

HISTORY OF TECHNOLOGY

DOI: 10.32703/2415-7422-2023-13-1-121-148

UDC 325:326:343.43:94

Samuel Adu-Gyamfi

Kwame Nkrumah University of Science and Technology
PMB, Kumasi, Ashanti Region, Ghana, 40080
E-mail: mcgyamfi@yahoo.com
<https://orcid.org/0000-0002-0193-867X>

Helena Osei-Egyir

Kwame Nkrumah University of Science and Technology
PMB, Kumasi, Ashanti Region, Ghana, 40080
E-mail: ynamadive18@gmail.com
<https://orcid.org/0000-0002-2909-4798>

Benjamin Dompree Darkwa

University of Alberta
2-28, Tory Building, University of Alberta, Edmonton, Canada
E-mail: darkwa687@gmail.com
<https://orcid.org/0000-0003-1662-9789>

Ship technology, slavery, repatriation and air transportation: continuity and change

Abstract. *The Trans-Atlantic Slave Trade, which occurred between the fifteenth and nineteenth centuries, displaced Africans and people of African descent into the New World. The trade affected and influenced several aspects of the world economy, boosting the economies of participating countries and creating what would become the African diaspora. While several elements of the trade have gained recognition in scholarship, ships, as the single most important medium of transportation for African slaves, have received little attention. We contribute to the discourse by placing ships at the center of discussion by highlighting the relevance and importance of this human and cargo carriage as a vehicle of slavery. We also paid attention to air transportation in the era of voluntary repatriation of people of African descent back to Africa for tourism, business and to pay homage to the motherland. We achieved these objectives through the use of written sources. These included books, journal articles and relevant sites and databases relating to the history of science, technology and slavery among others. The research highlights, among others, the following: the invention of ships has*



changed the course of world history. It has been the single most tremendous medium of transportation responsible for transporting millions of Africans into Europe and the New World creating the African Diaspora. The era of sailing and the cruise period have offered man the opportunity to navigate oceans and seas that were hitherto uncharted. It also ensured that trade relations between and among countries were solidified. Beginning in the XIV century when ships used rudders that ran on shallow waters, trade was organized on as small scale between countries. The fifteenth century became a significant date in the history of ship building as there was an improvement in sea faring and oceanic navigation. The double-ended ship gave way for full-rigged ships. An even greater milestone was achieved in the eighteenth century when the steam was invented. This period produced fast sailing ships which were less costly and it greatly influenced the triangular trade which had begun some two centuries earlier.

Keywords: ships; air transport; repatriation; slave trade; African diaspora

Introduction.

The history of transportation can be divided into three distinctive periods: the first period concerns the use of animals and winds; the second period saw the emergence of the steam-engine and later internal-combustion engine; and the third period has witnessed the era of space travel (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974). The interest of this paper lies within the second era where steam engines aided the transportation of Africans into the New World via sea; and the third period which has seen the return of Africans to Africa and is bringing people of African descent back to their roots.

As early as the fifteenth century, there were European presence on the shores of Africa. Internal trade between Europeans and indigenous African communities developed, with the Portuguese carving a niche for themselves in the booming market economy (Wilks, 1982). Of all the commodities, slaves occupied a central space in the trade. By 1479, slaves were procured from Benin, Congo and the Angola region and exchanged for gold and gold dust in the Gold Coast (Elmina). The sugar plantations in Sao Tome benefited, and for domestic purposes; Portugal is not absolved (Vogt, 1973; Wilks, 1982). The trade in slaves reached its peak in the eighteenth century not only due to the growing demands from the New World but most importantly, due to the invention and successes of the steam-engine.

The introduction of the steam engine served as an important invention that aided the repatriation of Africans to the New World. Becoming the ‘naval architects of the world’, the British leapfrogged in the science and technology of ships up to the beginning of the twentieth century (Matsumoto, 2006). Their position was aided by the industrial revolution of the eighteenth century which saw the single most innovative invention in technology, the steam engine. By the eighteenth century, naval architecture and marine engineering had provided innumerable additions. There was the introduction of a longitudinal system in 1862, the trial manufacture of a contra-

propeller in 1864 and the utilization of a balanced rudder originating in 1891 among others (Matsumoto, 2006). This invention made global commerce and migration easy.

The Trans-Atlantic Slave Trade is one of the most investigated subjects in scholarship. Studies of this event have culminated in the emergence of diverse fields of study, movements and religions such as African American Studies/Black Studies (Eyerman, 2002); African Diaspora Study (Falola & Childs, 2004); Pan Africanism (Poe, 2003; Falola & Essien, 2014; Adi, 2018); Rastafarianism (Bedasse, 2017); and the study of indigenous slavery in African communities vis-à-vis the chattel trade in the Americas (Perbi, 2004; Lovejoy & Falola, 2003). Ranging from database of the trade to the emergence of new cultures woven from African and West Indian roots, scholars such as Curtin (1989, 1984); Thornton (1992); Eltis (2000); Eltis, Lewis and Sokoloff (2004); Bailey (2005); Eltis and Richardson (2008); Holsey (2008); Falola and Warnock (2008) and Green (2012) have duly paid their dues. These scholars have explored African societies before and after European encounters, the effect of the Atlantic trade on all sides of the Atlantic, the horrors of the middle passage, life in the New World and the cultural exchange between people of African descent in the Americas and the homeland; Africa. Fett (2017) has also added her voice to the discourse on the Atlantic trade. She explores the lives of recaptured slaves in the dying years of the slave trade. Others, like Greene (1944) have explored mutiny on slave ships; while Klein and Engerman (1976) have discussed slave mortality on British ships from 1971-1979. Similarly, with a slight departure from Klein and Engermann, Stein (1980) rather places much emphasis on the French trade.

Another discussion has focused on the medium of transportation used in the voyages. The centrality of ships in the Atlantic Trade has been discussed by scholars such as Garland and Klein (1985); Smallwood (2007); Rediker (2007) and Borucki (2020). This notwithstanding, the literature is still silent on the mediums of repatriation from- the New World. Therefore, this paper contributes to this discussion by focusing on ships as mediums of repatriation of Africans from the New World and the changing trends for repatriation of Africans in the diaspora especially with further shifts and emphasis on air transportation to accomplish same ends.

The concept of repatriation has been defined differently by different scholars. For instance, Chapman (2018) explains repatriation as ‘to restore or return to the country of origin, allegiance or citizenship’. Similarly, Watkins (2006) views repatriation as “an act of returning something to its native country”. From a different perspective, Adelman and Barkan (2011) emphasize that “repatriation was for those recognized as citizens”.

However, in the current paper, the scope of repatriation goes beyond the definitions above by making reference to the beginning of when a group of people of a particular country/continent (in this case Africa) were forcefully taken from their original homes, transported, displaced, and resettled in the Americas and their journey back to their African home (voluntary migration). The voluntary migration unlike the involuntary migration occurs in waves, with the first set of repatriated Africans coming

from Britain and its colonies worldwide. The second wave involves people of African descent making trips to Africa (Bailey, 2005; Holsey, 2008; Falola & Essien, 2014).

By way of organization, the discussion in this paper is grouped into four sections. Part one explores ship technology from the earliest times to the 1700s. The section examines the history of ships and how it facilitated the Atlantic trade. Also, it looks at the time spent for a ship to successfully complete a voyage, the seating capacity of ships within this period, the number of slaves transported annually and the mortality rate on these ships. The second section centers on the impact of the industrial revolution on Atlantic trade and on the peak of the trade. The third section focuses on repatriation and how ships served as vehicles for transporting African returnees across the Atlantic. The fourth section discusses the changing trends in the medium of repatriation.

A history of shipbuilding and technology.

The history of shipbuilding has been divided into three major periods: the period before the fifth century; the Middle Ages (5th to 15th century); and since the 17th century. The latter period is further grouped into two distinct phases, the age of sail and power (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974). Ship builders in the first period relied on double clinker ship technology (Figure 1). The double clinker ships were built with overlapping timber that were identical at both ends; the bow and the stern (Schweitzer, 2013). It was less efficient streamlining but gave extra strength needed for safety in stormy waters. Below is an example of a clinker plank and its contrast, the carvel plank.

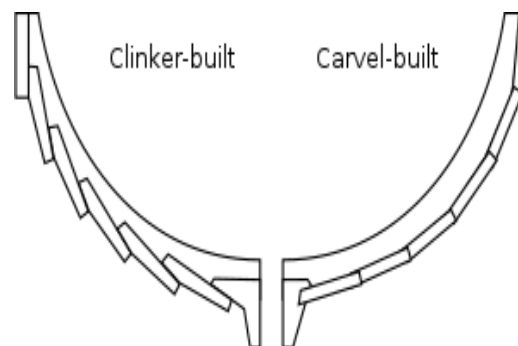


Figure 1. Ship build clinker ship technology (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).

The gradual development of ship technology made headway especially in the 15th century. This century saw major improvements in seafaring and oceanic navigation. The full-rigged ships that consisted of three or more masts and five or six sails, which were square-rigged, were introduced in this period (Holmes, 1906). The double-ended ships, which had been in use for a long time, began to disappear when rowing gave way to sailing. In this period, rudders replaced steering oars. The rudder in these new ships was first attached to the side of the boat and then, after a straight stern post was adopted, firmly attached to the stern (Schweitzer, 2013).

Ships from the earliest time to the 15th century were smaller in size, with wood as the main hull (body). With this, trade was carried over shorter distances (Casson, 1994). The introduction of full-rigged ships was partly attributed to the large-scale trade that were organized. These trading activities were more frequent in occurrence and more distant in destination. To pack more square yards of canvas on a hull, it required multiple masts and a loftier and larger sail on each mast. As multiple masts were added, the hull was elongated; keels were often two and a half times as long as the ship's beam (width) (Casson, 1994).

Portugal became the center for exploration as the first school of oceanic navigation and trade was established (Worth, 2009). The feat of navigation led to the revolutionary journeys of Da Gama, Columbus and Cabot. Their explorations were made possible with the advent of navigational tools such as the compass (Pastor, 2010). This era witnessed the globalization of trade, and thus, the interior of Africa, that is, Africa beyond the Mediterranean, was soon to be explored. Worth (2009) has suggested that the ships sailed by Gama (Sao Gabriel, Sao Raphael and others) were probably about 100 to 120 tons, 75 feet long, and about 25 feet wide. They were low in the center with high castles on the bow and stern and armed with cannon. Each of the ships carried three sails; a square foresail in front, a mainsail in the center, as well as a triangular lateen sail in the rear (Figure 2). Also, Pastor suggests that Columbus' Santa Maria on the other hand was probably a caravel of 150–180 tons with hull frames fixed to the keel (Pastor, 2010).



Figure 2. Replica of Columbus' Santa Maria. The actual picture of the Santa Maria is unknown. However, 52 men are believed to have comprised the crew. Around this time, the stern castle had become an integral part of the hull (Pastor, 2010).

At the beginning of the 15th century, large ships weighed about 300 tons. By 1425, they were 720 tons. In the 16th century, full-rigged ships were continually used including the Carrack, a Mediterranean three-master and the Galleon (Figure 3). The Galleon became the most distinctive vessel between England and the Mediterranean.



Figure 3. The Galleon of 1610, with a length of 95cm, a width of 41cm and a height of 73cm (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).

After the 15th century, the Dutch became very active in shipbuilding. They were able to build and operate merchant ships more cheaply than the English. By the 16th century, the Dutch *Fluyt* had become the sailing ship that was generally used by Europeans. The success of shipbuilding was to continue into the next century. In the 17th century, Holland attained her Golden Age in shipbuilding history as she was a great maritime power of the era (Davies, 1961). Their 17th century developments in ships were due to the eastern trade with Europe. As merchant ships grew rapidly, the Dutch traded as far east as Australia and Indonesia (Barbour, 1930).

The Venetians had been active sea traders since, at least, the Middle Ages. Until Holland became Europe's commercial center in the 17th century, Venice was the gateway to Europe's economy. As such, the *Venetian Buss* was supplanted by another Venetian ship, the *Cog* (Davies, 2021). Essentially, a *Buss* which weighed 240 tons with lateen sails was to be manned by a crew of 50 sailors. The crew of a square-sailed *Cog* of the same size had only 20 sailors. This began an effort that has characterized merchant shipping for centuries; to reduce crews to the minimum. This was particularly true of oceanic navigation because larger crews were expensive to pay and the large amount of provisions necessary was sometimes critical on long voyages.

The English responded to this change by improving their ships. For instance, the *East Indiaman* (Figure 4) of the 17th century, a large and costly ship, was intended to be England's entry into a fierce competition with the Dutch for trade in India and the

Spice Islands (Parthesius, 2010). Europe's trade with the East was built on already established production. What was needed were factories and settlements for trade. Coastal cities like Bombay (Mumbai), Madras (Chennai) and Calcutta (Kolkata) became important trading ports and centers (Marshall, 2005). The opposite was the case in the New World, where there was so little existing production of trading goods. Therefore, the establishment of ties required not only the pioneering of the trading route but also the founding of colonies to create new production. Shipping became larger and more continuous in the case of the colonies. As their advances in shipbuilding became necessary to protect their overseas trade, the result was the Atlantic Slave Trade, which will be discussed in subsequent sections. European countries' aim for the accumulation of capital, among other things, resulted in the vague acquisition of territories in Africa and the New World based on the use of strategy, canon power, and the acquiescence of the local authorities.



Figure 4. East Indiaman (Chatterton, 1934).

The Fluyt, unlike warships, was designed to carry as much cargo as possible; and was handled by fewer crew; cheaper to build; and was easy to sail (Parthesius, 2010). Eriksson's (2012) report on a 17th century Fluyt shipwrecked in the Baltic Sea gives a vivid description of it. The Fluyt had a bow of 1 meter which was shallower than the stern and a horizontal hull. It measured 21.8 meters between the stern and the sternposts. The main and fore masts carried two or more square sails and the third mast carried a lateen sail. In a similar work, Eriksson and Ronnby (2012) gave a description of the hull of the 'Ghost Ship'. The description depicts a rectangular ship with a carvel built hull measuring 27 m long and 7 m wide (Figure 5).



Figure 5. An Example of a 17th Century Dutch Flute (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).

The various stages in the development of ship technology meant success for the Atlantic Slave Trade. What is presented thereunder are reports on the number of enslaved Africans who left the shores of Africa for Europe and the Americas from 1500 to 1700 (Table 1). From the table that follows, one could conclude that the ships were modified to be able to carry more slaves over the years.

Table 1. Slaves Transported from Africa (1500–1700) (Curtin, 1969).

Region	Year	Year	Year	Year	Year
Coastal Region	1500	1550	1600	1650	1700
Western ^a Coast	2000	2000	2500	2500	5700
Gulf of Guinea ^b	1000	2000	2500	3300	19400
West Central ^c	2000	4000	4500	8000	11000
Total	5000	8000	9500	13800	36100

- a. The areas in the table are further distinguished as: Western Region (from the mouth of the Senegal River including Arquin to Sierra Leone).
- b. Gulf of Guinea (from Malaquetta and Kwakwa coasts to Cameroon).
- c. West Central (from Cameroon to the Cape of Good Hope).

The western coast exported a total of 2,000 slaves annually in the 1500s. The number rose to 5.700 by the 1700s. The traffic on the Gulf of Guinea increased from 1.000 to 19.000 and on the West Central from 2.000 to 11.000. In addition to the economic and political reasons, we argue that another major reason for the increase in shipping capacity and voyages during the 18th century was the development of shipbuilding technology.

It is important to report that the route taken by ships depended on the nationality of the ship owner and the colony in which the slaves were to be dispatched in the Americas. The Portuguese, for example, controlled the trade in the West-Central African region of Angola, making Luanda and Benguela important ports. Such vessels headed for the Portuguese colony of Brazil via the South Atlantic Ocean. In the early years of the trade, until they sold their possessions on the Gold Coast to the British, the Dutch operated around Elmina, the Bight of Benin and the Bight of Biafra. Their slaves were sent to their South American colony in Surinam. Essentially, the vessel, *Maria Isabella*, was a Dutch ship that set sail from Rotterdam in 1775 for the West African coast, that is, the Ivory Coast, Gold Coast and Benin (Tripathi & Godfrey, 2007).

The industrial revolution and its impact on shipbuilding technology.

The eighteenth century, which marked the era of the industrial revolution, is a remarkable period in world history. It was in this period that steam, described as “the most powerful idea in the world,” was invented and developed by Professor James Watt of Glasgow University (Scherer, 1965). His development was built on the earlier works of Thomas Savery (1698) and Thomas Newcomen (1712) (Scherer, 1965). Newcomen erected a steam engine that combined, for the first time, a piston-in-cylinder arrangement and a basic motive principle involving the formation of a vacuum within the cylinder through the induced condensation of steam. This ‘atmospheric’ engine saw extensive use, especially for pumping water from the English coal mines. Aside from the above, the development of steam-technology aided several activities including shipbuilding (Brinley, 1993; Farr, 2003).

Since Portugal took the lead in world exploration and was the first to land on the African coast, most documents on shipwrecks and ships generally involved in the maritime trade are associated with her (Castro, 2003; Tripathi & Godfrey, 2007). Prior to this period, ocean-going ships in Europe, especially, Portugal were conceived in the 16th century on the Iberian Peninsula as a box with two ends (Castro, 2003). The frames that composed the central portion of the hull were designed and built using a simple and old non-graphic system developed in the Mediterranean and probably for the building of galleys (Castro, 2003). Carrel and Keith (1992) have presented the makeup of a 16th century ship used by sailors. In their work, they replicate the Santa Clara, an exploratory ship in the Columbian era. Using a technique called Mediterranean molding – a mechanically – generated geometric progression known as *graminhos* – ship builders in the era focused on areas with timber (Matsumoto, 2006). Thus, it is not

surprising that the Iberian Peninsula has been sighted in most shipbuilding technology documents (Carrel & Keith, 1992).

The Golden Age of the Dutch Republic in the 17th century recorded a number of merchant ships sailing the oceans of the world, including the Atlantic Ocean (Carrel & Keith, 1992). For the Dutch, a particular kind of ship known as the original *Duyfken* (*jacht*) has been identified by nautical archaeologists. A brief description of the *jacht* is that its speed limit is faster than most cargo ships and its cargo capacity is about 50 tons, making it a relatively smaller ship than other European ships (Burningham & Jong, 1997).

The United States' participation (as slave vessel owners) in the Atlantic Trade is a history of scattered data to which little attention has been paid. Despite this gap, pieces of fragmentary evidence can be accessed from some studies on the Trans-Atlantic Slave Trade. For instance, Greene's (1944) analysis of mutiny on slave ships recorded quite a number of American ships that suffered this fate. He further listed a number of US vessels, including *Little George* (1730), which had a slave capacity of 97 persons; *Adventure* (1764); *Hope*; *Thomas*; *Felicity* and *Thames* among others. Concerning the slave voyages in 1789, US vessels accounted for around an estimated 1,000 voyages, representing 58.2% (Marques, 2015).

In the years when the trade was abolished, US participation took the form of US ships, US capital and US flags. US ships were preferred in this period due to their relatively small nature, which was usually 40–50 tons. Such ships required few men to handle, with a crew ranging from 6–18 men (Greene, 1944). US shipbuilding technology advanced as steam was introduced. As already discussed, the eighteenth century saw great advancement in shipbuilding, which was improved upon by the nineteenth century in the US. In 1807, *the North River*, sometimes known as *Clermont*, a steam boat, began to operate on the Hudson River by Robert Foulton (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).

The next phase of development saw the building of fast sailing vessels known as “yachts” or “clippers”. As Baltimore became the center for US shipbuilding, such ships became known as Baltimore Clippers (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974; Eltis, 2008). By 1818, *James Monroe* of the American Black Ball Line had sailed from New York to England, ushering in the era of fixed sailing dates (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974). In 1819, the American paddle ship, *Savannah*, (in Fig. 6) became the first ship to use steam power to cross an ocean. As a sailing ship, her funnel had a swivel elbow, which allowed smoke and sparks to be directed away from the sails and rigging. The paddle wheels could be unshipped and stowed on deck when not required. As these developments were ongoing, the trade to Brazil was booming and US slavers actively participated.

The figures below (see Figures 6–10) show examples of earlier ships that began to use steam engines.

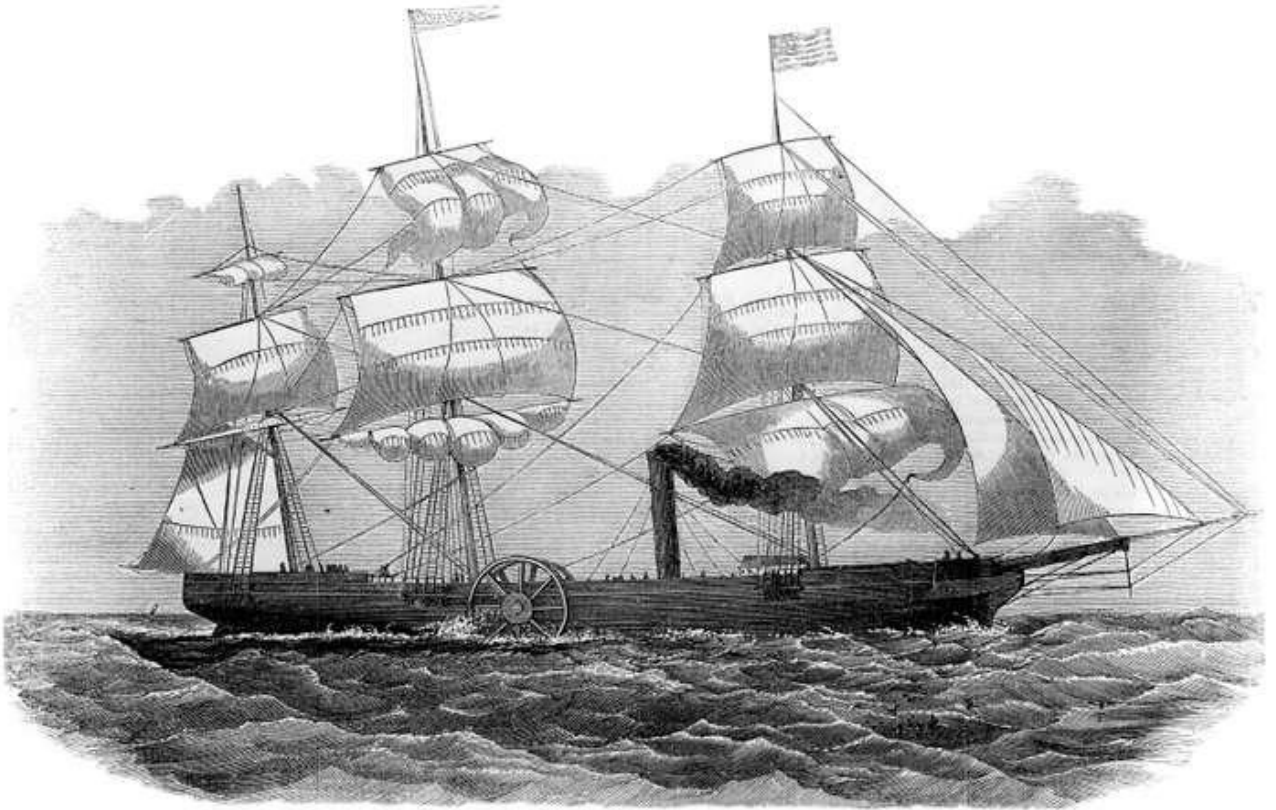


Figure 6. American Paddle Ship (Savannah). Source: Library of Congress, Washington, D.C. (file no. LC-1355) (<https://kids.britannica.com/students/assembly/view/168307> Accessed 14.04.2023).

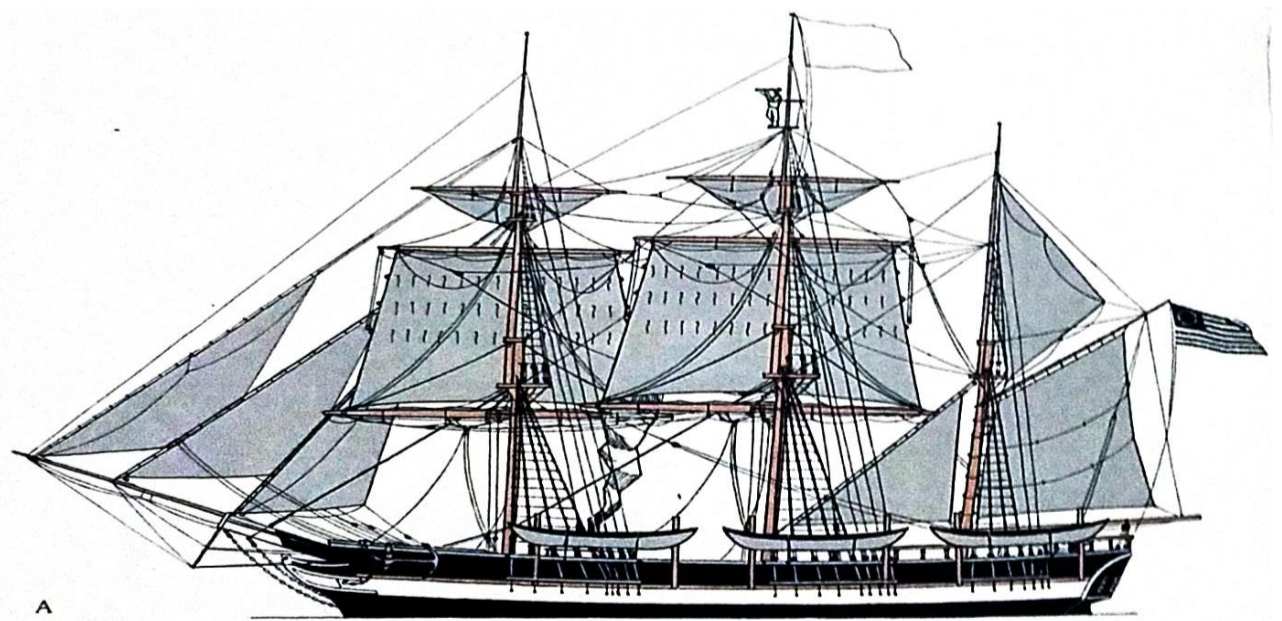


Figure 7. American Whaler (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).



Figure 8. BruneGreat Britain (1843). A painting of the SS Great Britain's launch in 1843. The Great Britain, built in 1843, was the first steamship built with an iron hull (<https://www.ssgreatbritain.org/our-story/> Accessed 13/04/2023).

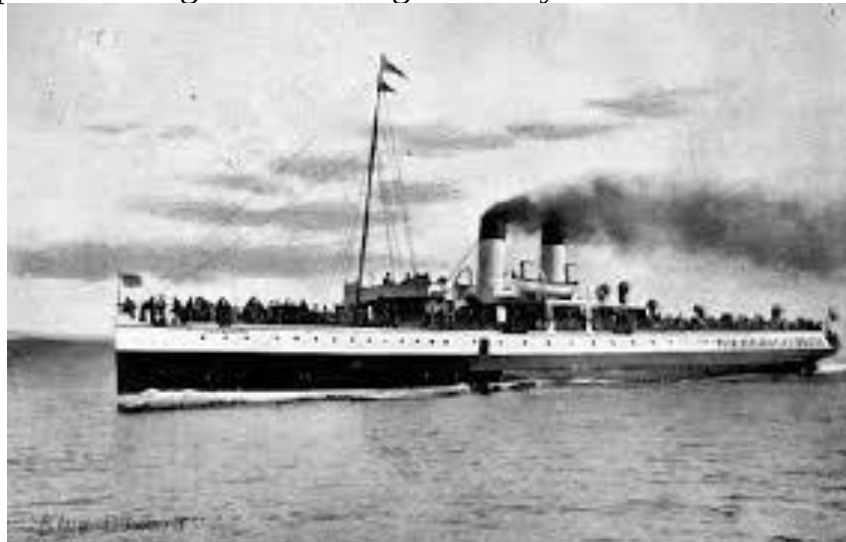


Figure 9. King Edward (1901). The 'King Edward', built in 1901, was the first commercial turbine ship which operated on the Clyde River in Scotland. It was however not the first turbine ship to cross an ocean as the *Victorian* became the first ocean going turbine ship (<http://www.roll-of-honour.com/Ships/SSKingEdward.html>).

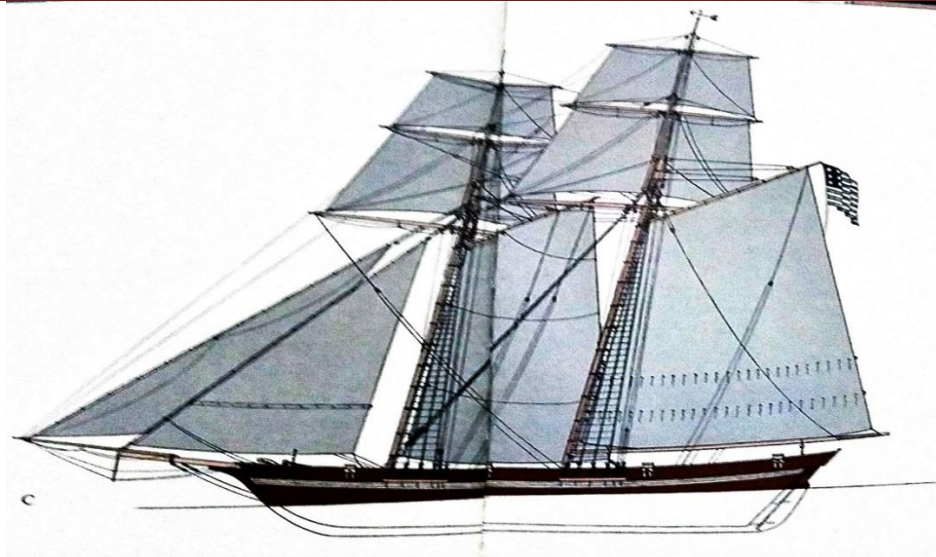


Figure 10. Baltimore Clipper (A 19th century American Ship) (Carpenter, Kalla-Bishop, Munson, & Wyatt, 1974).

Ships as Agencies for the Repatriation of Africans in the 18th century.

As already discussed, the eighteenth century saw a revolution in shipbuilding technology which also changed the face of the slave trade. The slave trade greatly impacted the Industrial Revolution just as the Industrial Revolution increased the volume of the slave trade. James cited in Inikori (2002), asserts that, “virtually all industries that developed in France in the eighteenth century originated from the production of manufactures for the slave trade in Western Africa or for export to the French American colonies.” Put differently, capital from the slave trade financed the industrial revolution. For Britain, where the Industrial Revolution began, the triangular trade aided her by providing markets in Africa and the production of raw materials in the West Indies. Concerning the triangular trade, ships set out on voyages from British ports with manufactured goods from her industries to Africa; the goods were sold and slaves were bought and loaded onto her vessels. The slaves were taken to the colonies in the West Indies and sold to plantation farmers, who used the slaves to produce crops such as cotton, tobacco, sugar and indigo. The plantation crops are then taken back to England for industrial consumption (Inikori, 2002).

Greene cited in Bailey (1990) hinted about the relationship which existed between the Industrial Revolution and the slave trade in the US:

“...the effects of this slave trade were manifold. On the eve of the American Revolution it formed the very basis of the economic life of New England; about it revolved, and on it depended, most of her industries. The vast sugar, molasses and rum trade, shipbuilding, the distilleries, a great many of the fisheries, the employment of artisans and seamen, even agriculture-all were dependent on the slave”.

The ongoing discussions point out several insights concerning slave repatriation, shipbuilding and the industrial revolution. One could be quick to infer from the above

that the availability of ships enhanced both slave repatriation and the industrial revolution. In essence, the industrial revolution also aided shipbuilding technology in several respects. In support of this, the literature suggests that the industrial revolution impacted the slave trade through the building of fast sailing ships, which were less costly and shortened voyages. The table 2 that follows provides some insights into the above.

Table 2. Average length of voyage from England to Africa and Africa to the West Indies (1791–1797) (Klein & Engerman, 1976).

	To Africa	To Africa	On Coast	On Coast	To West Indies	To West Indies
	Ships	Days	Ships	Days	Ships	Days
Senegambia	5	64.2	6	71.5	6	28.3
Sierra Leone	41	74.0	41	158.5	41	45.2
Windward Coast	19	67.5	18	175.7	19	52.6
Gold Coast	30	81.1	30	130.9	31	55.1
Bight of Benin	3	100.3	3	81.0	3	62.3
Bight of Biafra	111	75.4	113	99.9	116	60.4
Congo-Angola	67	106.0	69	95.2	69	56.0
Unknown	55	97.5	57	111.7	61	57.3
Total	331	85.6	337	114.2	346	55.7

It is difficult to quantify the number of slaves that left the shores of the African coast before the 1700s (Curtin, 1969). This challenge notwithstanding, some scholars have provided estimates of the number of slaves transported across the African region to the New World. Information from the table below contributes to the discussion on the number of slaves that were repatriated between the 1500s and the 1870s (see Table 3).

Between 1501 and 1875, an estimated 12, 521,337 Africans had been transported from Africa into colonies in the New World. The details have been further discussed as follows: between 1501 and 1600, a total of 277,505 slaves were transported from Africa. The number increased to 1,875,634 in the 17th century. By the 18th century, the figure had risen to 6,494,619. In the closing century of the traffic, the number stood at 3,873,579. Information from the Table 3 also reveals that the maritime powers who controlled the eighteenth-century traffic in slaves were the English, with an estimated number of 2,545,298; followed by Portugal and Brazil with 2,213,003; and France with 1,139,013.

Table 3. Number of Slaves Transported from Africa (1500–1875)¹ (Klein & Engerman, 1976).

Year	Spain/ Uruguay	Portugal/ Brazil	Britain	Netherland s	France	Totals
1501–1525	6,363	7,000	0	0	0	13,363
1526–1550	25,375	25,387	0	0	0	50,762
1551–1575	28,167	31,089	1,685	0	66	61,007
1576–1600	60,056	90,715	237	1,365	0	152,373
1601–1625	83,496	267,519	0	1,829	0	352,844
1626–1650	44,313	201,609	33,695	31,729	1,827	313,173
1651–1675	12,601	244,793	122,367	100,526	7,125	487,412
1676–1700	5,860	297,272	272,200	85,847	29,484	690,663
1701–1725	0	474,447	410,597	73,816	120,939	1,079,799
1726–1750	0	536,696	554,042	83,095	259,095	1,432,928
1751–1775	4,239	528,693	832,047	132	325,918	1,413,024
1776–1800	6,415	673,167	748,612	40,773	433,061	1,902,028
1801–1825	168,087	1,160,601	283,959	2,669	135,815	1,751,131
1826–1850	400,728	1,299,901	0	357	68,074	1,769,060
1851–1875	215,824	9,309	0	0	0	225,133
Totals	1,061,524	5,848,198	3,259,441	422,138	1,381,404	11,972,705

On the part of Britain, three trading ports were prominent in this period. These were Bristol, London, and most significantly, Liverpool, which became important ports for Africans. Between 1750 and 1776, 588 ships left Bristol for Africa; 10 left London, while 1868 left Liverpool. In total, 2,726 ships left these three ports within the period under review, with a capacity of 248 slaves per ship (<https://www.slavevoyages.org/assessment/estimates>). An annual average capacity per ship was estimated to be around 25,040 (<https://www.slavevoyages.org/assessment/estimates>). As Liverpool became the center for the English Slave Trade, between 1776 and 1787, she held about 69.4% of

¹ Information from the table was retrieved from: <https://www.slavevoyages.org/assessment/estimates>.

the trade and controlled 83.1% between 1795 and 1797 (<https://www.slavevoyages.org/assessment/estimates>). She was also responsible for transporting 303,737 slaves in the British West Indies through 878 ships with an average of 346 slaves per ship between 1783 and 1793 (<https://www.slavevoyages.org/assessment/estimates>). Nantes was to the French Slave Trade what Liverpool was to Britain in the eighteenth century. Between 1715 and 1720 saw a total of 63 ships which sailed from Africa carrying 24,200 slaves. Between 1748 and 1792, a total of 910 ships sailed for Africa. The Table 4 and 5 below present the number of ships that sailed from Africa and the slaves they carried.

Table 4. Number of Ships and Slaves Sailed from Africa (1721–1774) (Curtin, 1969).

Date	Number of ships	Number of slaves on board
1721 –28	71	19,100
1729 –33	62	16,400
1734–37	25	8,700
1738–45	180	55,000
1749–55	151	50,300
1764–74	217	69,300
Total	704	218,500

Between 1701 and 1800, a total of 6,091,000 Africans were shipped into the New World (Lovejoy, 1983). Distributed according to national carriers, the English were responsible for 2,468,000 (40.5%); the Portuguese, 1,888,000 (31%); the French, 1,104,000 (18.1%); the Dutch, 349,000 (5.7%); the Danes, 65,000 (1.0%); and Sweden and Brandenburg, 10,000 (0.2%) (Lovejoy, 1983).

Mortality in slave ships.

Available data suggests that some 12, 521,337 Africans successfully crossed the Atlantic to the New World. However, a lot more died en route. The mortality rates in slave ships were shaped by several factors, such as the route of the journey, the length, disease (yaws, fevers, white and bloody fluxes), as well as the care and services provided. Mortality in the earlier periods was high. In contrast, the 18th and 19th centuries saw a relative decrease in mortality rates (Curtin, 1969). Goulant cited in Curtin (1969) estimated the mortality rate in transit to Brazil as 15% to 20% in the 16th and 17th centuries which dropped to 10% in the 19th century. For the British, the Royal

African Company recorded a loss of 23.4% with a maximum annual rate of 29% in 1687. In the 18th century, however, a sample made by T. F. Buxton in 1791 for 15,754 slaves recorded a loss in transit of 8.75% (Curtin, 1969). Also, the French who were responsible for transporting 1,150,000 slaves to the New World, recorded a loss of 150,000 (Stein, 1980). Previously, the mortality rate for French ships before the 18th century was as high as 50% and this could be seen in the loss of *Saint Charles* which lost 190 out of 292 slaves; and *Louise Marquerite*, which lost 283 out of 340 slaves (Stein, 1980).

Table 5. Slaves taken from African Regions and Ships Used (Klein & Engerman, 1976).

	Jamaica	Jamaica	Grenada	Grenada	St. Vincent	St. Vincent	Other	Other
African Areas	Ships	Slaves	Ships	Slaves	Ships	Slaves	Ships	Slaves
Senegambia	1	194	2	419	2	371	1	121
Sierra Leone	21	5702	4	923	5	822	11	2634
Windward Coast	10	3579	3	601	4	895	2	217
Gold Coast	10	2854	-	-	9	2015	12	3920
Bight of Benin	1	317	-	-	1	195	1	350
Bight of Biafra	63	20677	23	4902	9	2985	22	6320
Congo-Angola	40	12727	8	2267	1	173	20	5908
Unknown	41	13426	3	598	9	2237	8	2327
Total	187	59476	43	9710	40	9693	77	21797

The Table 6 below is a representation of slave mortality in transit by ships from Nantes (French) by Coastal Region of Embarkation (1748–92).

The Table 6 shows how the route affected mortality in the French trade. Because Senegal and Guinea are a bit closer than Angola and Mozambique, mortality in the former is minimal. For example, in 1763–67 when 82 ships made voyages, a mortality

rate as high as 19.1% was recorded whereas the only voyage recorded in the whole period for Mozambique had a mortality rate of 22.3% mortality.

Table 6. Transit by Ships from Nantes (French) by Coastal Region of Embarkation (1748–92) (Curtin, 1969).

Time Period	Senegal	Guinea	Angola	Mozambique	Total
1748–51	2.5 (2)	20.7 (53)	18.1 (25)	-	19.4 (80)
1752–55*	2.4 (6)	14.4 (53)	17.1 (27)	-	14.4 (86)
1763–67	22.9 (5)	19.1 (82)	13.2 (47)	-	17.2 (134)
1768–72	10.0 (4)	18.7 (46)	10.1 (28)	-	15.2 (78)
1773–77*	14.0 (1)	12.4 (41)	7.4 (28)	-	10.3 (71)
1788–92	-	7.1 (5)	1.9 (9)	22.3 (1)	5.0 (15)
Total	10.4 (18)	17.2 (281)	12.5 (164)	22.3 (1)	15.2 (465)

Numbers in parenthesis indicate number of ships in each sample; *No sailing took place in 1756–62 and 1778–83 because of wartime.

Below is a sample of mortality rates in British ships in the 18th century.

Table 7. Mortality rates in British ships in the 18th century (Klein and Engerman, 1976)*.

Area	Average Mortality Rate (%)
Senegambia	2.9
Sierra Leone	3.71
Windward Coast	3.36
Gold Coast	2.75
Bight of Benin	4.30
Bight of Biafra	10.56
Congo-Angola	3.65
Unknown	1.5
Total	5.65

*With some modification.

For the British, the average mortality rate, especially in the last decade of the 18th century, was 5.65% which was low; the route via the Bight of Biafra recorded a high mortality rate (10.56%) as compared to the others (Table 7). Curtin (1969) asserts that mortality rate in the Eighteenth Century French ships were 12%, and 17% for the Dutch and the British.

African returnees.

The nineteenth century presented enslaved Africans an opportunity to taste freedom. Aside the many complicated questions surrounding emancipation, the period presented freed slaves the opportunity to be repatriated. Some of the abolitionist movements of the century repatriated Africans to Africa and the West Indies. After abolition, the presence of many Africans in the host countries posed a threat to the racial ideologies of the communities. The result was the resettling of former slaves established colonies. For instance, Britain established Sierra Leone in 1789 to settle Blacks from Britain (Enoh, 2014). Maroon slaves from Jamaica added to the population following their revolt in 1798 (Enoh, 2014). Blacks from Nova Scotia joined in 1800. Also, liberated Africans from the British patrols of the seas during the campaign against smuggling after the outlawing of the slave trade in 1807 added to this population (Curtin and Vasina, 1964). Between 1810 and 1864, Britain returned 149,800 re-captives and repatriated them to Sierra Leone, Liberia and the West Indies (Curtin, 1969). The US navy did same with 103 re-captives between 1837 and 1862 (Curtin, 1969). Soon a polyglot community of ex-slaves emerged in Sierra Leone under the control of Britain.

The British again undertook a voyage back to Africa, resettling about 800,000 slaves in Cameroon in 1838 (Enoh, 2014). To escape the discrimination, segregation, and humiliation that came with slave status and ancestry, most people opted for missionary work in Africa. Thomas Keith, for instance, set out from Jamaica in 1839 with only a letter of recommendation from his pastor to be a missionary to his brethren (Enoh, 2014). Those who could not offer their services in person sought to help in kind. In 1843, several families sailed from Jamaica with Alfred Saker and finally landed in the Cameroons; some went as missionaries and teachers, whereas others went as settlers. By 1858, they had become so numerous as to form a distinct community in Victoria, South-West Cameroon (Enoh, 2014).

Following the Sierra Leonean model, the American Colonization Society (ACS) decided to create a similar society for its freed slaves who wished to return to Africa. Under the aegis of the ACS, which saw it as a refuge for ‘unwanted’ Blacks in the United States, Liberia was established in the second decade of the nineteenth century as a ‘province of freedom to provide a home for the dispersed and oppressed children of Africa’ (Aje, 2014). It attracted Afro-West Indian immigrants like the Jamaican journalist John B. Russwurm, who established *The Herald* in 1830 (Aje, 2014). The most distinguished citizen of Liberia in the nineteenth century was another Indian, diplomat, intellectual, university president, publisher, minister of state, and proponent

of African personality, Edward Wilmot (Aje, 2014). The New England shipper Paul Kofie, one of the loudest exponents of repatriation in the first half of the nineteenth century, financed the settlement of twenty-eight ex-slave Liberians in 1815 (Aje, 2014). John Day, an African American, became the first Chief Justice of Liberia when he achieved independence from the ACS in 1847 (Aje, 2014). Another group that saw the repatriation of Africans to Liberia was the Liberian Exodus Association, led by Martin Delany and Bishop Henry M. Turner of the African Methodist Episcopal Church. The association purchased the ship, *Azor*, to transport over 250 exiles to Monrovia in April 1878 (Enoh, 2014).

Another African country that received returnees was Guinea. In Barbados, a West Indian Church Association was launched; under its auspices, persons of African origins returned to the ancestral continent (Enoh, 2014). Among them was John Duport, a young man from St. Kitts, who in 1855, went to the Rio Pongas region of what is now Guinea. With the cooperation of local chiefs and traders, Duport started a school at Falangia and followed it up by building a church. A stream of exiles followed; some stayed and others were forced by ill health to leave the continent.

The first wave of returnees into Ghana were Afro-Brazilians who had already settled along the shores of Nigeria, Togo and Benin (Essien, 2010). Historical records in Ghana date returnees to the 1830s. Essien states that:

“Sometime in the year 1836, Brazilians landed here (Accra), they came in one cargo ship; there were seven elders among them namely Mama Sokoto and others ... that land was granted to them ... the land remained the property of the Brazilian community.”

The twentieth century brought other returnees, including African Americans such as W. E. B. DuBois and his wife, Shirley Graham Du Bois; Julian Mayfield and George Padmore. Others who visited the young, independent state of Ghana included Malcom X, Julian Bond and Maya Angelou. Since then, Ghana has become a haven for Africans in the diaspora (Bob-Milliar & Bob-Milliar, 2014).

Ships of Leisure.

The developments in air transport redefined the use of ships. Cargo and container ships are still widely used to transport goods across oceans. The container ship is able to carry tons of goods which the passenger ship of the 19th century could not. What distinguishes modern cruise ships from ships in the previous century is the kind of material used and what fuels and powers the ship. Cruise ships are specifically designed to accommodate passengers as if they were in their homes (Figure 11). Eight different types of cruise ships have been identified; the mainstream cruise ship, the mega cruise ship, the luxury, the small, the adventure, the expedition and the river cruise ship, each built to meet a particular need (Bruns, 2008).



Figure 11. An example of a Cruise Ship.

(https://www.hollandamerica.com/en_US/cruise-ships/ms-oosterdam/6.html
Accessed 14.04.2023).

Air transportation as a major enabler.

The 20th century presented man with the opportunity to travel to distant lands in a shorter period of time. Developments in air travel in the first half of the century forced many passengers on ship lines to choose a different alternative. Air transport has since taken over ships as major vehicles in repatriation on a global scale and especially repatriating the African diaspora back to the homeland.

Since the beginning of the 21st century, several initiatives have been established by Africa to ensure the return of her people from the diaspora. The first of such initiatives was the declaration of the African Diaspora as the sixth region of the continent after North Africa, West Africa, East Africa, Central Africa and Southern Africa by the African Union in 2003. Two years later, the government of Ghana followed by offering special visas for African Americans in the Diaspora. Other countries have also responded by issuing citizenship to members of the diaspora to help them resettle in Africa (Bob-Milliar & Bob-Milliar, 2014).

Araujo (2010) has reported that the first initiatives to preserve West African coasts as tangible heritage sites started in the 1940s. Since then, Africans in the diaspora have found the need to return to these sites as a form of their commitment to their roots (Bob-Milliar & Bob-Milliar, 2014). Recently, the Government of Ghana declared and celebrated 2019 as the Year of Return, commemorating 400 years since the first slave arrived in Jamestown, Virginia (Tetteh, 2022). Initiatives such as these have seen a huge number of people of African descent troop into the country to visit their ancestral home via air travel. According to Ghana's Ministry of Tourism, Arts and Culture, about 1.1 million people arrived in Ghana in 2019 under the Year of Return programme, as compared to 956,372 in 2018 (Tetteh, 2022). Popular celebrities like the actor Idris

Elba, the WWE superstar Kofi Kingston, Steve Harvey and Rick Ross among others have featured in the return to Africa and Ghana in particular.

Of the numerous transport vehicles, air transport has facilitated the return of Africans. During their visit, they contributed immensely to the economies of Africa and the aviation industry. On the part of the host countries, the shores through which slaves were transported from Africa served and continue to serve as tourist sites generating income for the respective governments and other stakeholders. In light of the economy of the aviation industry, air transport has become the major vehicle through which governments have called upon or visited Africans in the diaspora.

Conclusions.

The invention of ships has changed the course of world history. It has been the single most tremendous medium of transportation responsible for transporting millions of Africans into Europe and the New World, creating the African Diaspora. The era of sailing and the cruise period have offered man the opportunity to navigate oceans and seas that were hitherto uncharted. It also ensured that trade relations between and among countries were solidified. Beginning in the fourth century, when ships used rudders that ran on shallow waters, trade was organized on small scale between countries. The fifteenth century became a significant date in the history of shipbuilding as there was an improvement in seafaring and oceanic navigation. The double-ended ship gave way to full-rigged ships. An even greater milestone was achieved in the eighteenth century when steam was invented. This period produced fast-sailing ships that were less costly and it greatly influenced the triangular trade that had begun some two centuries earlier. The eighteenth century alone witnessed the transportation of 7,000,000 African slaves into the New World. The Industrial Revolution, which began in England with the invention of steam, greatly benefitted from this maritime trade, as Africa provided a ready market for the goods produced by Britain's industries. Africa again produced labor for plantations in America, which in turn produced raw materials like cocoa, tobacco and sugar for industries.

The nineteenth century began the period of repatriation of slaves and descendants of former slaves who were taken to the Americas' via the middle passage. The first of such groups were slaves recaptured in transit as British and naval forces from other nations traversed the sea for slavers. Ships used in the period were the Baltimore Clippers and other small vessels. With no equivocation, recaptured slaves would be repatriated on ships. Initially, some of them settled in Sierra Leone and Liberia. The second group were afro-Brazilians who embarked on a voyage across the Atlantic and settled on the shores of Ghana, Nigeria and Benin. Air transport has ushered in the modern repatriation, where groups as well as individuals embark on the journey of returning home as visitors, with some choosing to stay permanently.

Examples of people who returned to the homeland either to visit or for a permanent stay include W. E. B. DuBois, Maya Angelou, Kofi Kingston, Naomi Campbell, Idris Elba, Boris Kodjoe, Michael Jai White and Rita Marley among several

others. Either for a permanent stay, business trips, or historical visits to the homeland, these returnees, among others in contemporary times, have resorted to the use of flights or airplanes among other means to achieve their endeavor.

Funding.

This research received no funding.

Conflicts of interest.

The authors declare no conflict of interest.

References

- Adelman, H., & Barkan, E. (2011). *No return, no refuge: rites and rights in minority repatriation*. New York: Columbia University Press.
- Adi, H. (2018). *Pan Africanism: a history*. London: Bloomsbury Publishing Plc.
- Aje, L. (2014). Africa, the land of our fathers': the emigration of Charlestonians to Liberia in the nineteenth century. In T. Falola & K. Essien (Eds.), *Pan Africanism and the Politics of African Citizenship and Identity*. New York: Routledge.
- Araujo, A. L. (2010). Welcome the diaspora: Slave trade heritage tourism and the public memory of slavery. *Ethnologies*, 32(2), 145–178. <https://doi.org/10.7202/1006308ar>
- Bailey, A. E. (2005). *African voices of the Atlantic slave trade: Beyond the silence and the shame*. Boston: Beacon Press.
- Bailey, R. (1990). The slave trade and the development of capitalism in the United States: the textiles industry in New England. *Social Science History*, 14(3), 373–414. <https://doi.org/10.2307/1171357>
- Barbour, V. (1930). Dutch and English merchant shipping in the seventeenth century. *The Economic History Review*, 2(2), 261–290. <https://www.jstor.org/stable/2599909>
- Bedasse, M. A. (2017). *Jah Kingdom, Rastafarianism, Tanzania and Pan Africanism in the Age of Decolonization*. Chapel Hill: University of North Carolina Press.
- Bob-Milliar, G. M., & Bob-Milliar, G. K. (2014). Mobilizing the African diaspora for development: The politics of dual citizenship in Ghana. In T. Falola, & K. Essien (Eds.), *Pan Africanism and the Politics of African Citizenship and Identity*. New York: Routledge.
- Borucki, A. (2020). The U. S. slave ship ascension in the Rio de la Plata: Slave routes and circuits of silver in the late eighteenth-century Atlantic and beyond. *Colonial Latin American Review*, 29(4), 630–657. <https://doi.org/10.1080/10609164.2020.1831314>
- Brinley, T. (1993). *The industrial revolution and the Atlantic economy: selected essays*. London: Routledge. <https://doi.org/10.4324/9780203161210>

- Bruns, B. D. (2008). *Cruise confidential: a hit below the waterline*. California: Palo Alto.
- Burningham, N., & de Jong, A. (1997). The Duyfken project: an age of discovery ship reconstruction as experimental archaeology. *International Journal of Nautical Archaeology*, 26(4), 277–292. <https://doi.org/10.1006/ijna.1997.0090>
- Carpenter, R., Kalla-Bishop, P., Munson, K., & Wyatt, R. (1974). *Powered vehicles: a historical review*. New York: Crown Publishers.
- Carrel, T. L., & Keith D. H. Replicating a ship of discovery: Santa Clara, *International Journal of Nautical Archaeology*, 21(4), 281–294. <https://doi.org/10.1111/j.1095-9270.1992.tb00376.x>
- Casson, L. (1994). *Ships and seafaring in ancient times*. Austin: University of Texas Press.
- Castro, F. (2003). The Pepper Wreck: an early 17th century Portuguese Indianan at the mouth of the Tagus River Portugal. *Journal of Nautical Archaeology*, 32(1), 6–23. <https://doi.org/10.1111/j.1095-9270.2003.tb01428.x>
- Chapman, J. L. (2018). *African and afro-caribbean repatriation, 1919–1922*. Lincoln: University of Lincoln Press.
- Chatterton, E. K. (1934). *The old east Indiamen*. London: T. Werner Lavrie Ltd.
- Curtin, P. D., & Vasina, J. (1964). Sources of the nineteenth century Atlantic slave trade. *Journal of African History*, 5(2), 185–208. <https://doi.org/10.1017/S0021853700004801>
- Curtin, P. D. (1969). *The Atlantic slave trade: a census*. Madison: University of Wisconsin Press.
- Curtin, P. D. (1984). *Cross cultural studies in world history*. Cambridge: Cambridge University Press.
- Curtin, P. D. (1989). *Death by migration: Europe encounter with the tropical world in the nineteenth century*. Cambridge: Cambridge University Press.
- Davies, E. A. J. (2021) ‘Ships’. Retrieved from <https://www.britannica.com/technology/ship/Early-oceanic-navigation>
- Davies, D. W. (1961). *A primer of Dutch seventeenth century overseas trade*. The Hague: Springer.
- Eltis, D., & Richardson D. (Eds.). (2008). *Extending the frontiers: essay on the new Atlantic slave trade database*. New Haven: Yale University Press. <https://doi.org/10.12987/yale/9780300134360.001.0001>
- Eltis, D. (2000). *The rise of African slavery in the Americas*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511583667>
- Eltis, D. (2008). The US transatlantic slave trade, 1644–1867: an assessment. *Civil War History*, 54(4), 347–378. <https://doi.org/10.1353/cwh.0.0033>
- Eltis, D., Lewis F. D., & Sokoloff, K. L. (2004). *Slavery in the development of the Americas*. Cambridge: Cambridge University Press.
- Enoh, R. A. A. (2014). The global implication of pan Africanism and the establishment of ‘new communities’ in Africa: the case of victoria in southwest Cameroon. In

- T. Falola & K. Essien. *Pan Africanism and the Politics of African Citizenship and Identity* New York: Routledge.
- Eriksson, N. & Ronnby, J. (2012). The ghost ship: an intact fluyt from c.1650 in the middle of the Baltic Sea. *International Journal of Nautical Archaeology*, 41(2), 350–361. <https://doi.org/10.1111/j.1095-9270.2012.00342.x>
- Eriksson, N. (2012). The lion wreck: a survey of a seventeenth century Dutch merchant ship: an interim report. *International Journal of Nautical Archaeology*, 41(1), 17–25. <https://doi.org/10.1111/j.1095-9270.2011.00319.x>
- Essien, K. (2010). *Africa diaspora in reverse: the tabom people in Ghana, 1820s–2009*. (PhD. dissertation). University of Texas, Austin.
- Eyerman, R. (2002). *Cultural trauma: slavery and the formation of African American identity*. Cambridge: Cambridge University Press. <https://doi.org/10.1525/california/9780520235946.003.0003>
- Falola, T., & Childs, M. D. (Eds.). (2004). *The Yoruba diaspora in the Atlantic world*. Bloomington: University of Indiana Press.
- Falola, T. & Essien, K. (Eds.). (2014). *Pan Africanism and the Politics of African Citizenship and Identity*. New York: Routledge. <https://doi.org/10.4324/9780203725030>
- Falola, T. & Warnock, A. (Eds.). (2008). *Encyclopedia of the Middle Passage*. Westport: Greenwood Press.
- Farr, J. R. (2003). *Industrial Revolution in Europe, 1750–1914*. Detroit: A Manly Inc. Books.
- Fett, S. M. (2017). *Recaptured Africans: surviving slave ships, detention and dislocation in the final years of the slave trade*. Chapel Hill: University of North Carolina Press. https://doi.org/10.1162/JINH_r_01182
- Garland, C, & Klein, H. S. (1985). The allotment of space for African slaves aboard eighteenth century British slave ships. *William & Mary Quarterly*, 42(2), 238–248. <https://doi.org/10.2307/1920430>
- Green, T. (2012). *The rise of the trans-Atlantic slave trade in western Africa, 1300–1589*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9781139016407>
- Greene, L. J. (1944). Mutiny on Slave Ships. *Phylon*, 5(4), 346–354.
- Holmes, G. C. V. (1906). *Ancient and modern ships: wooden sailing ships*. London: Wyman & Sons.
- Holsey, B. (2008). *Routes of remembrance: refashioning the slave trade in Ghana*. Chicago: University of Chicago Press.
- Inikori, J. E. (2002). *Africans and the industrial revolution in England: a study in the international trade and economic development*. Cambridge: University of Cambridge Press.
- Klein, H. S., & Engerman, S. L. (1976). Slave Mortality on British Ships, 1791–1797. In R. Anstey & P. E. H. Hair (Eds.). *Liverpool: The African slave trade and*

- abolition*, 2, 113–125. Retrieved from <https://www.hslc.org.uk/wp-content/uploads/2017/10/7-Klein-Engerman.pdf>
- Lovejoy, P. E., & Falola, T. (Eds.). (2003). *Pawnship, slavery and colonialism in Africa*. Trenton: Africa World Press Inc.
- Marques, L. (2015). The contraband slave trade to Brazil and the dynamics of US participation 1831–1856. *Journal of Latin American Studies*, 47(4), 659–684. <https://doi.org/10.1017/S0022216X15000929>
- Marshall, P. J. (2005). *The making and unmaking of empire: Britain, India and America, 1750–1783*. Oxford: Oxford University Press.
- Matsumoto, M. (2006). *Technology gatekeepers for war and peace: the British ship revolution and Japanese industrialization*. Hampshire: Palgrave Macmillan. <https://doi.org/10.1080/00033790701393966>
- Parthesius, R. (2010). *Dutch ships in tropical waters: the development of the Dutch east India company (VOC) shipping network in Asia, 1595–1660*. Amsterdam: Amsterdam University Press.
- Pastor, X. (2005). *The ships of Christopher Columbus: Santa Maria, Nina and Pinta (anatomy of the ship)* (2nd ed.). London: Conway Maritime Press.
- Perbi, A. A. (2004). *Slavery in Ghana: a history of indigenous slavery in Ghana, from the 15th to the 19th century*. Accra: Sub-Saharan Publishers.
- Poe, D. Z. (2003). *Kwame Nkrumah's contribution to pan Africanism: an afrocentric analysis*. New York: Routledge. <https://doi.org/10.4324/9780203505373>
- Rediker, M. (2007). *The slave ship: a human history*. New York: Viking/Penguin. <https://doi.org/10.1086/ahr.113.4.1119>
- Scherer, F. M. (1965). Invention and innovation in the watt-boulton steam-engine venture. *Technology and Culture*, 6(2), 165–187. <https://doi.org/10.2307/3101072>
- Schweitzer, H. (2013). *The Drogheda boat and clinker boats of the renaissance on Europe's western seaboard*. (PhD. dissertation). University of Southern Denmark, Odense.
- Smallwood, S. E. (2007). African guardians, European slave ships, and the changing dynamics of power in the early modern Atlantic. *William and Mary Quarterly*, 64(4), 679–716. <https://doi.org/10.2307/25096747>
- Stein, R. (1980). Mortality in the eighteenth-century French slave trade, *Journal of African History*, 21(1), 35–41. <https://doi.org/10.1017/S0021853700017849>
- Tetteh, B. (2022). Beyond the year of return: Africa and the diaspora must forge closer ties. Retrieved from <https://www.un.org/africarenewal/magazine/september-2020/beyond-year-return-africa-and-diaspora-must-forge-closer-ties>.
- Thornton, J. (1992). *Africa and Africans in the making of the Atlantic world, 1400–1680*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511800276>
- Tripathi, S., & Godfrey, I. (2007). Studies on elephant tusks and hippopotamus teeth collected from the early 17th century Portuguese shipwreck off Goa, west coast of

- India: evidence of maritime trade between Goa, Portugal and African Countries. *Current Science*, 92(3), 332–339. Retrieved from <https://www.currentscience.ac.in/Volumes/92/03/0332.pdf>
- Vogt, J. L. (1973). The Lisbon slave house and African trade, 1486–1521. *American Philosophical Society*, 117(1), 1–16. Retrieved from <https://www.jstor.org/stable/985944>
- Watkins, J. E. (2006). *Sacred sites and repatriation*. USA: Chelsea House Publishers.
- Wilks, I. (1982). Wangara, Akan and Portuguese in the fifteenth and sixteenth centuries. ii. the struggle for trade. *Journal of African History*, 23(4), 463–472. <https://doi.org/10.1017/S0021853700021307>
- Worth, R. (2009). *Vasco Da Gama*. New York: Chelsea House Publishers.

Самуїл Аду-Гямфі

Університет науки і технологій імені Кваме Нкруми, Гана

Гелена Осей-Егир

Університет науки і технологій імені Кваме Нкруми, Гана

Бенджамін Домпрех Дарква

Університет Альберти, Канада

Корабельна техніка, рабство, репатріація та повітряний транспорт: безперервність і зміни

Анотація. Трансатлантична работоргівля, що відбувалася від XV до XIX століть, перемістила африканців та людей африканського походження в Новий Світ. Торговля вплинула на різні аспекти світової економіки, збагачуючи економіку країн-учасниць та створюючи те, що згодом стане африканською діаспорою. Хоча деякі аспекти работоргівлі набули визнання в наукових дослідженнях, кораблі, як найважливіший засіб транспорту для африканських рабів, отримали мало уваги. Ми вносимо свій внесок у дискусію, поставивши кораблі в центр дослідження, виділивши значення та важливість цього засобу перевезення людей і вантажу як засобу рабства. Ми також звернули увагу на повітряний транспорт у епоху добровільної репатріації людей африканського походження назад до Африки для туризму, бізнесу та віддання шани батьківщині. Ми досягли цих цілей за допомогою письмових джерел, таких як книги, наукові статті, а також веб-сайти та бази даних, що стосуються історії науки, технології та рабства, серед іншого. Дослідження підкреслює, серед іншого, наступне: винайдення кораблів змінило хід світової історії. Це був єдиний найпотужніший транспортний засіб, відповідальний за транспортування мільйонів африканців до Європи та Нового Світу, створюючи африканську діаспору. Епоха вітрильного спорту та круїзний період дали людині

можливість плавати в океанах і морях, які досі були незвіданими. Це також забезпечило зміцнення торгових відносин між країнами. Починаючи з XIV століття, коли кораблі використовували керма, які рухалися по мілководдю, торгівля між країнами була організована в дуже невеликих масштабах. П'ятнадцяте століття стало знаменною датою в історії суднобудування, оскільки відбулося вдосконалення морського плавання та океанської навігації. Корабель з подвійним торцем поступився місцем судам з повним оснащенням. Ще більша віха була досягнута у вісімнадцятому столітті, коли була винайдена пара. У цей період виготовляли швидкохідні вітрильні кораблі, які були менш дорогими, і це значно вплинуло на трикутну торгівлю, яка почалася приблизно два століття до цього.

Ключові слова: кораблі; повітряний транспорт; репатріація; работоргівля; африканська діаспора

Received 21.02.2023

Received in revised form 14.04.2023

Accepted 19.05.2023