

Articulating Prehistoric Landmarks in Transport: An Indian Disclosure

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Abstract: Mobility is fundamental to economic and social activities. Transportation's unique purpose is to overcome space, shaped by human and physical constraints such as distance, time, administrative divisions, and topography. Transport represents one of the most important human activities worldwide since time immemorial. Transport occupies a very important place in an economy; it connects village with village and town with town. Transport modes have played numerous dissimilar historical roles in the growth of civilizations. It shapes social interactions by favouring or inhibiting the mobility of people. Transportation shapes social interactions by favouring or inhibiting the mobility of people and plays a crucial role even in shaping social structures. In pre-historic India, it plays a major role in spatial relations between localities and creates treasured links between regions and economic activities, between people and the rest of the world.

Keywords: Prehistory, Transportation, Roads, Romans, Civilizations

Introduction

Pre-historic, wheeled transport, shipbuilding

The historical evolution of transportation is very intricate. It is related to the spatial evolution of economic systems. The growth of transportation systems has significantly enhanced the welfare and modernization of society. As movement from place to place developed, several means of transport were developed.

Means of transportation may be categorized into three parts: land transport, water transport, and air transport. The road has been with us as long as there has been a human being started to live. Man, when he first went in search of food and water, established a path to be followed by recurrent waves of civilizations from the dim past, stumbling and halting at times. Paths established by primitive man and by animals whose instincts led them to choose the easiest gradients and to cross mountains by the likeliest passes. The use of the two-wheeled carts, such as have been found in city ruins, was widespread is proven by the fact that a model cart from Mehrgarh in the Mashkai Valley shows that the hill men used wheeled vehicles alike to those used in Mohenjo-daro. Wooden vehicles dragged by animals have been used for land transportation since the early Bronze Age. The two-wheeled horse-drawn chariot provided humanity with its first concept of personal transport. This was the

key technology of war for 2000 years. The expansion of this vehicle combined the seeds of a primitive design activity and was important for engineering.

Road transportation and its infrastructure are large consumers of space with the lowest level of physical constraints among transportation types. However, physiographical constraints are noteworthy in road construction, with substantial additional costs to overcome features such as rivers or rugged terrain. While historically, road transportation was developed to support non-motorized forms of transportation like walking, domestication of animals and cycling at the end of the nineteenth century.ⁱ In the beginning no forms of motorized transportation existed and transport technology was mainly limited to harnessing animal labor for land transport. Before the development of wheeled carts, the transport of raw materials for stone and metal tools, construction materials such as mud brick and timber, and regionally abundant food items would have been accomplished principally by human porters or possibly in some cases by domestic animals. Likewise, humans depended on wind for maritime transport.

The active history of transport began with the discovery of wheels. In fact, it revolutionized human history. Origin of wheel was started in Neolithic period in prehistoric times; since then, man has made a lot of upgrading in this technology from time to time. The invention of the wheel is well-known for its revolutionary impact. When the Neolithic revolution took place and humans began to cultivate the soil and domesticate animals, they began, unknowingly, to change and, step by step, travel many parts of the natural environment in which they lived.ⁱⁱ

Pathways existed in most primitive societies. But the movement of man at this time was very much restricted with the introduction of agriculture, animal husbandry, etc. Later, the need for barter and mobility led to the necessity of maintaining fixed pathways. It gradually led to the development of wider roads.

International trade did exist even from the beginning of human settlements. At that time, traded commodities were high-value or luxury goods such as spices, silk, wine, and perfume. Well-known pathways carried traders and their bulk products to far-off regions. The Persians inherited from the Babylonians and Assyrians a substantial network of great roads. In it, traffic had flowed for thousands of years regardless of the rise and fall of great empires. The most famous of these was the Royal Road. It ran from Susa, the capital of Persia, through Arbela, Guagamela, Nineveh, Amide, Comana, Ancyra, Oordium, and Sardis to Ephesus. Although this road is called the Ancient Royal Road of the Persians, it was already in use long before the Persians gained control over it. The scope of trade is limited, with minimal transportation facilities.

Most notable among them is the Silk Road. The Silk Road was the most persistent trade route in human history. It was used for about 1,500 years. The name Silk Road is attributed to it because of the prized Chinese textile that flowed from Asia to the Middle East and Europe. Actually, it consisted of a succession of trails followed

by caravans through Central Asia. Its total length is about 6,400 kms. Silk Road opened around 139 BC under the auspices of the Han dynasty in China. Its starting point is at Changan (Xi'an), and it ended at Antioch or Constantinople (Istanbul). Touching several commercial cities like Samarkand and Kashgar, it offers a multi-level travel experience, as one has to cross the steppes and bypass arid zones like the Gobi and Taklamakan deserts.ⁱⁱⁱ

Besides road transport in ancient times, waterways were another of the most efficient transport systems accessible to humans. Water routes were the veins of ancient overseas trade and maritime activities.^{iv} From the earliest times, they have determined the routes of progress and broken the isolation of regional economy.^v As a result, cities were built up next to rivers, and they were able to trade over longer distances. It helps to maintain political, economic, and cultural cohesion over a greater territory. Most of the ancient civilizations arose along river systems like the Tigris–Euphrates, Nile, Indus, Ganges, Huang, etc. Shipping goods back and forth from one trade centre to the other, using navigable waterways, was vibrant even in the remote past. But trade in perishable agricultural commodities was limited to a radius of about 50 kilometres, at most. The trade system functioned as a chain in that remote past.

Actually, a good transport network wrote the saga of success regarding ancient Civilizations. The case of the mighty Roman Empire is a typical example of that. There is a common saying that *all roads lead to Rome*. The geographical character of the Italian Peninsula contributed significantly to the course of Roman history.^{vi} Actually, the Romans had committed extraordinary efforts to building transportation networks. They consequently maintained control over an extensive territory for a long period. The economic importance and the geopolitics of transportation were first recognized by the Romans. Use of the sea route linking the Mediterranean basin and India was made by the Romans. Their ships sailed between the Red Sea and India, aided by summer monsoon winds. Goods were transhipped at the town of Berenike along the Red Sea. In the ancient period, several ports flourished on the coast and served as the outlets of India's trade with the Roman Empire.^{vii} Later, animal force was used to carry them to the inland regions. Alexandria was the connecting port city where east met the west. It is from there that trade could be undertaken with the Roman Empire.

In the Indian context, the primeval civilization in India grew up in a sharply demarcated sub-continent bounded on the north by the mighty Himalayas. Its extensions to the east and west divide India from the rest of Asia and the world. The barrier, however, was at no time an insuperable one. In all periods, both settlers and traders have found their way over the high and desolate passes into India. Indians have carried their commerce and culture beyond her frontiers by the same route.

Water transport is the cheapest mode of transport widely used in ancient India. Big wooden logs and bales of bamboo were dropped at one place in the flowing water of a river and then collected at another location. For transport of non-floating heavy materials, some other means of transport was needed. Certain terms associated

with water transport includes, *Charmayan* - prepared by tying leather bellows, *Droni*- wood carved in the shape of leaf cone (*Drona*), *Kenipat* or *Karna Rudder* of the boat, *Matsya Yantra* Mariners compass of now a days, *Nau* which moves with wind force alone (without sail), *Nauka* which moves with the helps oars and sails, *Vata vastra*, Sails of the boat, *Kilaha*-Anchor of the ship, *Navadhyksha*-Superintendent of shipping, *Taala*- ship's keel, *Phalayan*-prepared by tying dry fruits (Pumpkins), *Shringa* or *Kupadanda*- A high mast which supports the sails, *Sthool Bhaga*-Hull of the boat, *Stula* -hull of the ship, *Vrikshyan*-prepared by tying tree branches etc.

India and its physical features are the abode of humans from time immemorial. The Indian peninsula, that enormous triangle of land projected into the Indian Ocean has from the earliest times supported the erection of an impressive array of seaport development.^{viii} The western coastal plain is best described as a narrow strip of land between the hills of the Western Ghats on the East and the Arabian Sea on the west.^{ix} It shows that the country is covered with a network of natural waterways. Though most of them were navigable, in certain parts of the year, they were slightly affected by the freezing effects of a severely cold climate. Traditionally, the navigators of the Indian Ocean learnt their routes by identifying natural phenomena and by checking their positions by stars.^x Archaeological discoveries made in Gujarat have established that India was a seafaring nation five thousand years ago and that the sea route to India had become, over the centuries, a vital artery in the flow of commerce and cultural exchange between our subcontinent and the rest of the world.^{xi} The widespread plains of Northern India are blessed with three principal river systems. It includes those of the Indus, the Ganges and the Brahmaputra, with their numerous branches and tributaries. It makes waterway communication possible over large tracts of the country during all seasons of the year. In Southern India, there are also a large number of rivers, the Godavari, the Krishna, the Cauvery, the Narmada and the Tapi.

Rivers pass through small and fertile plateaus, such as the valleys of Kashmir and Nepal, to debouch on the great plain. 22 of the two river systems, that of the Indus, now mainly in Pakistan, had the earliest civilization, and gave its name to India, as the Indian knew this river as Sindhu, and the Persians, who found difficulty in pronouncing it, called it Hindu. From Persia, the word passed to Greece, where the entire India became identified by the name of the western river. In the course of the long and rich history of India, speculations dominated over careful observations and qualitative descriptions over Quantitative measurements.^{xii}

These river beds were the natural highways of trade and commerce. It was along the Indus and the Gangetic valleys that the first Aryan settlers in India found their abode. Later, these river plains created flourishing cities like Kasi, Prayag, Pataliputra, and others. From time immemorial, the rivers have indeed been the major channels of inland trade and communication. Rivers pass through small and fertile plateaus, such as the valleys of Kashmir and Nepal, to debouch on the great plain. Of the two river systems, that of the Indus, now mainly in Pakistan, had the earliest civilization, and gave its name to India, as the Indian knew this river as Sindhu,

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The ancient Indians distinguished their subcontinent as *Jambuidvipa* or *Bharatavarsha*. With the Muslim invasion, the Persian name returned in the form of Hindustan. The plain of Punjab, the land of five rivers, watered by the five great tributaries of the Indus- such as the Jhelum, Chenab, Ravi, Beas, and Sutlej- had a high culture, which spread as far as the sea and along the western seaboard at least as far as Gujrat. M. R. Mughal discovered 83 habitation sites along the now-dry Hakra channel in Pakistan, which flows southwest and then turns south to flow parallel to the Indus.^{xiv} The basin of the Indus is separated from that of the Ganga by the Thar, or desert of Rajasthan, and by low hills. The western half of the Ganga plain, from the region around Delhi to Patna, and including the Doab, the great tributary river of the Ganga, Yamuna, flows. It runs through the heart of India. At its mouth in Bengal, the Ganga forms a large delta, which even in historical times has gained appreciably on the sea; here the Ganga joins the Brahmaputra, which flows from Tibet by way of the valley of Assam, the easternmost boundary of India.

South of the great plain is a highland zone, rising to the chain of the Vindhya mountains. The rivers which rise amongst the plateau are fed only by the Monsoon rains, so that in the dry season some of them become almost waterless.^{xv} Of these rivers, the most important are Narmada and Tapti, which empty into the Arabian Sea, and the Mahanadi, Godavari, Krishna and Cauvery, which all find their way to the East coast.^{xvi} It was once among the most productive lands in the world, and it has supported a very large population. Deccan, as this region is called, is a dry and hilly plateau, bordered on either side by long ranges of hills, the Western or Eastern Ghats. Western Ghats is higher than the Eastern Ghats. Most of the rivers of the Deccan, such as the Mahanadi, the Godavari, the Krishna and the Kaveri, flow eastwards, and only two large rivers, the Narmada and the Tapti, flow westwards. The south- eastern part of the Peninsula forms the Tamil country and is inhabited by the Dravidian peoples.

The earliest settlement with domesticated cattle and the cultivation of field crops such as wheat and barley has been documented at the site of Mehrgarh, situated in the Kohi Plains in Baluchistan. Similar settlements were being established all along the Indus plain. So far, only a few of these settlements have been discovered. Even when terracotta figurines began to be made in the early Chalcolithic, around 5500 BC, they were led by female figurines with occasional male or animal figures. No model carts or wheels have been reported at Mehrgarh or the nearby site of Nausharo during the periods prior to 2600 BC. Before the Harappan period, economic and cultural links at Mehrgarh and Nausha and it might have been oriented primarily to the western highlands, where wheeled vehicles may have been unworkable for the transport of raw materials or for human travel.

Indus transport Network

Archaeological evidence supports the conclusion that the Indus Valley civilization was one of the earliest in the world and that it was comparable in level of achievement to those of contemporary Egypt and Mesopotamia.^{xvii} For reasons entirely not clear, this civilization decayed and disappeared from the scene of history around 1600 B. C. ^{xviii}The Indus River System made for easier transportation, though southward movement by boat was naturally easier than northward.^{xix} In the south, it is possible that a riverine connection existed at least seasonally between the eastern Nara, a branch of the Indus, and the medium flat near Lothal, by which small boats could carry cargo: this might reveal the importance of Dholavara, a notable town placed in what is today an inundated island in the Rann of Cutch.^{xx} Carts and pack-oxen could cover some land sections of the long-distance trade route between Harappa and Kalibangan. But such transport must have been more expensive than by boat.

Contact with diverse civilizations by trade is proved beyond doubt from the evidence of some identical archaeological materials. And there is also a good case for the parallelism of historical development in the Third and early Second Millennium B. C.^{xxi} Harappa demonstrates the incidence of well-developed and far-reaching communication and transportation networks. Indigenously developed techniques of the Indus Civilization, its systems of exchange and interaction along with primary modes of transportation, may have been fundamentally different than that of its contemporaries to the west. The Indus Civilization, for the first time, also established overseas trade, and the advantage gained through new mechanics of transport enabled an adventurous community to make a bid for the mastery of their resources and lay the foundation of a political system that imposed their supremacy over the entire Indus zone. ^{xxii}

Artifacts obtained through archaeological excavations testify to the use of technology of transportation. The transport technology of the Harappans was meritoriously conceived to suit both land and water. For land transport, bullock-carts were used. This is evident from a considerable number of model representations of which in terracotta, have been found in many Harappan sites. Models of carts in clay are among the commonest antiquities on the prehistoric sites of the Punjab and Sind, and the type represented is exactly that which today cracks and groans with its ungreased, nearly solid wheels in the villages round Mohanjodaro.^{xxiii} The Indus Valley civilization may have been the first in world history to use wheeled transport. Trade would have been facilitated by a major improvement in transport technology. Most of the boats were probably river craft, small, flat-bottomed boats perhaps with a sail. The Indus people obviously also had seagoing craft as well. Evidence for seagoing vessels is indirectly provided by the presence of sites like Lothal, Dholavira, Sotka Koh and Sutkagendor. They were located along what would be important coastal trade routes and, in the case of Lothal, had port facilities and ample evidence of trade with cultures across the Arabian Sea in present-day Oman.^{xxiv} There was extensive maritime trade with Mesopotamia, and Archaeologists have

discovered a dredged canal and what they regard as a docking facility at the coastal city of Lothal in Western India.^{xxv}

At Mohenjo Daro, Harappa and Lothal, archaeologists have unearthed proof of sea trading and shipbuilding. Recent discoveries in Lothal, in Gujarat, have unearthed evidence of contact with Babylonia in the early centuries of the Second Millennium.^{xxvi} The Harappan seals of steatite and baked clay are interpreted as trademarks, used by merchants to specify their goods. Such seals are exposed in areas of ancient Sumerian civilization.^{xxvii} The excavations from Sumer brought to light seals from the Indus Valley.^{xxviii} The long-distance journeys through wooded or rippling tracts must have been conducted by caravans of pack-oxen. For long-distance trade and commerce, land transport only was not sufficient. To supplement the land transport, an elaborate water-transport network was definitely devised by the Harappans. This also had much significance. It is generally admitted that boats and ships were built in this period. S.R. Rao claims that Lothal was a boat-building centre too. From the terracotta models of boats from Lothal three major types are distinguishable; of these, two types had sails, and the other was without sails.^{xxix} Despite recent studies on the location of late Harappan sites over a large part of the country, the disappearance of urban life, marked by the planned use of bricks, seals and inscriptions, is well known in Harappan sites from 1700 BC onwards.^{xxx}

Conclusion

The prehistoric artifacts and settlements in India testify to the transportational skills of ancient Indian settlers. Human travel in the primitive age and its aftermath was similar to the rest of the world. In Indus culture, indigenous techniques were used to make transport smoother. Harappan relics validate the existence of well-developed and far-reaching communication and transportation networks, revealing the prime status of the Indian pre-historic culture among other primitive cultures of the world.

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