

## INDIA'S MARITIME HERITAGE

As a peninsular sub continent, with over 10000 km coast line, nature ordained India to be a Maritime Nation from post ice age about 10000 B.C. There is cogent evidence that Indian ships dominated the vast ocean around our peninsula from over 4000 years B.C till 17<sup>th</sup> Century A.D. This was reason enough for the ocean around it to be known as Indian Ocean, the only ocean in the world named after a country.

Discovered as a mound in 1954 A.D, the Lothal site was extensively excavated by the Archaeological Survey of India from 1955 to 1961. Their findings consist of the township of Lothal and its market place. Lothal was one of the most prominent cities of the ancient Indus valley civilization. The techniques and tools pioneered in Lothal, in metallurgy, for making beads, and cutting gems to make valuable ornaments, have stood the test of time for over 4000 years.

Archeologists also found a burnt brick basin built during the Indus Valley Civilization in about 2400 B.C, which is the earliest known dock found in the world, equipped to berth and service ships. It connected the city to an ancient course of the Sabarmati river on the trade route between Harappan cities in Sindh plus the peninsula of Saurashtra, when the surrounding Kutch desert of today, was part of the Arabian Sea. The dock was located away from the main current to avoid deposition of silt. Archeologists also unearthed trenches sunk on the northern, eastern and western flanks of the mound, bringing to light the inlet channels connecting the dock with the river. Modern oceanographers have observed that the Harappans possessed great knowledge relating to tides, hydrography and maritime engineering in order to build such a dock on the ever-shifting course of the Sabarmati. Their engineers built a trapezoidal structure, with north-south arms of average 21.8 meters, and east-west arms of 37 meters. Original height of embankments was 4.26 meters. Main inlet is 12.8 meters wide, and another is provided on the opposite side. To counter the thrust of water, offsets were provided on the outer wall faces.

When the river changed its course in about 2000 B.C. a smaller inlet, 7 meters wide, was made in the longer arm, connected to the river by a 2 kilometer channel. At high tide a flow of 2.1–2.4 meters of water would have allowed ships to enter. As the Gulf of Khumbhat has the highest tidal amplitude, ships could be sluiced through flow tides in the river estuary. Provision was made for escape of excess water through the outlet channel, 96.5 meters wide and 1.7 meters high in the southern arm. A wooden door could be lowered at the mouth of the outlet to retain a minimum column of water in the basin, to ensure floatation of ships at low tides. Size of country craft that still sail the Arabian Sea and Bay of Bengal today, could be regularly docked at Lothal. Since walls of this dock are of kiln-burnt bricks, Lothal engineers studied tidal movements, and their effects on brick-built structures. Considering that the princess dock in Bombay, which was completed in July 1735 A.D, used more or less the same technology as Lothal and is still in use today, it means over 4400 years between Lothal and this Dock which offers tangible evidence of Indian Maritime skills. Attached is a recreated picture of this dock and the area around it.

Attached also, is picture of a sketch of stern of a wrecked ship made of Kerala teak, found in this dock at Lothal in 1961. Indus Valley Civilization did not know Iron. Therefore Indian Ships were usually made of Kerala Teak, stitched together with coir yarn usually dipped in fish oil. Some were square rigged on two masts with raked stem and stern. It should be noted that these crafts did not have a rudder as we know it. They were steered with two large oars one on each quarter. Advantage was that the ship could be steered even when totally becalmed and NOT making any way through the water. There are also numerous allusions in the Rig Veda, about 'Sataritara' or galley with hundred oars. It describes several commercial sea voyages and uses 'Samudra' in classical Sanskrit for 'Oceans'.

It has also been established that the ancient city of Dwarka, now submerged in the sea, was the gateway of Indian ships to the west from about 1500 to 1000 BC to trade with Syria and Cyprus. Archeological research

on the submerged Dwarka has found incontrovertible evidence of iron implements' sea anchors in triangular and rectangular shapes and rock drilled posts to tie ocean going ships. Excavations in Uttar Pradesh have found artifacts, furnaces and slag in layers of radiocarbon, dated 1,800-1,000.B.C. Therefore Use of Iron has now been established in India from about 1800 B.C. But it has not yet been established how these shipwrights were able to drill so many holes in such a hard wood as Teak, with such precision to tie the planks together and make them watertight, as early as 2400 B.C.

Ships from Lothal, traded to China in the Far East and to both coasts of Africa. Trade up to Babylon and Mediterranean areas was carried out over the sea and land route through the Red Sea and Persian Gulf in the west. Lothal's scientists used a shell compass and divided the horizon and sky into 8–12 whole parts, 2000 years before the Greeks.

Ancient Indians knew eastern shores of the Indian Ocean well, including Burma Thailand, Cambodia, Indo China and Malaysia, as "Suvarnabhumi," land of Gold, and the Indonesian Islands as "Suvarna-dvipa," the Islands of Gold. Hence Indian colonization of this region, through ancient ports such as Tamaralipti, Mahabalipuram (Tamluk) Palura near Gopalpur on the Eastern seaboard, and Broach, Debal and Orhet on the western shore. This way Southeast Asian countries became a part of the Indian ethos and readily and comprehensively embraced Hinduism and Buddhism. This was mainly because colonization was not achieved by Indians through military expeditions but through peaceful means including shipping and trade, which proved more permanent.

Rulers along the coasts of the Indian ocean, usually used peaceful means to help their port cities prosper. They provided facilities, opportunities, infrastructure and fair treatment to visiting merchants for trade. Evidence that this continued for centuries is sculpted at Angkor Wat in Vietnam, Borobuddur and the Param Brahman Temple in Java Indonesia. More such sculptures of 7<sup>th</sup>/8<sup>th</sup> Centuries A.D, can be seen at Mahabalipuram. Regular sea trade in Ivory, Lapiz Lazuly, gold, pearls, shell and bone inlay, also flourished between India and Mesopotamia in about 2350 B.C. There is Archeological evidence of the use of Indigo on the clothes of Egyptian Mummies.

Homer mentions Indian Ivory and several other Indian articles including Indigo, being regularly traded between India and Greece in 8<sup>th</sup> /9<sup>th</sup> Centuries B.C. Homer knew tin only by its Sanskrit name. Indian Cedar was found used in the Palace of Nebuchandzzar 604 – 560 B. C. Two rough logs of Indian teak were found in the temple of the Moon God in Ur, 550/538 B.C. Most valuable Indian export was silk, exchanged against gold during the Persian Empire. Greeks used to wear Silken robes for prestige and luxury. These were known as Tyrian Robes. All this shows continuity of Indian sea trade and relations with the west. Pharoah Nechos of Egypt built a canal in about 650 B.C. through Wadi Tumelat area. It was a navigable canal and connected the Mediterranean with the Red Sea, through the Nile River and Bitter lakes. This changed the pattern of Indian trade from the original sea and land route to the Mediterranean cities into a direct sea route, because Indian ships could now sail into the Mediterranean from the red sea, through this canal. Romans extended this canal and renamed it Trajans canal. It was deliberately filled by Abbasid Caliphs in 775 A.D for political reasons.

Arthasastra of Kautilya and writings of Meghasthenes of Greece evidence that during Mauryan rule, from 321 B.C, a Navadhyaksha, (Superintendent of Shipping) looked after shipping administration. State encouraged shipwrights to build ships and granted them tax relief. Emperor Ashoka (265-238 BC), had direct contact by ship via the then existing ship canal through Egypt, with Ptolemy who founded Alexandria. Plini the elder wrote in 69-70 A.D, that as many as 125 Indian Ships usually lay in the ports of Egypt, Cyria and Rome, supplying Indian products to the Ptolemies and adds “there was no year in which Indians did not drain Roman empire of 100 Million Sesterces.

Ashoka also sent Prince Mahendra to Sri Lanka, by ship, to spread Buddhism. A Sanskrit source "Yukti Kalpataru" classifies and describes ships of various sizes and types of that era. Periplus of the Erythraean sea, a mariners guide book of first century A.D. by a Greco–Egyptian Author names many Ports on the west coast of India. Fahien returned to China via Java on an Indian Ship in about 399 – 415 AD. Marcopolo 1254 – 1324

A.D, speaks of Aden as a regular port of call for Indian Ships and says that Indian ship were built to last 100 years and some ships were so large so as to require 150/200/300 crew.

When Chinese Admiral Cheng Ho came to India, in the closing years of 14<sup>th</sup> century AD, he discovered that the ships of his fleet were mere midgets when compared to Indian ships which sailed the Indian Ocean like giants. In an account of a voyage Friar Odoric, an Italian Monk made across the Indian Ocean in the 14<sup>th</sup> Century, he mentions Indian ships which could carry 700 people. Both Marco Polo and Nicolo Conti, have left records of trades by Indian ships in 13<sup>th</sup> and 15<sup>th</sup> centuries. That Columbus set out to find a sea route to India, but made a land fall in the Bahamas in 1498, and called its indigenous inhabitants “Indians” evidences the importance of India and its stronghold of shipping. As late as the sixteenth Century, even the flag ship of Sir Francis Drake the British navigator and buccaneer, was named the Golden Hind!?

Ayeen-a-Akbari records that Shipping under Emperor Akbar, (1556-1605), was administered equally as well as under the Mauryas, 1900 years earlier.

As many as 40000 Indian ships are recorded and known to have been plying in and around the Indian Ocean during Emperor Akbar’s time.

## THE BRITISH PERIOD

Ships displacing 800 to 1000 tons, built of teak at Daman, were superior to their British counterparts both in design and durability. This so agitated British shipbuilders on the River Thames that they protested against the use of Indian-built ships to carry trade from England. The famous British Act of navigation of 1651, stipulated "no goods whatever of the growth, produce or manufacture of Asia Africa or America should be imported into England or Ireland or any of the plantations, except directly in ships belonging to English subjects, of which the Master and the greater number of the crew were Englishmen." In 1811, Fort William in Bengal imposed double import duty on goods carried by non British built ships. Fort St. George in Madras and Fort St. David in Bombay followed suit in 1812 & 1813 respectively.

East India Company recorded that the Bhavanagar built Indian ship ‘Daria Daulat’ was sound even after 87 years of active service. This evidences superiority of Indian ships. The Lowjee Wadia family alone built 355 ships for East India Company over 150 years, first in Surat then in Mumbai. Between 1781 and 1821, ships built on The Hooghly river alone, aggregated to 122713 Tons. Shipyards in Beypore, near Calicut, even built warships for Royal Navy. One such ship of the line was part of Nelson’s fleet at Trafalgar on Oct. 2, 1805. American National Anthem 'The Star Spangled Banner,' was composed by Francis Key when he was on a visit to Baltimore, and was sitting on the decks of the ship MINDEN, built in Bombay,

By Order of the Governor-General in Council, Fort William, Revenue Department, published the following on January 14, 1789.

“Notice is hereby given that all persons whosoever (the Magistrates of the Districts excepted) are prohibited from making use of , or constructing boats of following denominations and dimensions after 1st March next” :

“Luekhas 40 to 90 covids length 2 to 4 covids breadth  
Jelkias 30 to 70 covids length 3 to 5 covids breadth.  
Paunchways of Chandpore carrying more than 10 oars”.

“That the Magistrates of Jessore, Dacca, Jahalpore, Mymensingh, Chittagong, the 24 parganas, Higelee, Tumlook, Burdwan and Nuddea have been directed to seize and confiscate all boats of the above descriptions which may be found within the limits of their respective jurisdiction after the period above mentioned”. “That any Zamindar allowing any boats of the foregoing descriptions to be built or repaired within the limits of his Zamindary (unless by a written order of the Magistrate of the District) shall forfeit to Government the village in which such boats shall be proved to have been so built or repaired”.

“That any carpenter, blacksmith or other artificer engaging for or employed in the building or repairing of boats of the descriptions above specified (unless by the express permission of the Magistrate of the District) shall be committed to close imprisonment in the 'foujdari' jail for any period not above one month, or suffer corporal punishment not exceeding 20 strokes with a rattan”. Consequently and more active measures were adopted to cripple the Indian industry. Nevertheless, many Indian ships were inducted into the Royal Navy, such as HMS *Hindustan* in 1795, HMS *Cornwallis* (a frigate) in 1800, HMS *Camel* in 1806 and HMS *Ceylon* in 1808. HMS *Asia* carried the flag of Admiral Codrington at the Battle of Navarino in 1827 - the last major sea battle to be fought entirely under sail.

Here are the words of Lord Macaulay in his address to the British Parliament on Feb 2 1835. “I have traveled across the length and breadth of India and I have not seen one person who is a beggar, who is a thief”.

“Such wealth I have seen in this country, such high moral values, people of such caliber, that I do not think we would ever conquer this country, unless we break the very backbone of this nation, which is her spiritual and cultural heritage. And therefore I propose that we replace her old and **ancient education system**, her culture. For if the Indians think that all that is foreign and English is good and greater than their own, they will lose their self esteem their native culture and they will become what we want them, a truly dominated nation.”

The British followed the words of Lord Macaulay, to the letter and succeeded in doing India untold damage over the next 112 years.

The Treaty of Nanking, ceding Hong Kong to the British, was signed on board the Indian Built ship, HMS *Cornwallis* in 1842, Numerous other ships were also constructed, the most famous being HMS *Trincomalee*, which was launched on 19 October 1817, carrying 46 guns and displacing 1065 tons. This ship was later renamed Foudroyant, and is reputed to be the oldest ship afloat in the world today.

Even so, this deliberate destruction of Indian shipping forms a sordid chapter in the history of British rule in India. Our rulers alleged that our shipping declined because we were averse, slow or unable to adapt to power based shipbuilding techniques after Industrial revolution. But our people never lost their appetite for shipping and adventure. Robert Fulton of USA inaugurated the world's first regular scheduled power driven ship in 1807. Within 12 years, a steam propelled pleasure boat was built for the Nawab of Oudh to sail on the Gomati River in 1819. By 1823, regular steam boat passenger service operated on the Hooghly River with S.S. Diana, built by Kyd & Co in Calcutta. Historically 102 Indian shipping Companies registered in India between 1860 & 1925, at an estimated investment of over 40 Crores, were forced into liquidation by the British, one by one. Against 34,286 Indian ships which entered and cleared our ports in 1857 with 1,219,958 tons, only 1676 ships did so with 109,813 tons, in 1900. Mahatma Gandhi described it thus, "Indian Shipping had to perish so that British Shipping might flourish."

By 1947, Indian Tonnage was only 192000 tons with a few Indian captains and a hand full of Indian officers and engineers. Against every Indian ship in any Indian Port, there could be seen, numerous British Flag ships. Built in UK and staffed mostly by British officers. Once brought to India, these ships never left Indian shores till scrapped.

## MILESTONES OF MODERN INDIAN SHIPPING DEVELOPMENT: 1891 - 2006

- 1891: Darmanathan Purushanthi, started Purushanthi Steam Nav. Co. in Puducherry, under a French Govt. permit, for two ships to ply through the Mekong River from Phnom Penh in Cambodia to Hatien in S. Vietnam. It closed down in 1900 under French pressure. The French also prevented him to ply his ships from Saigon to Bangkok.
- 1894: J.N.Tata started Tata Line from Bombay to China and Japan. P & O forced it to close down.
- 1905: Jayotindra Nath Tagore, brother of Poet Tagore, started Bengal Steamship Company. B.I. Steam Navigation Co. carried free passengers and even gave each passenger a silk handkerchief as a gift, to bankrupt Tagore's Company within three years.
- 1906: V.O.Chidambaram Pillai started Swadeshi Shipping Co. in Tuticorin.
- 1919: March 27, Scindia Steam Navigation Company was founded by Narottam Morarjee and Walchand Hirachand. On April 5, The Scindia owned, S.S. Loyalty, a 5934 GRT, passenger ship, purchased from Maharaja Madhav Rao of Gwalior, sailed for U.K. Because this heralded the birth of modern Indian Shipping, April 5 is observed as National Maritime day.
- 1921: Scindia started training Indian Officers and Engineers on their ships.
- 1923: Lord Inchcape, Chairman of P & O offered to buy Scindia to get rid of Indian competition, on very lucrative terms. Scindia, turned it down and continued to operate. The Government restricted its tonnage to 70,000 tons.
- 1927: Training ship Dufferin was established. **An Englishman stated in the Viceroy's council that Indian can never make good officers much less Captains.**
- 1930: Indian National Steamship Owners' Association (INSOA) was established.
- 1935: Dufferin started training Marine Engineers.
- 1938: Dec. 23. Vallabh Bhai Patel declared open Scindia House and said, "On each brick and stone of this building will be written the future history of Indian Shipping."
- 1939: Indian tonnage was only about 125,000 GRT.
- 1939: December 13, Maritime Union of India was formed.
- 1940: Scindias established Cadet Ships IRRAWADI and BAHADURI to train deck and engineer officers.
- 1941: June 21, Dr. Rajendra Prasad laid the Foundation Stone of First Modern Indian Shipyard at Vizagapattam.
- 1945: 8 Indian Ships were lost during World War II. Thus Indian owned tonnage was further grossly depleted.
- 1946: India Steam Ship Company was founded.

- 1948: Scindia resumed passenger service to UK, with Jalazad and Jaljawahar, and became associate members of Karmahom Conference.
1948. March 14. First Indian built cargo Ship 'JALASHA' was launched by Jawaharlal Nehru. Gt. Eastern Shipping Co., National Steamship Co. and South East Asia Shipping Co. were founded. Nautical & Engineering College started in Azad Maidan Bombay.
- 1950: March 24, Eastern Shipping Corp. was established with 74% State owned and 26% shares owned by Scindia, who were also appointed Managing agents.
1950. Passenger service between Madras and Singapore was started with 'Jalagopal' & 'Jaladurga' later replaced by State Of Madras.
- 1951: Indian Coastal Conference was established.
- 1952: March 1, Scindia Shipyard became Hindustan Shipyard Limited in Public Sector. In September, Coastal shipping was reserved for Indian ships.
- 1954: Eastern Shipping Corporation started passenger cum cargo service to East Africa with S.S 'State Of Bombay'
- 1956: August 15, Eastern Shipping Corp became fully Govt. owned. Scindia ceased as its managing agents. Western Shipping Corp was incorporated.
- 1957: August 23, Company of Master Mariners of India was incorporated.
- 1958: National Union of Seafarers was registered
- 1961: Indian Shipping crossed one million GRT. On Gandhi Jayanti day Oct. 2. Eastern & Western Shipping Corporations were merged into Shipping Corporation of India. 1975: Indian Register of Shipping was established.
- 1987: Three year degree course was started in training ship Rajendra, to educate and train Indian officers, in keeping with changing times, automation and IT revolution.

2006: January. 59 years after Independence, India had 8.32 million GRT of own shipping. About 32,000 Masters, Officers and Engineers, sail on world's Merchant Ships earning about USD 384 million yearly for our country. Some of the largest ships in the world are commanded by Indians. "Jahre Viking," the largest of them all has been commanded by Capt. Ramdas Menon. Largest Bulk Carrier afloat, "Berg Stahl," is commanded by two Indian captains in turn as one goes on leave and the other returns. This contrasts with what that Englishman said in 1927 **in the Viceroy's council that Indian cannot make good officers much less Captains.**

Our MAJOR Ports alone handled 344,547,000M.T of cargo in 2003, whereas, thanks to our British rulers, **ALL Indian ports handled only 109813 tons in 1900.** This means a progress of 3137.579 times in 103 years. Current status of Indian Shipping on December 31, 2006, is that the country had 774 ships of 8.4 million GT or 14.2 million DWT.

But we still own only less than 1.2% of world shipping and rank 17 in terms of GRT and 15 in terms of DWT. Average age of the Indian fleet is about 18 years. Over 40% of the ships are over 20 years old. Cost of just to replace them by 2009 will be over \$2 billion. As against this, only 1.1 million GT was on order as on 01.04.06.

Overall share of Indian shipping in the country's overseas sea-borne trade has declined from 40% in the late 80s, to only 13.7% in 2004-05, mainly due to increase in our sea borne trade, as Indian shipping has not been able to keep pace. Indian ships carried only 54.88 million tones of the country's overseas trade out of 400.58 million tones in 2004-05, as follows:-

General cargo: 7.56 million tones (8%);

Dry bulk cargo: 7.82 million tones (5%);

POL & products: 39.5 million tones (26.6%).

Unfortunately, Indian and foreign owners increasingly opt to own vessels outside India. They pay virtually zero tax, but at the same time access India's booming International cargo trade through non Indian ships.

India's economy has grown an average 8.1% in the past three years.

The EXIM trade of India is expected to maintain a yearly growth of 20% to about 1 billion tonnes by 2009-10. Therefore even to maintain its share of 13.7% in our EXIM trade by 2009-10, tonnage required will be approximately 20 million GT.

But during this period 3.8 million GT will be scrapped being above 20 years of age. This means that net addition to the 8.4 million GT of 2004-05, will have to be 15.8 million GT at a cost of about \$20 billion. Furthermore, most Indian owned ships are single-hull. For expansion and replacement under IMO's phase-out program, \$4 billion more will be needed by 2009.

Over and above new acquisitions and replacements of 375 ships of 3.79 million GRT, Indian shipping would require an addition of 5.4 million GT at an estimated cost of Rs.35,000 crore, to achieve 10 million GRT. To target 15 million GRT, we will need to add 609 ships of 9.16 million GRT at a cost of Rs.80,000 crore.

Manning of ships with trained, capable and certified seafarers, is another challenge. It takes minimum ten years to train a competent Nautical or Engineer. By 2015, shortage of officers is likely to treble at 27,000 from 10,000 now. Number of seafarers is expected to rise to 167,000 from 135,000 today.

Therefore the 11<sup>th</sup> Five Year Plan (2007-012) MUST take ALL this into consideration, to be effective and to keep pace. Time is NOW, to augment training and education facilities to meet this requirement.

India's Maritime Heritage was not written by any one man. It has been written in the blood and sweat of our Ancestors & Forefathers. The present generation is responsible to send it down to posterity so that generations to come are not ashamed of what was done or not done in the 21st century.

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