
UNIT 24 TRANSPORT AND COMMUNICATION

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24.1 INTRODUCTION

Transport and communication are considered key factor in the expansion and growth of medieval economy. The state of development of transport and communication in a society is a good indicator of the robustness of its economic activity. A good communication system helps inter-regional and local exchange of commodities and goods. It also promotes contact among cultures of different regions and in the longer run promotes exchange of thoughts and ideas, the two vital ingredients for the health and well being of a society. A developed communication system also supports the growth of transport; the two in turn promote travel. The level of interdependence between communication and transport is always high. The medieval economy in India as also the society benefited from a good communication and transport system.

Our focus in this Unit is on the development of land transport and communication system in India during the medieval period. It is a notable feature that the factors promoting medieval economy also gave a fillip to the transport and communication system. Thus the growth profile of medieval Indian economy seems to match the growth profile of the communication system. We know that the first major change in medieval economy came with the establishment of Turkish rule in Delhi. The new state and their methods of the extraction of agricultural surplus, gave rise to money economy from a predominantly rural setup. The growth of money economy was fast and its geographical spread was also unprecedented. A major impact of this process was an increase in the commercial activity both among different regions and among different localities within the regions. With this the communication network also got a spurt and a system of transportation, even if in a rudimentary form, developed to support the communication network. Gradually, as the contours of money economy became more pronounced, additional features in the communication and transport system too became visible.

The communication system in medieval India was essentially land based except along the coastline where port-to-port communication was also prevalent. The communication routes passing through different places and regions provided the basic network along which the commercial activity and the non-commercial communication operated. These routes were provided with features like roads (demarcated but only occasionally metalled),

bridges on rivers and streams that crossed the routes, and halting and resting places. The transport of goods as also of men was based on wheeled carts and animal portage, though human portage was also in vogue. The travel for commercial purpose had begun to be organised so as to enlarge the size of the travel party and to provide it some basic support. The following sections contain details on the above subjects as they also provide you necessary references from important travelogues. You will enjoy reading the descriptions and may even find it a rewarding exercise to occasionally read the travelogues in original.

24.2 COMMUNICATION ROUTES

Communication routes in India have been in existence from very early in ancient times. It is often said that the geographical situation of Indian sub-continent has been such that overland route to regions across north-west have not been easy to develop. But it is also a historical fact that religious and trade contacts between India and the regions across north-west did not cease ever in history. Braving the hazards of an inhospitable and difficult terrain travellers have kept alive communication between India and these regions since remote past. A few passes in the Himalayas have always allowed traffic across them. The Indian mainland has likewise kept intact communication routes all across the sub-continent though the volume of traffic and popular preferences for some have naturally outweighed others.

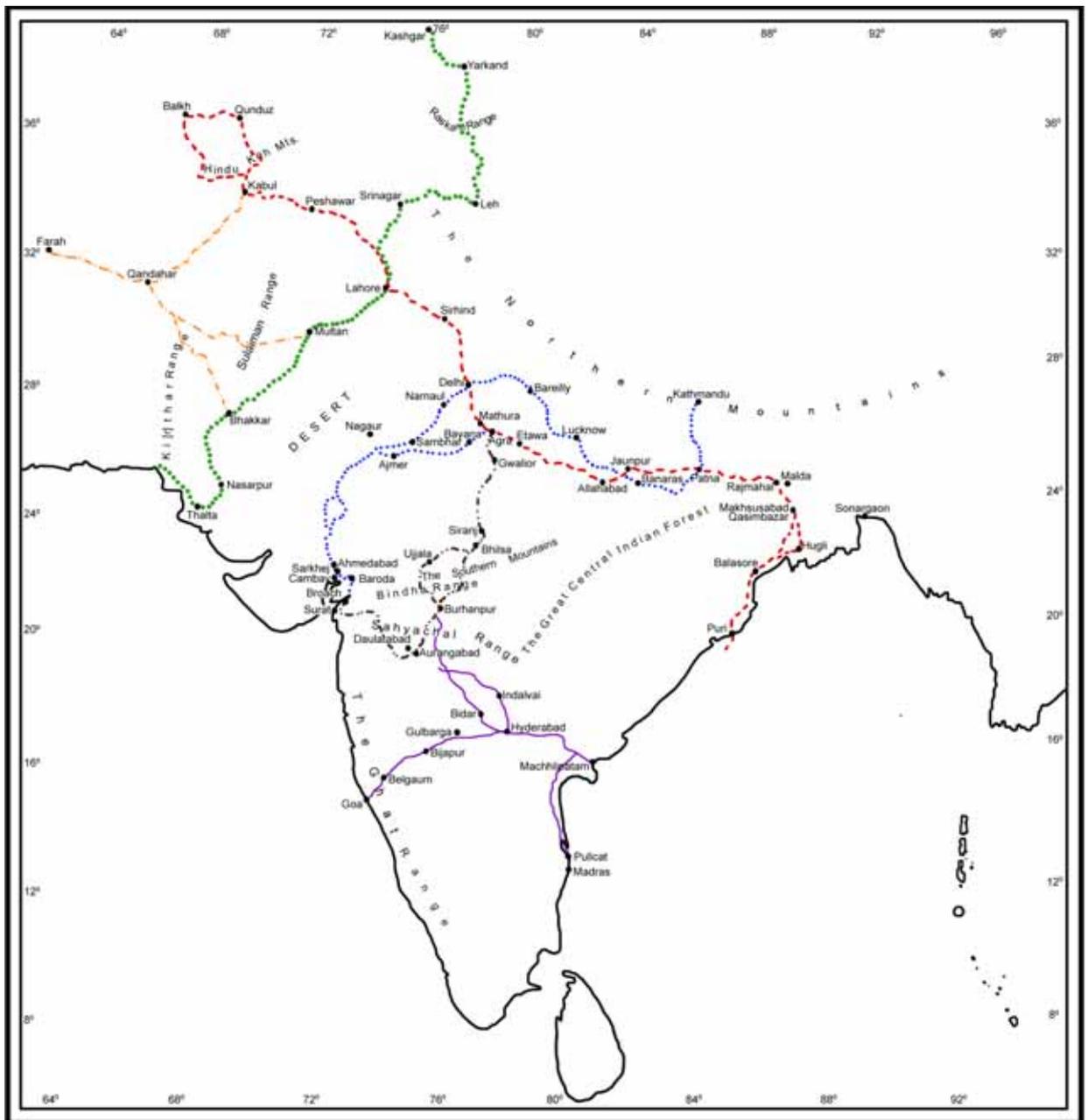
As we come to the medieval period in Indian history we notice a few significant economic developments as a result of which the communication system receives a boost. The old routes now get a large volume of traffic and new communication routes also develop. In this Section we will give you the details of the route network as it obtained during the medieval period and will also discuss the importance of stations lying on these routes wherever adequate information is available about them.

24.2.1 Towards North and North-West

Delhi and Agra were the main administrative centres during the medieval period from where the state control was exercised by the ruling powers stationed in North India. For establishing an efficient communication network, it was therefore important that Delhi and Agra remained connected with other regions. Most of the routes therefore radiated from Delhi as also from Agra, the other important administrative centre, and extended in all the different directions in the Indian sub-continent.

The route from Delhi to the north-west passed through Sirhind, Lahore, Peshawar, Kabul and Balkh. Its course has been delineated in Irfan Habib's *Atlas of the Mughal Empire*. At Lahore this route branched off in the south-westerly direction to connect such important centres as Multan, Bhakkar and Thatta in Sind. From Lahore, as the route crossed Sialkot in the north, one branch led-off to Srinagar in Kashmir and from there to Leh and Yarkand and Kashgar. As noted by Irfan Habib, Leh onwards was a very difficult route to traverse as the conditions were mountainous and extremely inhospitable to the travellers.

On this route between Delhi and Balkh, Kabul was an important junction from where south-south-west ran the route to Qandahar and Farah in the Herat region of Southern Afghanistan which was controlled by the Safavid Empire. Qandahar was also connected with Multan in Sind. (See Map 3, Unit 8, Block 2 for its Central Asian connection.) The details of Qandahar's link with Sind and Panjab have been probed in detail by Jean



**Map 1: Communication Network (After Irfan Habib,
An Atlas of the Mughal Empire, OUP, New Delhi, 1982, Sheet OB**

Deloche in his *Transport and Communications in India*, Vol.1. We quote from this text:

Under the Mughals, Qandahar maintained contact with Sindh and the Panjab by way of two principal routes which diverged in the region of Pisin, south-east of the Khojak Pass. But little is known concerning the first, which passed through Sal (Kvatta), the Bolan Pass, Sikapur and met with the Indus at Saakkar-Bakkar. Humayun, while fugitive, followed this course in 1543; and, during the eighteenth century it was by this way that the caravan from Bakkar to Persi proceeded each year.

The second route is somewhat better known, as several European travelers who followed it in 1614 and 1641 have left accounts thereof. It led to Dera Ghazi Khan and, from there, on to Multan via Duki, Cutiyali and Sakhi-Sarvar. A difficult trail traversing to the south the Zhob and Loralai valleys, having a relief confounded by escarpments and plateaux, it was nevertheless a significant commercial route between Northern India and Persia, as well as having been a strategic passage along an extent of which Babur journeyed, anno 1505, and which Aurangzeb's army followed in 1552 en route to besiege Qandahar for the second time.

The other trails were used as passageways by armed expeditions from Ghazni and Kabul. The famous Mahmud and his cavalry would appear to have often passed through the defiles of the Toci; Cangiz Khn (Gengis Khan) in 1219 advanced through the Gomal Valley with his soldiers; and Timur Lang (Tamerian) led his forces by way of the Kurram corridor in 1398. (pp. 27-28)

The northern and north-western route was amply provided with resting facilities for travellers. As testified by European travellers taking this route there were plentiful *sarais* (described in Sub-section 24.2.3) spaced at regular intervals so that at the end of a day or twos journey the travel parties could securely lodge their belongings and hire for stay accommodation in a *sarai*. Another noteworthy feature of this tract has been the incidence of several major rivers in the way. We do not find mention of any one of these major rivers having a permanent masonry bridge. In most cases the river-crossings were done through ferry.

JOURNEY TO KABUL

Our march now continued along the valley of the Kabul river, over a tolerably level and extensive plain on which several villages were situated, all of them protected by mud walls and bastions from sudden incursions. On the left the plain was bounded by the Safed Koh range, at a distance of about nine miles; with a glass, forests, apparently of pines, clothing its summits, were descried. The mountain, especially termed the Safed Koh, lies at the head of the Mamand Dhara, a valley belonging to the Shenwaris, celebrated for its vineyards: more to the west is another fertile valley, called Mangastura. These also rear most of pomegranates imported into Hindustan. Across the river ran a chain of barren hills, called, from their sterility, Kohi Bedaulet. In some of them we could distinguish lines of cavern mouths; but whether these excavations were ancient or modern, we were not near enough to determine. Many of the Afghan tribes form domiciles in the rocks, and we have noticed several cave-dwellings in the Khyber country. Beyond the mountains, skirting the river on the north, part of the snowy peaks of the heights bounding Kaferistan were visible.

William Moorcroft And George Trebeck, *Travels in the Himalayan Provinces of Hindustan and Punjab*, Asiatic Society of Calcutta, 1837, p.478.

24.2.2 Eastwards and Westwards

The northern plains of India that included the Ganga-Yamuna *doab* and the Ganga basin in the east were provided with a decent network of routes. This network connected Delhi as also Agra, with the entire stretch of the *doab* region extending upto the deltaic expanse in the east. Long before Sher Shah refurbished the communication network connecting Sonargaon, (near Dhaka) with Delhi and Attock, (near Peshawar), the eastern parts of the country had already set up communication routes with the north-west near Hindukush mountains. The Mauryan rulers had established a connecting route between their capital at Pataliputra (modern Patna) and Purushpur (near modern Peshawar) in the north-west during second century B.C. (See Map 1, Unit 7, Block 2)

In the medieval period there emanated two different routes from Delhi that connected Rajmahal and Qasimbazar in the east. These routes mainly traversed through the *doab* region along the course of river Ganga on the northern and southern sides of the river respectively. The one charting its course on the southern side connected such important places as Mathura, Agra, Etawa, Allahabad, Varanasi and Patna. The other one, along the northern side of the river passed through Bareilly, Lucknow, and Jaunpur to Patna. Beyond Patna it connected Rajmahal and Qasim Bazar and turned southwards to traverse

its course along the sea-coast and connect such places as Hugli, Balasore, Cuttack and Puri. Almost all the above places were important manufacturing centres. Several of these were also significant administrative centres under the control of important nobles of the period. Jean Deloche describes the route from Patna eastwards in the following words:

...During the Mughal period, the imperial highway from Patna, administrative centre which regained to an extent the former glory of Pataliputra, to Rajmahal, short-lived Bengal capital at the close of the sixteenth century, followed the narrow but convenient passage suggested by nature, via Munger on the right bank of the Ganga. It divided into two branches at the head of the delta following the two main riverbeds: the Padma to the east, and the Bhagirathi-Hugali to the west. (p. 41)

The eastward route was provided with good travel support. The travellers mention regular incidence of *sarais* on this route where such facilities as the supply of provisions and cooked food were generally available. In towns of substance there were several *sarais* with provision of warehouses in some of them for storing the good carried by traders and even ordinary travellers. The major rivers were mostly crossed by ferry service as only the small sized rivers were sometimes provided with permanent bridges. For crossing Yamuna at Delhi a bridge of boats was constructed providing incoming traffic from the east access to the capital town. This bridge finds an incidental notice in Bernier. Describing the city of Delhi he writes that it is situated on the “banks of the *Gemina*... and built on one bank only in such a manner that it terminates in this place very much in the form of a crescent, having but one bridge of boats to cross the country.”

AGRATOBENGAL

I started from Agra for Bengal on the 25th of November 1665 and halted the same day at a poor caravansarai distant 3 coss from Agra. The 26th [November] I reached Beruzabad, 9 coss. It is a small town, where, on my return, I received 8,000 rupees of the balance of the money which Ja'far Khan owed me for the goods which he had brought from me at Jahanabad. The 27th [November] to Serail Morlides, 9 coss; 28th [November] to Estanja, 14 coss; 29th [November] to Haii-Mal, 12 coss; 30th [November] to Sekandera, 13 coss; 1st of December to Sanqual, 14 coss.

Jean-Baptiste Tavernier, *Travels in India*, Eng. tr. V. Ball, ed. William Crooke, Reprinted by Atlantic Publishers & Distributors, New Delhi, 1989. Vol. I, p. 92-93.

The western part of the country, that is the region denoted by Rajasthan and Gujarat and also Khandesh, was linked with the cities of Delhi and Agra through communication routes that mainly carried traffic disembarking at Surat and other ports in Gujarat and was mainly composed of the traders and merchants of all the different kinds. The route connecting Delhi with Surat, the important sea-side entrepot of Gujarat followed two separate courses, one through Rajasthan and the other through Malwa and Khandesh. The Rajasthan route connected Delhi with Narnaul, Sambhar, Ajmer, Ahmedabad, Baroda, Broach and Surat. There was another equally important arm that connected Delhi with Agra via Faridabad, Hodal, and Mathura. From Agra this arm bent westwards and passed through such places as Fathpur-Sikri, Bayana, Lalsot and Bandar Sindri before connecting with the route coming from Delhi a little distance east of Bhamunda (as shown by Irfan Habib in *An Atlas of the Mughal Empire*; See Map 1). The Rajasthan route was shorter than the route passing through Malwa and Khandesh, but travel-wise was a little difficult as it passed through the arid and water-scarce region of Rajasthan.

FROM SURAT TO AGRA

The second of January [1610] I departed from Comvariaw [Khumbaria] (a small village three couse from Surat) to Mutta [Mota], a great aldea, seven c[os]. [January] 21, eight c. to Carode [Karod], a great countrey towne, by which on the north runneth Surat river; it hath a castle with two hundred horse, Patans, good souldiers. [January] twentie two, to Curka 12 c.; it is a great village, with a river on the south side. In the way (7c.) is Beca [Viara], a castle with a great tanke and a pleasant grove. [January] 23, ten c. to Nacampore [Narayanpur], a great towne under the Pectopshaw. In this way on the right hand beginneth a great ridge of mountaines which come from Amadavar-wards, neare which Badur keepeth, holding divers strong holds thereon, that the King with all his force cannot hurt him. These mountaines runne to Bramport; on them are bred many wilde elephants. [January] 24, to Dayta [Dhaita], 8c., a great towne; in the mid-way you passe a stony troublesome river. This towne hath a castle, and is almost encompassed with a river, seated in a fertile soyle. [January] 25, to Badur [Bhadwar], 10c., a filthy towne and full of theeves; here is made much wine of sweete fruit called mewa, but I found it not wholesome except it be burnt.

The sixteenth, 7c. to Cuckra, a great countrey towne abounding with all sorts of graine, victuall, and Mewa wine; at 4c. Lyeth Berroul [Bora], a great aldea. The seventeenth, 12c. to Delout, a great aldea; the way for the five last couses theevish, hilly, stony; the other pleasant plaines. The eighteenth, 7c. to Burrow [Barrai], a small towne, but plentifull of victuall, except flesh, which is scarce all this way; the way dangerous. The nineteenth, 7c. to Sukesera, a small ragged towne. The twentieth, to Syrange [Sironj] 9c., a very great towne, where are many betele gardens. The one and twentieth and two and twentieth, wee make mukom. The three and twentieth, a Cuchenary Saray [Kachner Sarai] 8c. The foure and twentieth, to Sadura [Shahdaura] 5c. The five and twentieth, to Collebage [Kalabag] 7c. The sixe and twentieth, 12c. to Qualeres [Kulharas], a pretty small towne encompassed with tamarind and manga trees. The seven and twentieth, to Cipry [Sipri], seven of Surat couses (a mile and an halfe); way theevish, stony, full of trees, a desert passage; a walled towne, faire houses covered with slate.

From Alabasse to Menepore [Manihpur] is 20c. amongst the river Ganges. At 2c. on this wya is a sumptuous tombe for this kings first wife, mother to Sultan Cusseroon and sister to Raja Manisengo, who upon the newes of her sonnes revolt poisoned her selfe. From hence passing Ganges is a more direct way to Jounpore. To Chappergat is 12c. Here is one of the fairest saraies in India, liker a goodly castle then a inne to lodge strangers; the lodgines very faire of stone, with lockes and keyes, able to lodge a thousand men. a man can scarce shoote from side to side with an arrow; neere to it is a faire bridge; both built by one man; the way perillous for theeves. Itay [Etawa] is thence 12c.; anciently the seate of a Potan king, but now ruined. On the height of the hill, cut steepe downe, is seated a strong castle double walled, having at the entrance the figure of a mans face, which the Indians much worship, powring abundance of oyle upon it. To Amedipore [Itimadpur] is 43c.; a plentifull countrey, full of good saraies for caravans. Much indico called *cole*, of a grosse sort, is made in this way, which is spent in India or transported for Samercand [Samarkand], Cascat [Kashgar], and those parts; none passing into Christendome, except mixed with that of Biana. Hence to Agra is 7c., passing Gemini close to the citie.

William Finch's (1608-11) travel account in William Foster (ed.), *Early Travels in India*, Reprint, New Delhi, 1985, pp. 136,143-44,178-79.

The route traversing Malwa and Khandesh took a southward direction from Agra from where it went to Gwalior, Sironj, Bhilsa (modern Vidisha, near Bhopal), and Burhanpur which was an important junction for westward and southward peninsular travel. Burhanpur and Surat were connected via two different branches, one passing through Nandurbar and the other passing through Aurangabad. Since Burhanpur was an important centre on

this route from where travel in south India generally originated, the Malwa-Khandesh route was the choice of travellers deciding to go towards south. A large part of India's cotton and calico trade passed through this route although in the rainy season it would become muddy and would require extra-care protecting cloth bundled on the wheeled carts from getting soiled by the mud splashed from the wheels.

It has been noted above that the Delhi-Surat route via Rajasthan was shorter than the Malwa-Khandesh track. It was mostly used by traders desirous of returning to their ships anchored at Surat-Swally port before the onset of monsoon. This route was only sparsely provided with *sarais* mostly located in major towns. Since two major production centres, for copper and indigo were clustered around Kotputli and Bayana respectively, traders for these commodities generally selected the Rajasthan route. The absence of rivers, except Mahi, Narmada, and Tapti on this route was a distinct advantage. This route was also sometimes preferred for travel during the monsoon season as it did not suffer from the problem of muddy tracts either.

AHMEDABAD TO THATTA

About the 12th of October, 1613, Mr. Alodworth (our Agente), myselfe, and Mr. Aldworth's man, and a Germaine began our journey for Amadavar; and travellinge alonge the cuntrye, the 18th daye wee came to a prittie village called Sarron, and lodged in the Governor's yarde, where wee were safe from theeves. In the morninge wee beeinge redde to departe, the Governor sente his men to us to begge somethinge of us; whoe were contente with 8 pites [pice], which is aboute 3d. Englishe. And travellinge yet further on our journey, wee came to a cittye called Brothra [Baroda], which is but a little cittye, yet of fyne buyldings; where wee bought some commodities for our trading...

...Wee departed from thence the nexte day. [The sixteenth, 8c. to Carrya [Khawad?], where is a well-manned fortresse; and the eighteenth (till which, for feare of theeves, wee stayed for another caravan) to Deccanaura [Dekawara]; our camell stolne and a man slaine.] And the 19th day wee came [10c.] to Bollodo, a forte kepte by Newlocke Abram (a brave souldier) for the Mogull; whoe was that day returned from battell, bringinge home with him 169 heads of the Coolies [Kolis], a theevish caste of moutteners [mountaineers?] that live by robbinge and spoylinge poore passengers on the heighwaye. [The twentieth, 13c. to Sariandgo, a fort.] Wee still kepte on our journey, and the 21st days wee came [10c.] to Raddinpoore [Radhanpur], a bige towne, havinge a forte kepte in yt and a companye of brave souldiers. Wee stayed here twoe dayes to provide ourselves of provision for the sesarte journey, there beeinge nothinge to bee had on he way, not soe much as freshe water for our cammells, nor anye other victualls for them or ourselves. The 23d day wee travelled [7c.], and at night laye in the feilds. [Met a caravan robbed of all, from Tutta. The foure and twentieth 12c. Dispeded one of my pions to Lowribander with a letter; which promised to doe it in ten dayes, but I thinke was slaine. The five and twentieth 14c.] Lodged in the feilds, by a well of water, but yt was soe salte that wee could not use yt. [The six and twentieth 10c. to such another well.] This daye wee gave our cammells water which wee brought from Raddinpoore, they not havinge dranke of three dayes, which is usuall with them there in their travell. Soe wee travelled the 27th day [14c.] and laye in the feilds as before, havinge nothinge but what wee brought with us. And the 28th day [10c.] wee came to Negar Parker [Nagar Parkar], a poore towne, yet with good store of provision for travellers.

Nicholas Withington's (1612-16) travel account in William Foster (ed.), *Early Travels in India*, Reprint, New Delhi, 1985, pp. 204-205, 209.

24.2.3 Southwards

It has been explained in Sub-section 24.2.2 that Burhanpur was the junction for routes leading into south India. Running southwards crossing Godavari and passing through

Bidar the main route to south India connected with Hyderabad which was an important production and administrative centre. From Hyderabad it branched off in the west and in the east. The western branch passed through Gulbarga, Bijapur, Belgaum and terminated at Goa. The eastern branch connected Narsapur and Machhlipatam and from there traversed along the coast upto Pulicat-Madras in the south. The western branch was mostly used for spice trade, especially trade in pepper. The eastern branch passed through the region of diamond mines and also the calico centres of south India.

The communication routes located in the region between Krishna and Kaveri river do not find detailed mention in the sources. In fact most of the details for this region have to be worked out on the basis of the information contained in James Rennell's *Memoir of a Map of Hindoostan or the Mogul Empire* and Robert Orme's *Historical Fragments of the Mogul Empire*. Jean Deloche has used these sources carefully to describe the communication network of south India. The following details have been taken from his work:

Subsequent to the fall of the Hindu empire, the South of the peninsula experienced a protracted period of instability, aggravated by the funding of independent principalities and the Maratha and Mughal incursions, before a new centre of political gravity in the heart of the Maisura plateau was established at Srirangapattana on the Kaveri at the time of Haidar 'Ali and Tipu Sultan in the second half of the eighteenth century. We have no information regarding the roadways of the South during that interval, excepting as pertains to those routes leading from Haidarabad to the deltas in Andhra located to the north of the Coromandel.

Between the Krsna and Tamil country land communication seems to have vacillated between the coastal track and the inland roads. The passageway which served the numerous coastal ports was cut by lagoons and wide, deep rivers necessitating the utilization of ferries. Inland, the route crossed Gunturu, Vangolu (Ongole) and Nelluru, but its course, except in the region of Lak PaLaveRkatu, ran always to the east of the present-day road and, especially mid-way, neared the coast.

For the remaining parts of South India he provides the following details:

As to the remainder of the peninsula, the greater part of our knowledge is drawn from the maps by Orme and Rennell, who in the main have noted the movements undertaken by the armies during the Franco-English war and the Maisuru campaign, as well as from information provided in the engineers' reports pertaining to the regions annexed by the *East India Company*.

Rennell's map of 1792 indicate in summary fashion the major routes which diverged from Srirangapattana towards the Ghats rising to the west; then, northwards to the Raycuru *doab*, ancient march disputed by the Deccan sultans and the Vijayanagara kings; and finally, the route which led to the Tamil plain in the south-east. The tracks on the eastern border of the plateau, dissected by the PalaRu, PennaiyaRu and Kaveri rivers, are better known, for they played a significant role in the military operations relating to the Maisuru wars.

There was then, between Lake PalaveRkatu and Kanniyakumari or Ramesvaram, a network of longitudinal routes which met at recognized points, as for example, Srirankam-Tiruccirapalli and Maturai. From west to east and extending to the eastern coast from the Palakkatu Gap, another network developed, comprising two principal axes: one leading to Celm and the lower valley of the PennaiyaRu; the other which followed the Kaveri by way of Tancavur as far as the delta ports.

These main routes, along with the ramifications connecting them, formed the meshes of a network corresponding to the ancient road links, and which only differs from the present road system along short segments. This fact implies a certain degree of urban equilibrium.

24.3 COMMUNICATION SUPPORT

The communication network, described above needed support in the form of facilities that helped travellers overcome the difficulties of travel. In the circumstances prevailing during the medieval period the travellers' main concerns were unhindered travel and sufficient provision of resting/halting places for secure night stay. The nature of support also depended on the volume of traffic and the frequency of travel on different routes. There was thus an uneven spread of the support as the routes more traversed and by the larger number of travellers were provided adequately while on the routes attracting lesser traffic the facilities were sparse. We will give you details relating to the communication support in the following sections:

24.3.1 Roads

The information on the condition of roads and their travel worthiness is available in the descriptions given by the travellers using those roads. A major part of this information comes from the accounts given by European travellers visiting India during the medieval period. It is generally agreed to by most of these travellers that a major part of Indian roads was in the form of beaten tracks without any permanent treatment being given to their top surfaces. The common method used for making these roads has been described by Deloche:

After having cleared a passage in the jungle some 30 to 50 feet in width, the area to be traversed by the road was delineated by digging a small ditch on either side, the bumps were leveled and the depressions filled with, depending upon the terrain, clay, silt, sand, gravel or pebbles, in such a manner that the surface layer was slightly convex towards its centre, permitting thus of the drainage of water.

These natural beaten tracks were well adapted to an organized rural society which had the wherewithal to maintain them, and in which seasonal traffic corresponded to the harvest periods. There was thus a considerable area of India over which communications and transport could be effectuated simply by leveling the terrain and undertaking minor improvements. Local and regional roads were most frequently of this type, as were even the main routes over the major part of their distance. This is again evidence that natural viability was a significant factor in communications.

The paved roads, that is those having been given a more permanent top surface treatment with stone pebbles or rubble beaten on it, were few in number and were mostly confined to the larger towns such as Delhi, Agra etc. In such places again the paved tracks generally did not extend far beyond the confines of the towns. A special instance where a mountainous tract was cut through and paved with stones making the surface strong and lasting has been noted by Irfan Habib for the region of Panjab, near Margala pass between Rawalpindi and Hasan Abdal (Sheet 4B Notes, p.12 of *An Atlas of the Mughal Empire*). This paved section was nearly three quarters of a mile in length i.e. approximately 600 meters long. (for further details see Section 22.4)

24.3.2 Bridges

A bridge may be defined as a structure spanning rivers, marshes, declivities etc., and providing a passageway for pedestrian and wheeled traffic. The first man-made bridge was probably a tree trunk or flat stone laid across a stream, but we can only speculate on such beginning. What we know for certain is that from the earliest times three prominent types of bridges familiar to us have been beam-bridges, suspension bridges and arch bridges. These three types have been varied or combined to assist each other in the same structure. Thus in their simplest form beam bridges are called simple spans, but

quite often two or more of these spans are joined together over the piers to make them continuous. Two important variations of beam bridges are cantilever and boat bridges. In a cantilever bridge successive layers of beams are piled upon one another in such manner that each upper layer juts out slightly over the layer immediately below it. At the top, therefore, only a small space remains to be covered with a beam. The boat bridges are basically beam type sustaining on floating supports. The idea may have originated through the lashing together of few boats to maintain a river crossing, either to meet a special need or when the stream had dwindled in the dry season to become narrow. Suspension bridges were usually built to span narrow gorges by stretching a rope or such material across the gorge and tying it to tree trunks on either side. Arch bridges used the technique of making curved formation in bricks or stones with the help of a reliable binding material such as gypsum or lime mortar. This peculiar formation was obtained with the help of voussoirs which were tapered or wedge-shaped stones; quite a sizeable portion of the weight of this super-structure resting on piers was transferred to the end points known as abutments.

The beam bridges in their various forms as well as suspension bridges were known in India from ancient times, but the arch bridges were introduced here only after the Turkish conquest, the earliest surviving specimen being a bridge on the river Gambhir below Chittor built during the reign of Alauddin Khalji. It is interesting to note that with the passage of time bridges in India came to acquire a categorization which was dictated by the material of construction rather than being based on the principles of engineering involved. Depending upon the availability of the different types of materials used in the construction of bridges, each one of these categories became specific to particular regions and topographical settings. Thus the cantilever bridges needing mostly wood for their construction flourished in Kashmir and other hilly areas where suitable timber for their construction was abundantly available. At the same time boat bridges built on the same principle, which were used as an immediate device for crossing large rivers in the plains, came to represent a distinct category. Similarly masonry bridges were accepted as another category notwithstanding the fact that besides a large number of arch constructions these also included a few that were built exclusively on the trabeate technique. But one must note here that an arched bridge would only be a masonry bridge and that from the thirteenth century onwards a majority of masonry bridge built in India were arched bridges. This circumstance would justify the treatment of masonry bridges as a distinct category from the point of view of the material used in their construction.

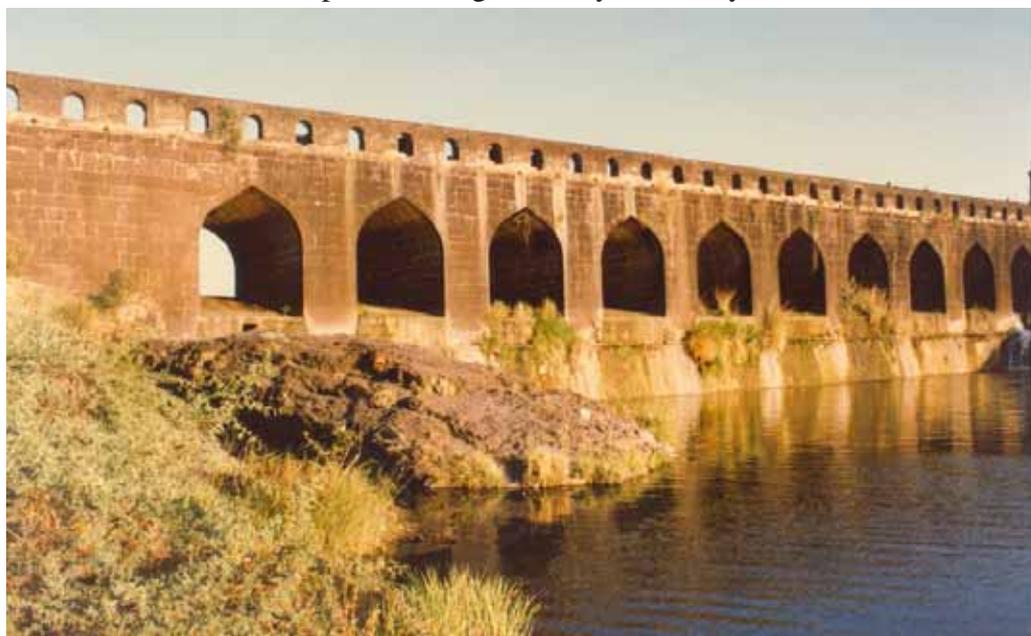
There does not survive much evidence on masonry bridges prior to Turkish invasion. It was in the thirteenth century only that the use of arches in the bridges gave a greater flexibility to the architects in the use of building material and in the location of sites. Still the number of bridges built during the Sultanate period is very small. Perhaps the necessary impetus for a wider application of the new technique of bridge-building was not forthcoming during this period. Apparently as yet there did not exist any appreciable economic motivation for bridge building.

The beginning of the sixteenth century then seems to mark the beginning of a new trend in this respect. There was a sizeable increase in the movement of men and goods, especially on land, and the roads had now begun to cater to a larger volume of traffic comprising pack-animals and wheeled carts besides the foot-traveller. As the major arteries of land communication in Mughal India radiated from the capital cities of Agra and Delhi and connected with the farthestmost points in the empire, a large number of new masonry bridges sprang up on these trunk-routes. Some of the masonry structures surviving from the earlier period were at the same time restored for traffic. (also see Section 22.4 for techniques used)



A Bridge of Aurangzeb's Reign in Aurangabad City

It is significant to note that in spite of this activity rivers of large spans were without masonry bridges. The most common device used for crossing these rivers by common travellers were boats, sometimes played as ferry service on important rivers. Often the travelers resorted to a crossing of these rivers at the points where they were easily fordable. But during an army expedition these rivers were spanned with pontoon bridges which were usually temporary structures raised for the immediate use of the troops and dismantled soon after. There are, also, a few references suggesting the existence of bridges of boats at points of access to important towns situated on the banks of large rivers (see Sub-section 24.2.2). Similarly we also have evidence suggesting the existence and use of wooden and suspension bridges, mainly in the hilly tracts.



A 17th Century Bridge with an embankment on River Vagor near Ajanta

24.3.3 Sarais and Other Resting Facilities

Sarais were structures that served the shelter needs of the travellers in medieval India. In the harsh conditions and inhospitable countryside in most regions of the country during the medieval period the travelers belonging to all classes but especially the merchants and the pilgrims needed more frequent places of rest and shelter than the widely spaced

towns and cities could provide. The *sarais* located along the main routes could provide places where men and their animals would be safe for the night and where they could be sure of food and water. Typified by large rectangular enclosures entered through wide portals with a series of cells ranged along the walls in the interior, the *sarais* are known to have been introduced in India by the Turks in the thirteenth century.

It may, however, be noted that the tradition of providing safe road with protected stations along its length dates back in India to a period earlier than even the advent of Christianity. During the reign of Chandra Gupta Maurya rest-houses for the comfort of the travelers are known to have been built in the towns as an act of charity by the state. For the reign of Asoka there is positive evidence for the existence of rest-houses on the main routes in the empire. The seventh pillar edict of Asoka engraved on the Delhi-Topra Pillar, presently standing in the Kotla Firuz Shah gives this information.

The institution of *sarais*, as stated above, is a Turkish institution. However the institutional form and the physical expression of the *sarais* might have altered considerably in accordance with the requirements of the contemporary society in India. By the middle of the thirteenth century *sarais* had begun to be built in the larger cities of Delhi Sultanate. Whether similar *sarais* were established in the countryside along the trunk routes is not certain, the possibility though cannot be ruled out. In the construction of the *sarais* the most significant contribution, however, seems to have been made by Sher Shah. The chronicles almost unanimously hail his efforts at establishing *sarais* for the convenience of the travelers on every important road in the empire, at regular intervals.

**THE BEGAM'S CARAVANSARAI AND ROUTE
FROM SURAT TO AGRA**

There are but two roads from Surat to Agra, one by Burhanpur and Sironj, and the other by Ahmadabad, and the first will form the subject of this chapter.

From Surat to Barnoly, 14 coss. Barnoly is a large town where you cross a river by a ford, and traverse, in this first march, a country of mixed characters, sometimes meeting woods, and sometimes fields of wheat and rice.

From Barnoly to Balor, 10 coss. Balor is also a large village, situated close to a tank which is about a league in circuit, and upon the margin of it there is a good fort, which, however, is not kept in repair. Three-quarters of a league on the near side of the village you pass a rivulet by a ford, but with much difficulty, because there are many rocks and stones under the water which may overturn a carriage. The route this second day lies nearly altogether through forests.

From Balor to Kerko, or, as they now call it, the Begam's caravansarai, 5 coss. This caravansarai is large and spacious, and it was built by the order of Begam Sahib, the daughter of Shahjahan, as a work of charity. For formerly the stage from Balor to Navapoura was too long, and this place being on the frontier of the country of those Rajas who are generally unwilling to recognize the Great Mogul, whose vassals they are, scarcely a caravan passed which was not ill treated; moreover, it is a forest country. Between the caravansarai and Navapoura you pass a river by a ford, and another close to Navapoura.

SIDHPUR

Continuing our route from Surat to Agra. From Amadabat to Panser, 13 coss; from Panser to Masana, 14 coss; from Masana to Chitpour, 14 coss.

Sidhpur is a fairly good town, so named on account of the great trade which it does in those coloured cottons which are called chites, and at four or five hundred paces on the south side there flows a small river. When I arrived at Sidhpur, on one of my journeys, I was encamped under two or three trees at one of the ends of a great open space near the town.

Jean-Baptiste Tavernier, *Travels in India*, Eng. tr. V. Ball, ed. William Crooke, Reprinted by Atlantic Publishers & Distributors, New Delhi, 1989. Vol. I, pp. 40-41, 65-66.



Begum's Caravansarai

The European travellers as well as the Persian chronicles testify to the existence of widespread net-work of *sarais* in Mughal India, well placed along the trunk-routes and also in towns and cities. For the city of Agra, Abul Fazl's *Akbar Nama* (c. 1595) refers to an order 'given to the workmen' towards the end of 1578 'that they should erect *sarais* in the various quarters of the capital, and make them over to benevolent and generous persons so that the poor and needy of the world might have a home without having to look for it, or to endure the pain of waiting'. The effects of this order were evident for in 1611 an English traveller John Jourdain wrote: 'There are many faire sarrayes in this cittie, where travail ours may lodge for a little or nothing'. Similar evidence for other cities can likewise be cited from the travellers.



A 17th Century Caravansarai on the Outskirts of Burhanpur

The notice should, however, be taken of a few analogous institutions, perhaps native in origin, which existed in Mughal India. One such institution is *dharamsals* or *posals* of the Jains. It appears that the *dharamsals* or *posals* were run by Jain merchants as rest-house-cum-worship places for the stay of the members of their own community in towns.

Evidently, the *dharamsals* or *posals* represented an institution of the same kind as the *sarais*, but with the following differences: (a) that they were mostly located in the towns (b) that unlike the *sarais* their use was restricted almost exclusively within the Jain community, and (c) that they tended to form a part of the religious establishment of this community.

Another institution of a similar kind has been reported from south India. It is called 'Choultry' and has been described as a building intended for the reception of travellers, covered and enclosed on three sides with walls, but open in front, where instead of a wall, the roof is supported by pillars. The choultry would provide shelter and facilities for cooking food. It was not covered in the form of rooms in view of the temperate climate of south India.

24.4 POSTAL COMMUNICATION

An organised system of communication of news and official and private papers and letters was also a necessity that resulted in the setting up of a system of postal communication. As suggested by Irfan Habib, "information on postal communication is sketchy for the early part of medieval period. Some details for the Mughal period, however, allow us to reconstruct the nature of postal establishment and its working." (Irfan Habib, "Postal Communication in Mughal India", paper presented at the *Indian History Congress*, 1985 session.). This reconstruction by Irfan Habib is by far the most comprehensive work on Postal communication. We reproduce here these details as given by Irfan Habib:

At the head of the Imperial organisation was an officer who in the seventeenth century bore the designation of *Darogha-i Dak-i Kul Mumalik-i Mahrusa*, the Superintendent of the Posts (Dak) of the Entire Empire. At his recommendation there were appointed in the provinces officials called *Darogh-i Dak*, who in later days were also encumbered with the post of *Sawanih-nigar* (intelligencer). The jurisdiction of the *Darogh-i Dak* did not necessarily coincide with the boundaries of the *suba*.

The official postal organisation was known by the name *dak-chauki*, *dak* being the word for post, and *chauki* signifying relay-stations for runners and horses. Besides the runner two horses were also kept at each of them. His contemporary Hamilton says the stations were spaced 10 miles from each other at caravanserais on the high-roads.

The foot-runners (*piyada*) employed to convey government posts were known as *meorahs*.

The sources of Akbar's reign do not specifically say that the *meorahs* as foot-runners ran in relays. Several times it has happened that a foot-*meorah* has travelled a distance of 700 *kurohs* in ten days to reach his destination. But a speed of 70 *kurohs* (about 158 miles a day-and-night) could not possibly have been attained by a single messenger: it must imply a relay-system.

Guards were also to be so kept in readiness at each *chauki* by the *faujdar*s (commandants), *thanaders* (police officials) and *zamindars* that "there should be not a moment's delay upon the arrival of the *nalwa* (official mail), presumably as it was handed over to the fresh runner. This means that at least two *meorahs* were placed at each *chauki*, apparently because they had to be available round-the-clock.

In order to achieve the speed in running that was expected of them, the *meorahs* had to train specially for their profession.

The *meorahs* also had the duty of escorting imperial *gurzbardars* (officers who carried peremptory orders) and *ahadis* (imperial cavalrymen) carrying imperial

orders or gifts, and to arrange guards (supplied by the *faujdar*s, *zamindars* or *thanadars*) for the within their jurisdictions.

The *A'in-i Akbari* gives some indication of the monthly pay the *meorahs* received in the Imperial establishment under Akbar.

The other principal means of transmission of messages and official papers was through mounted couriers. As we have seen, the term *dak-chauki* also comprehended conveyance of messages by relay-runners, but it seems to have been more usually employed specifically for the mounted messengers.

The papers that formed the official post at the level of the suba headquarters comprised “the sheets of the *Waqa'i*’ (the news-reports of the *waqa'i' nigar*), the *Sawanih* (news-reports by the *Darogha* himself in his capacity as *sawanih-navis*), the (reports of the) *harkara* (spy), the representations of the governors (sic: governor), and the *Diwan* of the *suba*, together with the statements of accounts of the treasuries.

The official postal facilities were strictly confined to government papers and correspondence. There was apparently a tendency for *meorahs* to accept private letters, but this is explicitly forbidden in a *dastak* of 1683.

One may conclude this survey of the Mughal postal system by recalling G.N. Clark’s observation that one change in 17th century Europe which deserves to be called “revolutionary” was the rise of government postal services made available to all. Private communication channels could never obtain the speed, regularity and security of the government’s relay-system.

24.5 TRANSPORT

Our sources reveal that the system of transport in India during the medieval period was largely based on carts driven by animals. In addition, for faster travel, individual travellers or a group of travellers generally used horses. In such cases, though, the amount of goods carried by travellers had to be reduced. Porterage, both human and animal, was also a practice prevalent during this period. We give you details on the modes of transport used for communication in the following Sub-sections:

24.5.1 Wheeled Transport

Wheeled carts were the principal mode of transportation, especially of commodities taken over long distances. The travel accounts often give information on the size of the travel party and the number of wheeled carts comprising travel party. These carts were also used for transporting men, women and children and, it is logical to assume, were a preferred mode of transport for weak and infirm.

The types of wheeled carts used during the medieval period have been researched by Jean Deloche. We give here the details as stated by him:

There were at that time two types: the carts which were used by travelers, and the wagons intended for the transport of goods. The first, generally drawn by oxen (*bahali*, *manjholi*, *rahru*, etc.), or occasionally by horses (*ghor bahal*, *ekka*)..., were fitted out with a seat and a kind of baldaquin, supported by bamboos, and were decorated according to the social status of the passengers, with a carrying capacity of one or several persons. In western India they could cover some 50 km a day with oxen of good quality which were able to sustain a reasonably brisk pace. In the countryside of eastern Bihar (Purniya district), where the animals were less efficient, the *manjholi* and *rahru* covered at the time of Buchanan a daily distance of only some 20 or 32 miles. One also found in the western plains light four-wheeled carts drawn by oxen and reserved for the wealthy, bankers or dance groups. More robust carts (*chakra*, *larhi*, *saggar*), also having spoked wheels, were utilized for field work and the transport of

goods, as well as heavy wagons with solid wheels drawn by several pairs of oxen, which have today disappeared except in a few archaic and isolated corners.

Under such conditions, with a maximum load which could scarcely exceed 600 kilos, the carts covered but relatively short distances in one day: some 20 km, which nevertheless offered certain advantages over pack animals.

24.5.2 Porterage

Porterage, both animal and human, was also in use in medieval India though with varying degrees of usage in different parts of the country. Different kinds of domesticated animals were trained and used for this purpose. They were also categorised according to their load-bearing capacities and the speed and distances they could travel. Thus horses and mules formed one category which were mostly used as swifter mode of transportation. In the other category were animals such as oxen and buffaloes. They were employed in situations needing the haulage of bulky goods over long distances though with comparatively slower speed. Camels were used as special category animals for traversing desert regions. Similarly elephants were mostly used in special situations demanding the movement of very heavy loads over short distances.

The employment of humans for the purposes of porterage was mostly for short distance transportation of goods and for transporting other humans in palanquins or litters. The transportation of goods by human porterage has been described by Deloche thus:

Generally, objects were borne in one of two manners: either by placing them on the head, which was protected by a straw ring or by means of a rolled length of cloth, or by carrying them in two baskets suspended on either extremity of a pole borne on the shoulders, equivalent to a shoulder yoke, and called *bahangi* in the North, *kavadi* in the South. The implementation of these methods varied from region to region and among social groups, as well as according to diverse factors which frequently elude our knowledge.

Similar details for litter transport are also available in Deloche's work:

Conveyance by means of litter was widespread. Two types of vehicles were used: the one-pole litter or *palanquin*, consisting of a bodywork suspended from a straight or lightly curved bamboo, the richness of decoration or degree of comfort corresponding to the social rank of the travellers; and, the two-pole litter, made of a framework stretched between two parallel bars, often covered and curtained, almost exclusively reserved for the travel of sovereigns, the women of the *haram* or the procession of the heavy temple statues.

24.6 SUMMARY

An efficient transport and communication system has always been considered as essential pre-requisite for the economic advancement of the state and for the establishment of an efficient and effective administrative system. Under the impact of a growing process of monetization, which became pronounced from the second half of the sixteenth century, trade and commerce received great impetus all over the sub-continent. A major consequence of this was an improvement in the transport and communication in the region. A fairly widespread network of communication routes connecting almost all parts of India came to be reinforced along with an increase in the travel facilities such as resting places and communication support in the form of bridges and ferrys on river crossings. There also developed a fairly elaborate system of postal communication. The transport facilities, however, did not undergo any major change and remained more or less in the same form as they were earlier.

24.7 EXERCISES

- 1) Write a detailed note on the Communication network in the northern part of India during the medieval period.
- 2) What type of resting facilities were available to travellers? Elaborate.
- 3) Discuss the basic features of the organisation of postal communication in Mughal India.
- 4) Write short notes in about 400 words each on the following:
 - i) Bridges in medieval period
 - ii) Wheeled transport

24.8 SUGGESTED READINGS

Deloche, Jean, *Transport and Communication in India*, Volume 1, *Land Transport*, Oxford University Press, Delhi, 1993.

Farooque, A.K.M., *Roads and Communications in Mughal India*, Idarah-i Adabiyat-i Delhi, Delhi, 1977.

Habib, Irfan, "Postal Communications in Mughal India", Paper presented at the 46th session of the *Indian History Congress*, 1985, Amritsar.

Kumar, Ravindra, "Some observation on Masonry Bridges in Mughal India", *Art and Culture in Medieval India*, Prof. Nurul Hasan Festschrift, Qaiser, A.J. and Verma, S.P. (ed.), Jaipur, 1993.

Verma, H.C., *Medieval Routes to India*, Naya Prokash, Calcutta, 1978.

In addition to the above the travel writings of contemporary and near contemporary European visitors to India shall also be of interest. Given below are two of the more important travelogues.

Foster, William (ed.), *Early Travels in India, 1583-1619*, Reprinted by Oriental Books Reprint Corporation, of Munshiram Manoharlal Publishers Pvt. Ltd., New Delhi, 1985. These travels contain the accounts of seven early travellers who visited India between 1583-1619.

Tavernier, Jean-Baptiste, *Travels in India*, 2 vols., tr. Ball, V., Crooke, William (ed.), Reprinted by Atlantic Publishers & Distributors, New Delhi, 1989.