmission process through the long established maritime connections in the Indian Ocean; but together with them also spread local traditional medicines and medical knowledge. Moreover, the movement and concentration of large numbers of people during the Muslim Pilgrimage, the Haj, at Mecca, and the annual trade fairs such as that at Berbera, led to the spread of cholera and smallpox. I will show that trading ports such as Bombay, Jeddah and Zanzibar were important centres of dissemination.

Diffusion of diseases through pilgrimages and trade.

Cholera was one among the diseases that ravaged the Indian Ocean area in the 19th century. Altogether, five major epidemics devastated the area between 1817 and 1893. Cholera was endemic in Bengal since the 17th century. It broke into an epidemic form in 1817. It then spread to many parts of Asia, Europe, America and Africa through inland and sea routes. It reached the eastern coast of Arabia, the Persian Gulf, and later East Africa in 1821. Dhows played a major role in the diffusion of cholera in the Indian Ocean area. The long established commercial contacts between Indian Ocean areas assisted the transmission of these diseases. For a long time trade contacts had developed between the Red Sea ports, Persian Gulf, India and East African coast, in which dhows were used for transportation purposes.

Muslim pilgrimages brought four major epidemics around the Indian Ocean area. Mecca was not the origin of the disease but a spot for germination or production of these epidemics. Normally, thousand of pilgrims were concentrated in Mecca. They were infested on their way to or at Mecca itself. The 1835 epidemic, which was brought by Indian pilgrims, ravaged and killed thousand of them. Then, the remaining pilgrims carried the disease back home. Dhows facilitated the dissemination of cholera through the returning pilgrims from one Indian Ocean
Diffusion of cholera in the Western Indian Ocean (Source: Christie 1876)
port to another. It remained in southern Arabia and the Persian Gulf from the close of 1835 till the end of 1836. It reached the East African coast in 1836 and remained there until 1837. (3)

Muslim pilgrims from the Indian Ocean ports normally came from their homelands to Mecca and went back home through the long-established Indian Ocean trade routes. They were distributed through various ports such as Aden and Bombay where large numbers of South East Asian pilgrims from Java and Malaya passed. Also, pilgrims from the Cape of Good Hope and Mauritius passed through Indian ports before reaching Mecca as many Bombay and Cutch dhows sailed to these areas. Jeddah became the central port for many of these pilgrims. Those from Madagascar and Mozambique proceeded to Mukalla, Hodeida, Aden or Jeddah before reaching Mecca. Also, pilgrims from Zanzibar, Cape Delgado, Cape Guardafui, Mombasa and Lamu used the same route. Those from Somalia passed from Berbera to Jeddah. Therefore, when cholera exploded, it diffused through trading ports and routes. Usually, the pilgrims rushed to Jeddah after the Haj services, and thus it became a great focus of dissemination to other ports of India, the Red Sea, southern Arabia, the Persian Gulf and Africa. (4)

The other three epidemics spread from Mecca to the Indian Ocean ports. For instance, the 1858 epidemic spread from Mecca and it became prevalent in the Arabian ports, on the Red Sea, the Gulf of Aden, and the Persian Gulf in the same year. Like the previous one, it reached the East African coast coming from the northern ports. Cholera reached Somalia when the first dhow appeared in 1858 after the commencement of monsoon season. It then spread to other southern ports. The 1865 epidemic which killed 90,000 pilgrims also spread from Mecca. It was an offshoot of an epidemic that had started in India in 1864. Later, it spread to the Persian Gulf and north-eastern African ports inland to Ethiopia, Kenya, to Pangani on the Tanganyikan coast by the end of 1869. By the early 1870, the epidemic had reached Zanzibar and then spread to Kilwa. From Kilwa inland it passed to Mozambique. The dhows carried the epidemic from Mozambique to Cape Delgado, Delagoa Bay, Majunga and Johanna. From Majunga it passed to Nossi Bey. Also, from Zanzibar it spread to Mombasa, Malindi, Lamu, and Kismayu. It reached Socotra and entered Gulf of Aden. The other epidemic occurred in 1893 which killed nearly 33,000 pilgrims. (5)

The 19th century cholera epidemics in Indian Ocean ports spread during the monsoon seasons. Normally, the north-east monsoon which starts in November facilitated the departure of dhows from the Arabian coast to East Africa. Dhows from India normally departed for the East African coast in December. The air currents from the Red Sea and the Persian Gulf, Arabia and India, are all directed towards the east coast of Africa at that time. By March the north-east monsoon breaks up and reverses to become the south-west monsoon during which dhows departed from the East African coast to India and Arabia. James Christie observed that cholera on the East African coast followed the monsoon wind patterns. It appeared and spread during early November, and raged until March. According to him, the southern ports were usually free from cholera during the non-monsoon period. (6)

The trade fair at Berbera was another source of cholera transmission around the Indian Ocean ports. Located on the northern Somali coast, it was the most important port and centre of exchange of goods. The northern traders concentrated at Berbera during the annual trade fair, which used to start from early October to March. Dhows from ports of the Yemen, Muscat, Sur, and Ras al Khayma visited the area. Baghalas from Bahrain, Basrah and Kuwait normally sailed to Berbera for the fair. Also, traders from Porebunder, Mandavie and Bombay
crossed the India Ocean in their Kotias. Dhows brought cargoes and passengers who attended the fair. Normally, 20,000 to 60,000 people congregated at Berbera during that time. Goods such as gum, butter, ivory, ostrich feathers and rhinoceros horns were exchanged for Indian cotton clothes. Cattle and slaves from the inland parts of Somalia were also exchanged. Hence, when cholera broke out in India or Mecca, Berbera became a centre of diffusion. Many people died there and the disease spread to other Indian Ocean ports. Some of the northern traders, who attended the fair proceeded further south to the southern ports such as Lamu, Mombasa and Zanzibar looking for goods, which facilitated the diffusion of the disease. (7)

Beside movement of people to Mecca and Berbera, the transportation of human cargoes and passengers in dhows were the means of conveying the epidemics. Before 1850, slaves used to be transported to the northern ports. The human trafficking was terrible as far as the diseases were concerned. Captain G. L. Sullivan in Dhow Chasing in Zanzibar Waters showed that normally a nakhodha (captain) used to buy slaves in every port that he passed in the southern ports. Arab passengers used to pay the nakhodha to take slaves to be sold in the north. The money which was obtained was used to finance the voyage. (8) In these voyages to the north; slaves were packed in the dhows. Some of them died suffering from contagious diseases. Normally, it was the dhows from the north which brought cholera epidemics to the southern ports, but the 1869-70 epidemic diffused to Lamu, Somalia and Socotra from Zanzibar.

Many dhows lacked proper hygiene. Many of them were kept in a filthy condition. Rotten dates used to ferment. Rats and cockroaches survived by eating foods stored in these dhows. E. B. and C. P. Martin observed that Somali and Indian dhows were the most filthy in comparison with the other dhows. They maintained that Somali dhows took large crews and paid them low wages. As a result, they took no responsibility in cleaning them. Dhows became unkempt and filthy. (9)

Furthermore, sailing to various ports of the Indian Ocean took months depending on which port one was going to. The nearest ports from Arabia to Africa are on the Somali coast which were a one-month voyage away. The dhows carried food and water to be used by passengers and sailors. James Christie noted that water in the dhows was not safe for crews and passengers, which contributed to a high mortality rate during cholera epidemics as cholera is a contagious disease which survives and spreads through contaminated water. He concluded that dhows were plague-spots during the cholera epidemics due to their filthy condition, and became the means of disseminating the epidemics. (10)

Smallpox which is also a contagious disease was prevalent in many parts of the Indian Ocean area for a long time. It has been noted as being mild in the region of Bengal until the 18th century raids and British conquests when the disease spread due to movement of people. David Arnold demonstrated that in the 19th century, smallpox erupted in many parts of India at an interval of five to seven years, including Sind, Gujarat, Bombay and Cutch. Bombay, a busy trading port, in particular, became a centre of dissemination of smallpox from other parts of India, Arabia, Persia and Africa during the 19th century. In India it acquired a seasonal character which seemed to flourish from February to May. As a result it became known as the spring disease. The social and cultural influences were equally influential as spring months are traditional times for pilgrimages. Pilgrimages to Hindu shrines and religious festivals brought large groups of people together, and as many people had to travel long distances, it also allowed for the social mobility that the smallpox virus needed to spread. (11) It diffused to other areas through the returning Hindu pilgrims, and spread to other parts of the
Indian Ocean. The disease was also diffused by Indian Muslim pilgrims and traders to other Indian Ocean ports. Alan Villiers noted that smallpox was essentially transmitted through body contacts in small *booms* (Kuwaiti-type dhows) which normally took many passengers.(12)

In East Africa, the disease was also prevalent in a mild form for a long time. It was noted that it erupted into an epidemic form by the end of the 18th century in the dhows which carried slaves to Ile de France (Mauritius). In 1809 and 1858 thousands of people died in Zanzibar Town due to smallpox. Richard Burton, a British explorer and an officer in the East India Company’s army who was in Zanzibar in 1857, observed that the virulent type was imported by dhows from Muscat in 1857, and half of the population of the town, which were estimated by Burton to be 25,000-45,000, was afflicted by the disease in 1858.(13) In general, the spread of smallpox along the Indian Ocean ports had connection with maritime trade links.

**Diffusion of traditional medicines and knowledge**

Trade links in the Indian Ocean region, however, also led to the extension of eastern medicines which were used to treat many diseases. The Islamic and Hindu Ayurvedic medicines spread around the Indian Ocean area through dhows. Historically, Islamic medicine developed from different cultures such as Hindu, Jewish, Berber, Persian and Turkish. It shared the same knowledge on treatment with Ayurvedic Hindu medicine in which diet, bleeding, scarification and cautery were common. The development of the Islamic state from the 8th century brought the use of Islamic medicine to many conquered areas. The establishment of Bayt al-Hikma, the House of Wisdom, in Egypt and Iraq, in the 9th and 12th centuries respectively brought about the expansion of medical ideas in the Muslim world.(14)

Some of the important medicines which were strongly recommended in the Prophet’s Tradition (*Sunna*) for the use by Muslims in treating many diseases were honey and black seed. Their healing power and techniques are considered important in Islamic medicine. Bernard Greenwood in his study of Moroccan Islamic medicine identified the Prophet’s healing knowledge and power, the power of Quranic words, letters and numerology as important in treating diseases in which, in our modern societies, are perpetuated by the Sharifs who trace their descent from the Prophet, and the Quranic experts or scribes and Sufi masters.(15)

On the East African coast Islamic medicine was popularized by traders and Muslim scholars from Oman, the Yemen, India, and Arabia. Muslim scholars from Mecca, Medina, Cairo, and Istanbul moulded scholastic mind of the 19th century East African coastal theologians. The religious teaching methods, manuals, saint cult and respect of the Sharifs were the legacy of South Arabian scholars. Some of the dhow masters, nakhodha, like Sd. Ahmad b. Sumeit (1861-1925), the famous East African Muslim theologian, travelled and studied under many masters in Indian Ocean ports disseminated the knowledge to his students. His studies and travels brought him to Zanzibar, Madagascar, Lamu, Hadhramut, Mecca, Medina, Egypt and Istanbul.(16) Muslim scholars, Sufi leaders and Sharif families distributed medical knowledge in the towns. Dhows from Persian Gulf, India, and Somalia imported honey, black seed, curcuma (turmeric) and calumba root for treating diseases like fever, headache, smallpox, dysentery, and abdominal pain.

The development of the printing industry in India and Egypt in the 1870s spread knowledge about Islamic medicine. Originally, books on Islamic medical knowledge were handwritten. The most important were *Tib al-Nabawi* (The Prophetic Medicine) compiled by a Syrian
jurisprudent, Ibn Qayyim Al-Jawziyya, 1292-1350 C.E., and Shams al- Ma‘arif (The Illumination of Knowledge) written by an Egyptian scholar, Abu al-‘Abbas (d. 1225). The latter focuses on medieval Islamic treatises on talismans, magic squares, and all manner of occult practices. Others included Abu Ma‘ashara Al-Falaqi on Astrology, Sa‘atul Khabari, Sirri, (The Secret). Most of the Arab and Omani seafarers and merchants relied on ancient system of navigation which were based on astronomical observations and calculations, which led to its survival for a long time, including its medicinal implications.\(^{(17)}\)

Eastern medicines were used to curb epidemics that occurred in the Indian Ocean areas, though many people died of these epidemics. In India, during cholera epidemics, vaidyas and bakims (medical specialists) supplied medicines composed of black pepper, borax, asafoetida, aniseed, ginger, and cloves; some incorporated opium or Indian hemp to dull the pain and relax the body.\(^{(18)}\) Richard Burton showed that in Zanzibar, the anti-diarrhoea or anti-cholera pill of opium, chalk and catechu were frequently used.\(^{(19)}\) Most of these substances, which were mentioned by Burton were indigenous to India. They were transported to Zanzibar and other East African coast by dhows. However, most of these eastern medicines were unable to cope with cholera epidemics as people died a few hours after the first symptoms started. The introduction of public health measures such as clean water and better sanitation from the late 19th century controlled the eruption of cholera epidemics.

Among the traditional treatments for smallpox was inoculation or variolation and curcuma, $djiso$. Variolation was a common practice for treating smallpox before vaccination became effective from the early 20th century, and it spread in the Indian Ocean area through traders who visited the area. Eugenia Herbert described inoculation as ‘a process of transferring smallpox artificially from someone infected with the disease to someone who was not but hopes thereby to contract a mild case and subsequent immunity. It is synonymous with variolation used in the modern medical literature but not in the 18th century’.\(^{(20)}\)

Historically, variolation was common in India and Arabia before reaching Europe in the 17th century, where it was discarded by the end of the 18th century for medical reasons. It was considered neither safe nor efficient. Sheldon Watts showed that in the early 18th century, Bengali children suffering smallpox after variolation were kept in isolation and cared by someone who had the disease in order to attain an immune system.\(^{(21)}\) On the East African coast Arabs recorded that inoculation was done and the custom was to buy off smallpox. Ahmed Bayoumi quoted James Bruce who described this in the 1770s:

The women… from time immemorial… are the conductors of the operation in the fairest and driest season of the year…Upon the first hearing of the smallpox anywhere, these people go to the infected place, and wrapping a fillet of cotton cloth about the arm of the person infected, they let it remain there till they bargain with the mother how to sell them …One piece of silver or more be paid for the mother…This being concluded, they go home and tie the fillet about their own child’s arm; certain, as they say, from long experience, that the child infected is to do well, and not have one more than the number of pustules that were agreed and paid for.\(^{(22)}\)

The use of $djiso$ in treating smallpox was mentioned by Salme, a daughter of Sultan Said bin Sultan of Zanzibar, who was born in Zanzibar in 1844 and lived in the town, before her elopement with a German trader in 1866. Salme showed that in the 1858 smallpox epidemic, an ointment of $djiso$, turmeric (curcuma), was used to coat entirely the body of the sick per-
son and thus placed in the sun. Sometimes, the pocks were smeared with coconut milk, which was preferable to *djiso*. Curcuma which is indigenous to India has a long tradition of use in the Ayurvedic systems of medicine, particularly as an anti-inflammatory agent, and for the treatment of flatulence, jaundice, menstrual difficulties, hematuria, haemorrhage, and colic. It was a cleansing herb for the whole body.

**Conclusion**

Indian Ocean dhows, therefore, contributed to the dispersion of diseases in the area. Dhows were the only means of transport that connected the Indian Ocean communities before the introduction of steamships in the 1860s. Through dhows people made contact which led to the spread of these contagious diseases. Cholera might not have reached Zanzibar, Madagascar, Comoro, Nossi Bey without dhows. Smallpox erupted into an epidemic form due to the introduction of a new smallpox virus from Arabia and India. However, through dhows medicine and medical knowledge for the treatment of smallpox and other diseases also extended along the Indian Ocean rim. The introduction of public health facilities, such as vaccination measures, quarantine centres, and infectious disease hospitals, the Bills of Health and Port Health officers by the early 20th century minimized the transmission of diseases from one port to another.

**Footnotes**

12. Alan Villiers, *Sons of Sinbad: An Account of Sailing with the Arabs in their Dhows, in the Red Sea, around the Coast of Arabia, and to Zanzibar and Tanganyika: Pearl in the Persian Gulf; and the Life of the Shipmasters, the Mariners and Merchants of Kuwait*, Charles Scribner’s Sons: New York, 1968, p. 121.
25. Website: http://a.tribalfusion.com