CHAPTER 2
MEANS OF LAND TRANSPORT

1: OXEN

The humped Indian ox (zebu to zoologist),¹ provided the major means of transport in Mughal India.² The hump on the fore part of their back - a physical feature peculiar to Indian oxen as noted by several European travellers³ enabled them to be harnessed.⁴ This made them not only efficient drought animals to draw ploughs as well as carts but also to be used as pack animals to carry commodities mainly of bulk and even to

² “Differing from the custom in Persia, you do not employ in India in caravans or journeys either asses, mules, or horses, everything being carried here on oxen or by wagon” (Tavernier, Travels in India, 1640-67, vol. I, transl. V. Ball, 2nd edition revised by W. Crooke, London, 1925, Delhi, 1977, p. 32).
⁴ “Whereas in Europe we attach our oxen by the horns, those of India have a large hump on the neck, which keeps in position a leather collar about four fingers wide, which they have only to throw over the head when they harness them” (Tavernier, I, p.36).
ride. The use of oxen as pack animals whether by the traders or the imperial establishment is testified by the Mughal miniatures also (see Plate -II for use in trade where pack oxen are being loaded and Plate-III and IV for use in the imperial establishment for carrying building materials).

There is no doubt that in short distance trade in agricultural produce from surrounding villages to towns and townships, the peasants who generally themselves carried this trade employed pack oxen or carts drawn by oxen. We have the news report forth coming that “The peasants of the pargana Petlad &c. come to Ahmadabad to sell cart loads of food grains and had to pay Rs.2 per cart as rahdari.”\(^5\) The fact that peasants brought goods on either oxen drawn carts or on pack oxen is also evident from a farman issued by Aurangzeb in his 8\(^{th}\) regnal year that forbade the following exactions: “a fee of one tanka for feeding oxen, whether drawing carts or carrying load, when brought from outside into city, on carts bringing grass and straw one copper coin, on those bringing firewood, five ser of the same and on each ox-load four almonds. These were exacted at various places en route to the towns.”\(^6\) However to estimate the number of oxen employed in village to town trade seems difficult, but since this trade was much more voluminous than the long distance trade, since all over the empire towns and townships depended for feeding their population as well as for raw materials for their crafts on this village-town trade. It is of course

\(^5\) Akhbarat of Prince A’zam’s headquarters in Gujarat, A 77

certain that the number of oxen employed in local trade must have been larger than in the long distance trade.

As for the long distance trade is concerned, it is well established that the main carrier of the trade of the bulk were the celebrated Banjaras, who used pack oxen. They are best described by Peter Mundy "Theis Banjaras carrie all their howsehold along with them, as wives and children, one Tanda consisting of many families. Their course of life is somewhat like Carriers, continually driveing from place to place...There may bee in such a Tanda 6 or 700 persons, men, women and children. There men are very lustie, there women hardie, whoe in occasion of fight, lay about them like men. Theis people go dispersedly [i.e. well spread out], driving their laden Oxen before them, their Journey not above 6 or 7 miles a day att most, and that in the Coole." The Mughal emperor Jahangir also observed that "in this country the Banjaras are a fixed class of people, who possess a thousand oxen, or more or less, varying in numbers. They bring grain from the villages to the towns and also accompany armies. With an army [like one then being prepared for Qandahar], there may be a hundred thousand oxen or more." Sir Thomas Roe, met on the route from Surat to Burhanpur "as

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many as 10,000 bullocks in one troupe laden with corne, and most of the
days, others, but less.\textsuperscript{10} Peter Mundy (1630-32), during his journey from
Surat to Agra and again from Agra to Patna, noticed large numbers of oxen
used by Banjaras in carrying trade. On 22nd December 1630, near Sironj,
during his visit from Surat to Agra, while sitting on top of a little hill, he
saw many thousand of oxen laden with provisions, stretching at least 1½
miles in length.\textsuperscript{11} During his journey from Agra to Patna in 1632, once he
met “a \textit{tanda of banjara} of oxen in number 14,000 all laden with graine as
wheat, rice, etts.” Two days later he encountered another “Tanda of oxen,
number 20,000 (as themselves said) laden with Sugar.”\textsuperscript{12} In 1630, during
Mughal attack in the Deccan, two groups of Banjaras accompanied Asaf
Khan, \textit{Wazir} of Shahjahan, with 180,000 and 52,000 bullocks.\textsuperscript{13} Tavernier
wrote about the caravans and astonishing sight of 10,000 or 12,000 oxen
together for the transport of rice, corn or salt.\textsuperscript{14} In his later period
Aurangzeb, found Banjaras with “a hundred thousand oxen” trying to buy
grains in Gujarat, who had come from the Deccan with large numbers of
other Banjaras who dispersed in other part carrying salt as they failed to
find food grains for the Deccan.\textsuperscript{15}

\textsuperscript{10} Thomas Roe, \textit{The Embassy of Sir Thomas Roe, 1615-19, as Narrated in his Journal
\textsuperscript{11} Mundy, II, p. 56.
\textsuperscript{12} Ibid. II, pp 95-98.
\textsuperscript{13} W. Crooke, \textit{Tribes and Castes of the North-western Provinces and Oudh}, Calcatta,
1896, p. 151.
\textsuperscript{14} Tavernier, I, pp. 32-33.
\textsuperscript{15} \textit{Ahkam-i-Alamgiri}, India Office MS., I.O. 3887, fol. 83a.
Irfan Habib on the basis of information given by Tavernier has estimated the total population of Banjaras as 400,000. Further utilising this estimation and other information that each Banjara family had one thousand oxen to load, he got a total ox population of about 9 million (assuming the conventional ratio of 4.5 persons to a family).\textsuperscript{16}

For the load carried by an ox there are varying estimates. Mundy puts the load at $2\frac{1}{2}$ cwt. at one place and 4 \textit{man-i-Jahangiri} or 265 lb (120 kg) at another place.\textsuperscript{17} Tavernier on the other hand thought it to be as much as 300 or 350 livers i.e. 327 to 390 lb.\textsuperscript{18} (148.327 or 176.90kg). According to English Factory Records a bullock seems to have normally carried 4 \textit{man-i Shahjahani} and 8 \textit{sers}\textsuperscript{19}(140.28kg). So far as total amount of commodities on an average conveyed annually on the oxen of Banjaras is concerned, Irfan Habib assuming that an ox carried a load only a third of year, at six miles a day, has calculated as 1.14 million metric tons each year over an average of 720 miles, or a total of 821 million metric ton-miles a year.\textsuperscript{20} As pointed out by Habib, this appears quite substantial if we remind

\textsuperscript{16} Irfan Habib, ‘Merchant Communities’, pp. 376-77.
\textsuperscript{17} Mundy, II, pp 95, 98. (One \textit{man-i-Jahangiri} was equal to 30.14 kg. See Irfan Habib, \textit{Agrarian System of Mughal India: 1556-1707}, 1st pub.1963, second revised edition New Delhi, 1999, p. 421).
\textsuperscript{18} Tavernier, I, pp. 32-33.
\textsuperscript{20} Irfan Habib, Merchant Communities, p. 377.
ourselves that in 1882 Indian Railways carried about 2,500 million metric
ton-miles.\textsuperscript{21}

While the volume of trade carried by oxen of the Banjaras was
considerable in terms of volume it was not as high in value since the
commodities on oxen carried by Banjaras were mostly goods of greater
bulk but of low value such as food grain: rice, pulses, millet, wheat, sugar,
butter, salt etc.

Oxen provided a means of transport no doubt cheap but slow. Mundy
noted that, their pace was ‘Not above 6 or 7 miles a day att most’\textsuperscript{22} The
slow pace was perhaps due to the reason that, the oxen grazed along the
routes, which was also the reason behind the low cost. Though, it restricted
operations during the summer and in the drier tract.\textsuperscript{23}

European Companies in India were another important user of the hired
oxen as pack animal as well as cart drawer. Oxen provided to them also the
main means of land transport. They used to carry to and fro commodities of
bulk to their \textit{karkhanas} (workshops) and ports to and fro from places far
and near. Among the European Companies, English were the major user of
oxen. English Factory Records are full of evidences for the use of oxen by

\begin{itemize}
\item \textsuperscript{21} Ibid.
\item \textsuperscript{22} Mundy, II, p. 96.
\item \textsuperscript{23} Ibid., II, p. 96; [Among the exactions declared illegal by Aurangzeb are listed the fees
levied on the Banjaras for grazing their animals (\textit{Mirat}, I, p. 287; Frazer 86, \textit{Dasturu-l
Habib, \textit{Agrarian System}, p. 69]
\end{itemize}
the English and others especially the Dutch. The dependence of European Companies on oxen was so great that their loading of ships often got affected by the procurements of oxen. In spite of the fact that from Agra to Ahmadabad and Surat, camels were also employed along with oxen, but sugar and sugar candy were especially carried on oxen and not on camels. Thomas Roe advised the Factors at Agra to bring commodities on the carts rather than on camels. In Gujarat local transportation of commodities as well as water for ships was mainly done through pack oxen or ox-drawn carts. From Agra to Patna, the English Factors depended mainly on oxen for providing carriage on that route. Finch testified to use of oxen by the English East India Company on the route of Agra and Lahore.

The other European Company, the Dutch also used to hire oxen for transport of their commodities. In 1627, the Dutch Factors at Agra were so much worried about the rising rate of cartage due to use of carts for import of spices on large scale from Masulipatam to Agra, via Burhanpur by the


26 Ibid., 1618-21, p. 102.


29 Ibid., 1618-21, pp.191, 199, 256, 283-84, ff.

30 Finch (c.1611) in Early Travels, p.155.
merchants of the Deccan, that they especially wrote about the cartage and reason behind its rise to Batavia.  

In Mughal India ox was also used for riding. Various travellers mentioned it time and again. John Juordain (1608-17), during his journey from Gandavi to Surat, mentions that his companions rode upon oxen. Mendelslo, who visited India in 1638-39, noted his personal experience with the ox in these words that “For first I had a mule, then a camel, then an elephant, and then at last an oxe, whose trotting was the hardest of any beast that ever I bestrid, lifting up his hoofs as high as the stirrup and carrying me between six or seven league in less than four hours”. Tavernier (1640-67), recorded the manner of ridding up on ox in detail. He noted that “…I come to the manner of travelling in India, where oxen take the place of horses … These oxen allow themselves to be driven like our horses, and have for sole bridle a cord, which passes through the tendon of the muzzle or the nostrils”. Thevenot also noted the same process of riding up on ox and he further stated that “they saddle him as they do a Horse, and if be put a little spurred, he’ll go very fast, and some that go very fast as a good Horse”. Tavernier at the same time noted that what care had to be taken in selection of oxen to ride upon? He cautioned that “when you buy or hire an ox for

33 Mendelslo, p. 65, cited from Manrique, II, p.278.
34 Tavernier, I, p.36.
35 Thevenot, p.73.
riding that he has not horns longer than a foot, because, if they are longer, when the flies sting him, he chafes and tosses back the head, and may plant a horn in your stomach, as has happened several times.\(^\text{36}\)

So far as pace of the oxen used for riding is concerned, Abul Fazl noted that they could travel 80 kos (120 miles) in 24 hours, and surpassed even swift horses.\(^\text{37}\) Mendelslo noted that an ox carried him between six or seven league in less than four hours.\(^\text{38}\) Tavernier noted that paces of some of the oxen were as easy as those of their hacks.\(^\text{39}\) In late seventeenth century Sujan Rai, found that a Gujarat ox could travel 50 kos in a day.\(^\text{40}\)

The oxen were shoed especially in the stony zone both on account of the pebbles and because of the heat, which might injure the hoof.\(^\text{41}\) Thevenot has given description of shoeing the oxen in this manner: ‘They cast them with a rope fastened to two of their legs and so soon as they are down, they tie their four feet together, which they put upon an engine made of two sticks in form of an X; and then they take two little thin and light pieces of iron, which they apply to each foot, one piece covering but one half foot, and that they fasten with three nails above an inch long, which are clenched upon the side of the hooves, as horses with us are shod’.\(^\text{42}\)

\(^{36}\) Tavernier, I, p.36.


\(^{39}\) Tavernier, I, pp. 35-36.

\(^{40}\) Khulasatu-t Tawarikh ed. Zafar Hasan, Delhi, 1918, p. 58.

\(^{41}\) Tavernier, I, p. 36; Thevenot, pp.72-73.

\(^{42}\) Thevenot, pp. 72-73.
As so far breeding of oxen is concerned, the most important user, the peasants, generally bred oxen for their use in large numbers, as it may be inferred from the statement of Abul Fazl that every part of the empire produced the gao (cow/oxen) of various kinds. The extent of cultivation in Mughal India was much less than around 1910, it meant that the land available for grazing, both waste and forest was far greater in extent than around 1910. Even cultivated zone had pockets of jungle and waste lands which were available for pasturage and as well for other use these belonged usually to the local zamindars. Since it was possible to maintain oxen and cows on dried grass and hay etc. feeding them even during off seasons was not a problem. All these factors must have had a positive impact on the breeding of oxen by the peasants who must had kept more than four

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43 *A' in*, I, p.102.


bullocks per plough which were tax-free. A traveller saw even in Bengal, a densely cultivated suba of Mughal Empire, ‘pasturages’ with ‘enormous herds’ of cattle.

There were certain regions which bred special species of oxen. Gujarat produced the most celebrated oxen in India. Those were known not only for their good stature and swiftness but also for carrying heavy burden. Sarkar of Sharifabad, in Bengal, bred a beautiful specie, white in colour, and of fine build, which were famous pack oxen. In Deccan there were innumerable quantities of tame animals, oxen, cows, buffaloes, but cows from Telingana were famous one. Hisar (now in Haryana) also bred oxen which were famous and were exported from there to other places.

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46 A’in, I, p.199. In the reign of Akbar there were two cows and four bullock per plough as tax-free.

47 Manrique, II, p.123. Most of the European travellers found the oxen in all over India, such as Terry in Early Travels, p. 311; Pelsaert, p. 49; Tavernier, I, p. 32; Thevenot, pp. 72,73, 75; Fryer, I, pp. 295-296; III, p. 156.

48 A’in, I, p.102; II, p. 116; Abu’l Fazl reported that, though every part of the empire produced cattle (cow/oxen) of various kinds, those of the Gujarat were the best. Tavernier also noted about good features of Gujarat oxen (Tavernier, I, pp. 32-37). Later on Sujan Rai Bhandari testified the observation of Abu’l Fazl about the breed of Gujarat (Sujan Rai, pp. 56, 58). Ali Muhammad Khan also praises those oxen for their beauty and swiftness (Mirat, I, p.14).

49 Ibid., I, p. 102; II, p.51. A peculiar feature of them that noted Abu’l Fazl in his A’in was that, they used to kneel down at the time of loading.

50 Ibid., II, p.110; Relations of Golconda in the Early Seventeenth Century, a collection of the ‘relations’ of Methwold (1-50), Schorer (51-65), and an anonymous Dutch factor (67-86), ed. and transl. W. H. Moreland, Hakluyt Society, London, 1931, pp. 63, 86; Thomas Bowrey, A Geographical Account of Countries Round the Bay of Bengal, 1669 to 1679, ed. R. C. Temple, New Delhi, 1993, p.128; Roe found plenty
Besides peasants who bred oxen mainly for their own use or for occasional sales, there were certain community who took great interest in the breeding of oxen. Banjaras were the most important class of breeders, who combined pastoralism with carrying trade.\textsuperscript{52} Again there were certain nomad, who took great interest in the breeding of cattle and travelled long distance to graze their cattle.\textsuperscript{53}

All over the empire periodic fairs, 	extit{hats}, etc. were held.\textsuperscript{54} Even there were special marts for the cattle at many places such as at Agra, Mandhata etc.\textsuperscript{55} We have references about the selling of cattle by the peasants and other people, who used to bring their cattle for sale in and around the city.\textsuperscript{56} Naturally the prices of oxen varied from place to place and according to the built-breed as well as demand. Around Delhi, usual price of the ox has

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\textsuperscript{51} Balkrishan Brahman, Add. 16859, ff. 59b-60a. Even in the beginning of 20\textsuperscript{th} century oxen from Punjab were exported to other provinces (Moreland, \textit{The Agriculture of United Provinces}, 1912, pp.120-21.

\textsuperscript{52} Irfan Habib, Merchant Communities, p.373.


\textsuperscript{55} Pelsaert, p. 4; Joannes De Laet, \textit{Imperio Magmni Mogolis etc.}, 1631, transl. J.S. Hoyland, annotated by S. N. Banerjee, \textit{The Empire of the Great Mogul}, Bombay, 1928, p. 40; Mundy, II, p. 189; Thakur L'al, f. 35a.

\textsuperscript{56} \textit{Mirat}, I, pp. 259-64; Irfan Habib, \textit{Agrarian System}, p. 86.
been reported as not more than Rs.10 in the sixteen century.\textsuperscript{57} In the reign of Shahjahan, 349 and 652 gao (cow, bull, and/or bullocks) from the chakla of Hisar (now in Haryana) were exported at the price of about Rs.7 ½ per head.\textsuperscript{58} In the Deccan, particularly in Masulipatnam around 1608-14 the price was between 1 to 2 Pagodas (approx. Rs.3 to 6), and around 1618-22 was 6 or 8 shillings (approx. Rs.3 or 4).\textsuperscript{59} In 1646 in Surat the price of the ordinary ox was Rs.7 ½ or Rs.8 which were certainly higher than usual since the English factors were even searching other places for lower price.\textsuperscript{60} However certain breeds of good stature and swiftness were highly priced but were not used for carrying load and they were mostly used by people of high stature for their coaches or for riding only. The highly priced oxen were the Gujarat white oxen; in exceptional cases the price was as high as 100 muhr (about Rs.900). Though, they were generally priced between 10-20 muhr (Rs.90-180).\textsuperscript{61} In mid seventeenth century, Tavernier bought a pair of those for Rs.600 and in the second half of seventeenth century, and Sujan Rai priced at Rs.500.\textsuperscript{62} Thevenot reports that, Dutch had a pair of those at Ajmer, which cost them 200 crowns (approx. Rs.500) each.\textsuperscript{63} However,
Fryer in the eighth decade of seventeenth century, priced those Gujarat white ox at 30 or 40 larin (Rs.12.3 or 16.4).

**OXEN IN IMPERIAL ESTABLISHMENTS:**

Imperial establishment also used oxen for various purposes such as for carrying building materials, fuels, water, baggage, cheetah on carts for hunting, for *dak chaukis* etc.^(see Plate-VIII, for carrying building materials for imperial establishments, Plates- XI &XII, for use of oxen in hunting). Abul Fazl noted that 600 carts were employed in carrying fuel for the imperial kitchen and 200 carts were employed in carrying building establishments.^[Mughal emperors took great interest in the breeding of this animal. Akbar categorised the various breeds of oxen according to their suitability for the work and made specialist in-charge of each category. At the death of Akbar there were 7000 oxen in the imperial stable.^[Shireen Moosvi found the figure of 7000, given by Pelsaert by no means excessive, as at least 3200 oxen had to be employed in those 800 carts used in carrying fuels and building materials, as four oxen were required for a cart and at the

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64 Fryer, I, p. 296. Moreland noted that *larin*, a Persian money was worth less than half of one of Akbar's rupees (Moreland, *India at Death of Akbar*, p. 57). In 1635, between 'Scinda' and Persia the usual freight rates for indigo, sugar etc. was Rs.7 or 17 laris per 'corwaur' (*Kharwar*). Thus a *larin* must equal to Rs.0.41.
66 Ibid., I, p.102.
67 Ibid., I, p.102.
same time oxen had to fulfill other demands also. In the imperial stable of Jahangir, there were at least 10,000 oxen. Again there were about 6,300 Gujarat oxen, besides other, in the royal stable of Shahjahan. Besides the emperors, the high officials of the empire, holding mansab had the obligation of keeping certain fixed number of carts, such as, according to A’in, a mansabdar of 10,000, had to keep 320 carts and that of 20, had to keep one cart. A’in has detailed information regarding this obligation in the salary-schedule of the mansabdars, since the number of holders of various ranks can at least be worked out for the 40th year of Akbar’s reign. We can get the number of horses, elephants, beasts of burden and carts to be maintained by the mansabdar at least for that year (see APPENDIX-2A). And total number of carts kept by the nobles for that year was 13226. Taking at least two oxen for a cart, total number of oxen kept by the nobles must not be less than 26452.

2: CAMELS

In the desert region, that mainly covered the north-western part of the Mughal empire, owing to the scarcity of water, fodder and strong winds

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69 Shireen Moosvi, EME, p. 241.
70 Withington in Early Travels, p.103.
71 Manrique, II, p. 278.
72 A’in, I, pp. 124-131.
73 Shireen Moosvi, EME, p. 212 and table 9.2 on p. 214. However this obligation continued in the reign of other Mughal emperors also as it is confirmed from besides other regulations, from the regulation of khurak-i dawwab, but we do not find any other information in the form of table further in the reign of Jahangir, Shahjahan and Aurangzeb.
raising sand and dust and dunes, camel was the only animal naturally suitable for transport. The well known features which make camels suitable for journey in the desert are that the sole of its feet are covered by callous horny integuments, connecting the two toes upon which the animal walks and that its nostrils can be closed at will, a good protection against dust storm. Besides, this animal can survive for many days without water and fodder and can eat even those herbs and grass which are unfit for other animals. Camel is indifferent to the quality of water it drinks – brackish, stagnant or putrid. A remarkable feature of the camel is that it can go on toiling under the burden for a very long time without rest.

Camels were found in two species, the Bactrian (two-humped) and Dromedary (one-humped). However the Bactrian is unsuitable for the use in warm climates, but in ancient India it seems to have been the only species known. On the abacus of Ashoka’s Udayagiri pillar in Central India, the two-humped camel is distinctly shown, and as early as the third century B.C. The first known sculptured representation of the dromedary is that of the Mandor freeze (Rajasthan) of the twelfth century.74 (See Plate-V). This makes one wonder on what basis Kohler-Rollefson supposes that the one humped camel reached in India only in the fourteenth century.75 Indeed, there is very good evidence for much earlier use of the dromedary in India.

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When in 712 A. D. Muhammad bin Qasim conquered Sind, he led a composite Arab army of horses, dromedaries (\textit{ushtār}) and infantry.\textsuperscript{76} But, in fact, the use of the dromedary in Sind was noticed earlier still by the Chinese pilgrim Huien Tsiang when he visited Sind in 640’s. He noticed that in Sin-tu (Sind) “the camels are small in size and have only one hump”.\textsuperscript{77} Thus the dromedary has a much earlier history in India than the period of Delhi Sultanate.

Kohler-Rollefson is correct in emphasizing from her research that in India the dromedary is raised neither for meat, nor milk, but solely as draught animal, for working Persian wells or ploughing, but above all, for transport.\textsuperscript{78}

It may be mentioned that in Mughal India, the Bactrian camel (two-humped) kept only for a curiosity.\textsuperscript{79} It was the dromedary which alone did all the work.

It is evident from our sources that on several routes especially passing through the desert and dry regions, that joined the major trade centres of the empire, camels were employed as beast of burden. From Agra, Surat was linked by two separate important routes. One ran via Gwalior, Sironj and Burhanpur and other, via Bayana, Ajmer and


\textsuperscript{78} Kohler-Rollefson, op. cit., pp. 284-85.

\textsuperscript{79} \textit{A' in}, I, p. 99; Mundy, II, pp. 40. 237.
Ahmadabad. The route via Burhanpur was branched into two at Duraha and rejoined at Burhanpur. One branch of this route passed through Narwar, Handia etc. and crossed Narmada at Handia. Other branch passed through Sarangpur, Sunera, Ujjain, Akbarpur etc. and crossed Narmada at Akbarpur. The branch via Narwar was shorter than the branch via Sarangpur, Sunera etc. The route via Ajmer and Ahmadabad mostly passed through the deserts and hilly terrains. This route also branched into two at Jalor and rejoined at Magarvada. The eastern branch through Sirohi was fit for both carts and camels and the western branch through Merta, Bhinmal, Dantivada, a shorter route, was fit for camels only. On both of these routes above mentioned, joining Agra with Surat, camels were very important means of transport. On the route from Ahmadabad to Nagarparkar, which further went from thence to Thatta, and the route from Ajmer to Thatta via Jun, there was scarcity of drinking water and fodder, and therefore, transportation by camels was the only viable option. Routes linking Agra to Multan passing through deserts and dry region, via Ajmer, Merta and Jaisalmer and again Multan to Thatta, were also mainly fit for

81 Finch in *Early Travels*, pp. 139-43.
82 Mundy, II, pp. 249-50, 261; Finch in *Early Travels*, pp. 170-73.
camels. Again, on route from Lahore to Qandahar running via Kabul as well as via Multan merchants had to pass through desert and dry region, without meeting water resources sometimes for three or four days, camels were employed for transport.\(^{85}\) (For routes see Map 2.1).

There was no uniformity about the loads carried by camels in the different regions. Under Akbar’s regulations a first class *bughdi* (one-humped male), carried not more than 10 *mans* (251.1 kg.) while a second class *bughdi*, a superior *jammaza* (one-humped female) and a *lok* (country-

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\(^{86}\) Salbancke, *Purchas*, III, pp. 84-85; Steel and Crowther, *Purchas*, IV, pp.269-272; Manrique, II, pp. 255-9; Tavernier, II, p. 73.
bred camel), could carry 8 *mans* (200.88 kg). A second class *jammaza* (one-humped female) and a *lok* (country bred camel), could carry 6 *mans* (150.66 kg).\(^{87}\) In a letter dated 1\(^{st}\) December 1616, Roe mentioned that a camel could carry 1/3\(^{rd}\) of the load carried by a cart.\(^{88}\) In 1617, the English factors made three types of bales to be loaded on camels weighing 3 3/4 and 4 1/2 maunds, and on each camel two bales of such types were loaded. It means that the weight to be loaded on camels varied from 7 1/2 to 9 maunds (or 226.05 to 271.26 kg. per camel).\(^{89}\) In 1619, on an average 9 ‘pakka’ maunds (271.26 kg.) were loaded on a camel.\(^{90}\) In 1635, from Lahri Bander to Thatta 6 maunds (200.88 kg.) were loaded on a camel.\(^{91}\) The camels during Aurangzeb’s visit, to Kashmir, carried four hundred and eighty pounds weight of silver, i.e. 217.872 Kg.\(^{92}\) According to Moreland, the

\(^{87}\) *A’ìn*, I, pp. 101-2; Cf. Irfan Habib, *Agrarian System*, pp. 420-21, *man-i-Akbari* based on 28 *dam* equal to 51.63 lb. (23.44 kg) and that of 30 *dams* the *ser* = to about 55.32 lb. (25.11 kg). Akbar had given the name of *bughur* to the two-humped camel, and *bughdi* to the male and *jammaza* to the female of the one-humped species. The male offspring of a *bughur* and a *jammaza* was called *ghurd* and the female offspring was called *maya ghurd*. If a *bughdi* or a *lok* coupled with a *jammaza*, the young one was called *bughdi* or *lok* respectively; but if a *bughdi* or *lok* coupled with an *arwana* the young male was named after its sire and the female after its dam (*A’ìn*, I, p. 101).

\(^{88}\) *Letters recd.*, Vol. IV, p.252.


\(^{90}\) *EFL 1618-21*, p. 74.

\(^{91}\) Ibid., 1634-36, p. 125. A *man-i-Shahjahani* based on *ser* of 40 *dams* should have equal to about 73.75 lb. avoirdupois or 33.48 kg. (Irfan Habib, *Agrarian System*, pp. 421-22).

\(^{92}\) Manucci, I, p.62.
average load carried by camels was about 225 kg or 500 lb.\textsuperscript{93} and this largely conforms to the information in our sources.

As far as freight charge is concerned, and most of the information come from European records, specially from those of the English East India Company. I have tried to collect some of the quotations of freight charge obtained from the above records in Table: 2.1. These quotations are generally from the seventeenth century. During this period there were variations in weight (maund or \textit{man}) and since for comparative purposes adjustments have to be made for them, I have put the rates freight charge/maund in three different columns, the third converting the cost into 100 kg./Rs./mile. The \textit{man-i-Shahjahani}, it should be noted, continued under Aurangzeb (1659-1707) as the standard unit of weight in most of the parts of the empire. For the distance between the places, I have mostly relied upon \textit{`Memoir of a Map of Hindooostan or the Mogul Empire}, drawn up by James Rennel.

\begin{table}[h]
\centering
\caption{Freight Charge of Camels on Major Routes}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
Initial point and destination & Duration (Days) & Via & Approx. Distance (in mile) & Year & Freight charges & References \\
\hline
Agra-Surat & 50 & Burhanpur & 745 & 1617 & man-i Jahangiri/Rs. & \begin{tabular}{c}
Letters read \ VI, p. 237. \\
EFl, 1618-21, p.47. \\
lbid.,pp.51, 74. \\
lbid.,1637-41, p.137-38. \\
lbid.,1651-55, p.52. \\
\end{tabular} \\

Agra-Thatta & - & - & - & - & - & \hline
Agra-Ahmadabad & 35-40 & Jaisalmer & 1639 & - & 2.66 & \hline
Lahri Bandar-Thatta & 36 & 534 & 1651 & 1.687 & 0.0094 & \hline
\hline
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\hline
\end{tabular}
\end{table}

\textsuperscript{93} Moreland, \textit{India at the Death of Akbar}, pp. 206-07, and \textit{India from Akbar to Aurangzeb}, pp. 340-41.
From Table: 2.1, it is clear that the freight charged over different routes varied from route to route and even on same route in different years. It clearly reflects from the freight charges for three consecutive years, on Agra-Surat route via Burhanpur, that freight for 100 kg weight for distance of a mile was not above Rs.0.0073. In 1617, the English factors at Agra hired camels at the rate of 11 ¾* Jahangiri rupees per camel to carry 9 maunds to Surat, i.e. at 1.56 rupees (1.3* Jahangiri rupees) per maund for the whole distance or Rs.0.0067/mile for a 100kg weight.\[^{94}\] In 1618 12½ rupees was paid for each camel’s load i.e. 1.40 rupees per maund for the journey or Rs.0.0062 was charged for a mile for 100 kg weight.\[^{95}\] In February 9th and 15th 1619, noted that the freight between Agra and Surat was 3 ½ mahmudis i.e. Rs.1.4 per camel, which is not possible.\[^{96}\] Again in a letter dated 20th February 1619, they wrote that they paid 14 ¾ rupees for 9 maund ‘pakka’ per camel, i.e. at 1.64 rupees per maund or Rs.0.0073 was paid for 100 kg weight for a mile.\[^{97}\] In 1639, from Agra to Thatta via Jaisalmer a journey not above 35 to 40 days, camels could be hired at 22 rupees i.e. at 2.66 rupees per maund or 2.39 rupees per Jahangiri maund.\[^{98}\]

\[^{95}\] *EFI, 1618-21*, p. 47.
\[^{96}\] Ibid. 1618-21, pp. 47,51. Actually there seems a mistake in printing or copying that ‘per camel’ has been written in place of ‘per maund’, which will then be in accordance with the earlier year’s freight charge.
\[^{97}\] Ibid., p.74.
\[^{98}\] Ibid. 1637-41, pp. 135-138.
In 1651, for Ahmadabad from Agra, camels were hired at 15 3/16 rupees per camel load, i.e. at 1.6875 rupees per maund i.e. 100 kg weight could be carried for mile by paying Rs.0.0094. In 1635, from Lahari Bandar to Thatta a distance about 36 miles, a camel was hired at 1½ rupees for carrying 6 maunds i.e. 0.25 rupees per maund or by paying Rs.0.0069, 100 kg could be carried for a mile.

As far as pace is concerned, camels were also a slow mode of transport, in 1617 loaded camels took 50 days to traverse, a time equal as taken by carts from Agra to Surat. In 1648 it is reported that camels were hired with expectation to reach Ahmadabad from Agra in 45 days. Withington speculated in the second decade of seventeenth century, that goods from Agra to Bhakkar be conveyed in twenty days. From Agra to Lahore, in 1639, camel did not use to take more than above 22 days ordinarily and again the route from Agra to Thatta via Jaisalmer, was covered in 35 to 40 days.

In Mughal India camels were mainly bred in the north-western part of the empire. Abul Fazl noted that they were bred near Ajmer, Jodhpur, Nagor, Bikanir, Jaisalmer, Bhatinda, Bhatnir, and in Gujarat, Sind, etc.

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99 Ibid. 1651-55, p. 52.
100 Ibid., 1634-36, p. 125.
101 Letters reed., vol. VI, p.238. However daily average might be same as that of the carts, but in an hour a camel could cover more distance, as they travelled, on an average only for five hours in a day.(Ibid., IV, p. 252)
103 Withington in Early Travels, p.218.
104 A 'in, I, p.99.
Cutch in suba of Gujarat, produced a very good variety of camels.\textsuperscript{105} Again in the vicinity of Junagarh in the jungle called Gir, inhabited by Kolis, special camels were bred; and Nawanagar also provided abundance of camels.\textsuperscript{106} In the suba of Sind the camels were the most numerous. Some persons had even 10,000 and more.\textsuperscript{107} In Thatta in the forest of Lakhi and from Sihwan to Siwi, which was called Katehar, hill camels were found in abundance.\textsuperscript{108}

Certain communities specialised in breeding and rearing of camels. In the pargana of Alor in Bhakkar, people called Pawar bred camels in abundance and they let them on hire for transporting goods to Jaisalmer, Multan, and Qandahar etc.\textsuperscript{109} In pargana of Chakhalal, sarkar Sehwan, and the pargana of San, hill people called Nuhmardi were the main cattle breeder and bred especially camels, and also horses, goats etc. and sometime barter these animals against grain, cloth, arms etc.\textsuperscript{110} Jats were also involved in the breeding of camels.\textsuperscript{111} In Multan, Baluchis reared camels and were good camelmen.\textsuperscript{112}

\begin{itemize}
\item \textsuperscript{105} Ibid.
\item \textsuperscript{106} Ibid. II, pp. 117, 119.
\item \textsuperscript{107} Ibid., I, p. 99, II, p.119.
\item \textsuperscript{108} Ibid., II, p. 165; Yusuf Mirak, Tarikh-i-Mazhar-i-Shahjahani, A. D. 1634, ed. Saiyid Husamuddin Rashidi, Karachi, 1962, p.32.
\item \textsuperscript{109} Mazhar, pp. 5-6.
\item \textsuperscript{110} Ibid., pp. 88, 239.
\item \textsuperscript{111} Ibid., p. 240.
\end{itemize}
There are scanty references about the prices of camels. In the period of Akbar, prices of different breeds varied as follows: a *bughdi* (two-humped) could be bought from 5 to 12 *muhr* (Rs.45 to 108 as one *muhr* was equal to Rs.9), *jammaza* (one-humped female) from 3 to 10 *muhr* (Rs.27 to 90), a *bughur* (one-humped male) from 3 to 7 *muhr* (Rs.27 to 63), a mongrel *lok* from 8 to 9 *muhr* (Rs.72 to 90), a country-bred *lok* from 3 to 8 *muhr* (Rs.27 to 72), an *arwana* from 2 to 4 *muhr* (Rs.18 to 36). In 1641, Manrique purchased two at Multan for 200 rupees.

The leader of the caravan of camels was called *muqaddam*, or Caravan *bakhshi*. Camelmen used to have consultations among themselves for every matter on the route. Camels marched in files and a few camelmen could manage many camels. Goods were loaded on the back of the camel in two bales of equal weight on each side tied with rope. (See Plate-VI, for packs being prepared for and loaded on camel). Packs were marked with special marks to insure the ownership of the goods of different merchants. To evade the heat of the day in the desert, the

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113 Ibid., I, p. 101. At the time of *A'in a muhr* was considered to be exactly nine rupees (Irfan Habib, *Agrarian System*, p.436).

114 Manrique, II, p. 248.


116 Mundy, II, p. 289.


journey was undertaken before dawn to last till noon and sometimes was entirely conducted at night.\textsuperscript{120} At night they marched with the help of stars.\textsuperscript{121} Spare camels were taken in case any camel die or fall ill.\textsuperscript{122}

Besides certain advantages, camel transport had some disadvantages also. As camels marched generally, 5 hours in a day and had to unload every day, there were always possibilities of goods falling down from the back of the camel and at every halt some risk to goods could be caused at unloading. Camels could be stolen as among numerous camels, each animal could not be remembered and could be hidden in the bushes.\textsuperscript{123} As to evade the heat of the day, camels marched before morning till noon; camelmen had to wake up early and at the stopping place at noon had to unload the goods and to pitch up tents.\textsuperscript{124} Camelmen often had to drink generally brackish water and even that water was not available most of the times.\textsuperscript{125} In the desert they were troubled by hot winds and shifting sand dunes among which they might cover their way.\textsuperscript{126}

**CAMELS IN THE IMPERIAL ESTABLISHMENTS:**

In the imperial establishment camels were mainly used for riding, carrying burdens and in fighting. The *A'in* informs us about a special type

\begin{itemize}
  \item \textsuperscript{120} Manrique, II, p. 341; Mundy, II, pp. 54, 246; Mazhar, p. 26.
  \item \textsuperscript{121} Mazhar, p. 27.
  \item \textsuperscript{122} Ibid., p.282.
  \item \textsuperscript{123} Letters Recd., Vol. IV, p. 252.
  \item \textsuperscript{124} Manrique, II, p. 341.
  \item \textsuperscript{125} Early Travels, pp. 209-20; Steel and Crowther, Purchas, IV, pp. 270-73; Mundy, II, pp. 245-246 etc.; Manrique, II, p.241.
  \item \textsuperscript{126} Mazhar, pp. 27-28; Manrique, II, pp.349; Tavernier, I, p. 75.
\end{itemize}
of carriage called *Mihaffa*, which was a sort of wooden turret, very comfortable, with two poles, by which it was suspended, between two camels for carrying persons. In the imperial stable, special trainers were kept to train a camel to cover long distance in a short time. However horses and swift runner were mostly used for *dak-chaukis*, but a few of these swift camels were kept always ready for every direction at the palace. In the imperial establishment camels bred in Thatta were specially reputed for carrying burden. Akbar gave so much importance to this animal that he had special stables and different varieties of camels were put together to obtain mixed breeds. For this purpose Akbar entrusted a class of people called Raibari, who were well acquainted with the country-bred camel, *lok*, and put fifty-stud *arwanas* (female camels) and a *bughur* (Bactrian camel) and two *loks* in charge of Raibari. The quality of the country bred camels improved very much, and the *A’in* claims that the Indian camels now surpassed those of Iran and Turan.\(^{127}\) At the death of Akbar there were 6,223 camels in the imperial stable.\(^{128}\) However Withington found only 2,000 camels in the imperial stable of Jahangir.\(^{129}\) Manrique noted that combined number of camels and mules maintained at the royal cost were 5,223. The high officials of the empire, holding *mansab* had the obligation of keeping certain fixed number of camels, such as, according to *A’in*, a *mansabdar* of 10,000, had to keep 800 camels and that of 20, had to keep 6

\(^{127}\) *A’in*, 1, p. 99.

\(^{128}\) Pelsaert, *A Contemporary Dutch Chronicle of Mughal India*, p. 35.

\(^{129}\) Withington in *Early Travels*, p. 104.
In the 40th regnal year of Akbar, total number of to be kept by mansabdars were 35,348. (See Appendix-2A).

3: MULES and ASSES

"Differing from the custom in Persia, you do not employ in India in caravans or journeys either asses, mules, or horses, everything being carried here on oxen or by wagon, as the country is sufficiently level." The above observation of Tavernier in mid seventeenth century seems partly to be correct for the “sufficiently level” part of India, but when we turn towards the hilly and mountainous part of India the “best animal for carrying burdens and travelling” found to be mule, the cross of two distinct species (Equus Caballus Linn.), the horse and (Equus Asinus Linn.), the ass. The mule posses the strength of horse and patience of ass and if it has not the intelligence of former, it does not have the cupidity of the latter. It never forgets the way it has once travelled.

Mules do not bred among themselves and only rare instances or exceptions are recorded and each time a mare is coupled with a male ass, however the opposite connexion is also known to take place. The male resembles its dam. During Akbar’s reign the area around Pakhlmi and its

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130 A’in, I, pp. 124-131.
131 Tavernier, II, p. 32.
133 Ibid., I, p. 103.
134 Ibid.
neighbourhood was a reputed breeding centre for mules. Abul Fazl says that rearing and breeding of mule was considered derogatory by the people of India partly due to the reason they looked down upon mules as mere asses but due to interest shown by Akbar in breeding and rearing mule, the attitude began to change. Later on, in the west of Punjab mules were bred, those to the west of Indus being better in quality, quality improved as one went further westward. Hazara district was famous for its mule breeding. In the region of Tibet mule were large and very strong. Jahangir describes the Kashmiri mules as small in size and unfit for heavy load. However I. Desideri reports in the 18th century that for the region of Kashmir, Laddakh and Tibet that, mules were able to carry heavy loads during long journeys lasting for months and with scant food.

Mughal emperors showed much interest in keeping this animal. At the death of Akbar there were 260 Mules in the imperial stable. According to Withington in the royal stable of Jahangir there were 1000 mules. Besides the emperors, the high officials of the empire, holding mansab had the obligation of keeping certain fixed number of mules, such

135 Ibid., I, p. 104.
136 Elphinston Caukul, I, p.189.
139 Tuzuk, p. 291.
140 Desideri, p. 124.
141 Francisco Pelsaert, A Contemporary Dutch Chronicle of Mughal India, p. 35; Shireen Moosvi, EME, p. 241.
142 Hawkins in Early Travals, p. 104.
as, according to A' in, a mansabdar of 10,000, had to keep 200 mules and that of 500, had to keep 10 mules.\textsuperscript{143} (See Appendix-2A). Wealthy people, Thevenot says also had mules besides other animals.\textsuperscript{144}

Mules were usually imported from Iraq-i Arab and Iraq-i Ajam.\textsuperscript{145} The Iranian breed was held so superior that the King of Iran sent mules as gift to Jahangir.\textsuperscript{146}

The information about the price of mules is rather meagre however Abul Fazl records the very superior mules were often sold at Rs.1000 per head.\textsuperscript{147} The prices of Tibetan mules were same as that of good horse.\textsuperscript{148}

Mules were the best animal to carry the loads over the uneven ground as they have soft hooves.\textsuperscript{149} Ippolito Desideri who visited Tibet via Kashmir and Ladakh in early eighteenth century found large and very strong mules, able to carry heavy loads during long journeys lasting for months and with scant food.\textsuperscript{150} In the Mughal Imperial camp mules used for carrying luggage and kitchen utensils.\textsuperscript{151}

\textsuperscript{143} A 'in, I, pp. 124-131.
\textsuperscript{144} Thevenot, p.62.
\textsuperscript{145} A' in, I, p.104.
\textsuperscript{146} Thomas Reo, Embassy...., p. 259.
\textsuperscript{147} A 'in, I, p.104.
\textsuperscript{148} Desideri, p. 124.
\textsuperscript{149} A' in, I. p. 103.
\textsuperscript{150} Desideri, p. 124.
\textsuperscript{151} Bernier, p. 359; Manucci, I, p. 62.
As far as breeding of asses is concerned, they were found in all parts of India, Ladakh, Kashmir, Punjab, Sind etc. In Kashmir and Sind asses appear to provide the main means of transport to peasant that even the revenue demand in kind was stated in terms of kharwar i.e. ass load. Kathiawar produce asses of high breeds of which Halar or Jalwad breed was one of the strongest and largest. The Bhutia of Himalaya had a very small, dark or almost black donkey with long shaggy hair. The donkeys of Tibet were strong.

As asses are small in size, they were unfit for saddle riding and were only used for carrying light burdens. Asses were generally used by the poorer section such as washer man, potters, tinkers etc. both for riding and carrying loads. (See Plate-VII). However Ovington when describing the means of carrying goods to Surat also mentioned the asses besides other. In certain parts asses were also used for agricultural purposes such as in ploughing, transporting manure in the field and produce to the market.

As far as loads carried by asses is concerned, in various contemporary sources we came across the term ‘ass-load’ (kharwar) occurs

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153 A’in, II, pp.175-76; Mazhar, pp.146 & 182-3.

154 Watt, DEP, IV, p. 297.

155 I. Desideri, p.124.

156 Watt, DEP, IV, p. 297; Buchanan in Martin, I, 387, 559, &II, 535, 581.

157 Ovington, p. 134.

158 Elphinston, Caubul, I, p. 189.
and its weight is also given, but after careful examination, Irfan Habib’s conclusion is that the kharwar was used more as a unit of weight and was not always meant the actual load carried on an ass. Only value of kharwar given by Abul Fazl seems actual weight carried by an ass, he equates one kharwar in Kashmir with 3 mans and 8 sers in Akbarshahi weight, or 177.02 lb. avdp. (80.37 kg.), which is in accordance with the value assigned by Lawrence to a kharwar in eighteenth century. Mazhar, equates a kharwar with 60 kasa i.e. 9 or 10 man-i Jahangiri (270.93 or 301.8 kg). Whereas English Factors at Thatta in 1635 equated a ‘corwaur’ with 8 man-i Shahjahani (268 kg). Obviously too heavy to be carried by an ass.

As far as pace of the mules and asses is concerned, we have almost no reference so far in our sources. Only later accounts are helpful in this regard. Burnes says that a mule with a light weight covered 4.8 Km in an hour, and according to Francis Buchanan with a weight of 40 seers of

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\text{\textit{Abul Fazl, Akbarnama, ed. Agha Ahmad Ali and Abdu-r Rahim, Bib. Ind., 3 vols. Calcutta, 1873-87, III, p. 548; A’in, II, pp. 175-76; whereas English Factors at Thatta in 1635 equated a ‘corwaur’ with 8 man-i Shahjahani, or some 590 lb. avdp. (268 kg) (EFI, 1634-36, p. 133) [Cf. Irfan Habib, Agrarian System, pp. 427-28]}}

\text{\cite{160}}\]

\text{\textit{AN, III, p. 548; A’in, II, pp. 175-76. Lawrence, assigned kharwar a weight of 177.74 lb. (Walter Lawrence, The Valley of Kashmir, Oxford 1895, p.242).}}

\text{\cite{161}}\]

\text{\textit{Mazhar, pp. 146, 182. Cf. Irfan Habib, Agrarian System, p. 427.}}

\text{\cite{162}}\]

grain weighing about 85 pounds an ass could cover 3 cosses or 16 Km in a day.\textsuperscript{163}

4: Other pack animals

Besides oxen, camels, mules and asses, the indigenous variety of horses, known as tangan and gunt etc. were also utilized by the people especially in the mountainous region for carrying goods and persons also. In Mughal India gunt found in Kashmir, Ghorghat, and Kumaun, and in northern mountains of Oudh and tangan found in Kuch Bihar, were famous for their endurance.\textsuperscript{164} Abul Fazl noted that in the northern mountains goods were carried on gunt besides other means of transport.\textsuperscript{165} Jahangir as well Mutamad Khan noted that in Kashmir gunt was major means of conveyance.\textsuperscript{166} Tavernier during his journey from Patna to Bhutan, noted about indigenous horses at Gorakhpur that “these horses are by nature so small that when a man is upon them his feet touch the ground, but they are otherwise strong, and go at an amble, doing up to 20 leagues at a stretch, and eating and drinking but little … and when you enter the mountains you only use that means of carriage, it being necessary to leave all the others behind, which become useless on account of the numerous and very narrow

\textsuperscript{163} F. Buchanan, \textit{A Journey from...}, II, p. 181; Cf. Jean Deloch, I, p. 234.


\textsuperscript{165} Ibid., p.78.

\textsuperscript{166} \textit{Tuzuk}, p. 301; \textit{Iqbalnama -i Jhangiri}, p.154.
passes. The horses even, though strong and small, often have difficulty in getting through". In Kashmir sheep known as Handu, and Heronry were also used for carrying burden. Goats and Yaks were also famous in the mountains for carrying goods.

So far as price of indigenous horses is concerned, we have very scanty information about it. Tavernier noted about some of indigenous horses cost as much as 200 ecus (Rs.400). The price seems very high and it is certainly not the price of general indigenous horses.

5: Carts

Carts were also used for carrying loads as already mentioned. These carts were drawn mostly by oxen though sometime buffaloes were also used. While we have references about the coaches drawn by horses but evidence for cart drawn by horses for transporting merchandise are not forthcoming. However camels were also used to draw carts in the desert region. (Plate- VI). All over the Mughal Empire, ox-drawn carts were

\[\text{Plate- VI}\]

167 Tavernier, II, p.205.
168 A 'in, II, p. 172; Irfan Habib, Atlas, pp. 7 and 12.
170 Tavernier, II, p. 205; one ecu was equal to 2 rupees (Ibid., I, p. 329).
171 For coach drawn by horses, see Monserate, p.199. See also A.J.Qaisar, The Indian Response to European Technology and Culture AD 1498-1707, p. 40.
172 For earlier evidence for cart drawn by dromedary, see J. H. Marshall and Daya Ram Sahni, Archaeological Survey of India: Annual Report, 1909-10, Calcutta, pp., 97-98, with illustration from the Mandor Freez in Rajasthan, which depicts in the twelfth century, a cart drawn by dromedary.
generally utilised by the transporters to carry goods. Fryer who came to India in 1670s, says, “contrary to whatever we found in any place of Persia, where are neither carts, coaches, or wains ... here the Roads are pester’d with caphalaes of oxen, camels and buffalae with heavy waggons drawn by teams of oxen, yok’d Eight, sometimes a Dozen or sixteen times double bringing and carrying Goods of all sorts.” Carts provided the main means of transport in Gujarat. It is evident from the English Factory Records that carts formed a major means of transport between Patna and Agra, but also an important means between Agra and Surat, and Agra and Lahore, and beyond up to Multan. The European Companies, especially the English and the Dutch so much used carts for carrying merchandise that they even competed with each other in procuring these. In 1623 in Gujarat, the Dutch by paying more to the carters got hold of 35 carts charted by the English and persuaded the carter to take their goods first. The Dutch had even sometimes monopolised the carts, due to which the English factors faced

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173 Tavernier, I, p. 32.
174 Fryer, III, p. 156.
176 For carrying merchandise between Patna and Agra, cart was the ‘usual method of conveyance’ (EFI, 1618-21, ed. W. Foster, p. 195), and again, ‘here beeinge noe other conveyance to Agra but carts,’ (ibid. p.258). Between Agra and Thatta, merchants generally used to hire carts for carrying merchandise especially indigo and sugar, up to Lahore or Multan and from thence they used to carry it by river to Thatta (Ibid., 1634-36, pp.130, 192; see also Ibid., 1637-41, pp. 135,198).
177 EFI, 1622-23, p. 287.
problem in dispatching their goods.\textsuperscript{178} Therefore the English Factors used to secure the carts beforehand to avoid being forestalled by the Dutch and others.\textsuperscript{179} In the Deccan plateau, carts were utilised at least up to Golconda, and Dutch Factory Records show that spices were brought from Masulipatnam, via Burhanpur in carts. During 1622-27, between 300 and 800 carts brought such an amount of spices that the price of spices reached lowest level and it compelled the Dutch Factors to think about properly regulating the Company's trade in Coromandel.\textsuperscript{180} Thevenot in 1666 went from Surat to Bagnagar (Golconda) in company of Monseiur Bazou, a French Merchant, who had ten wagons with him.\textsuperscript{181} However in the extreme South India, carts were not utilised on large scale for carrying burden, being utilised for agricultural purposes such as for carrying harvest and manures only.\textsuperscript{182} It is partially inaccurate, then, to suggest that, carts had conspicuously been absent in the Deccan plateau till the advent of British rule.\textsuperscript{183}

We have some information regarding the shape and design of the coaches which were used for carrying people but very little information

\textsuperscript{178} Ibid., p.234.
\textsuperscript{179} Ibid., 1630-33, p.61.
\textsuperscript{181} Thevenot, p.102.
\textsuperscript{182} Francis Buchanan, Journey (1800-01), London, 1807, 1, p.184.
\textsuperscript{183} Amalendu Guha, 'Raw Cotton of Western India: Output, Transportation and Marketing, 1750-1850', Indian Economic and Social History Review (IESHR), Vol.IX, No.1, March 1972, pp. 20-22.
about the carts which were used for carrying goods, except in some paintings and European travellers’ accounts. The carts for goods-carriage were generally of two solid wheels and each wheel of single timber like mill-stone, having always a thick frame of wood. Abu’l Fazl, refers to two wheeled carts in Gujarat. Thevenot, noticed that “the wheels of wagons or carts for carrying of goods have no spoakes, they are made of one whole piece of solid Timber, in form of a mill-stone, and the bottom of the cart is always a thick frame of wood.” Fryer, on the other hand, found coaches and carts much alike, differing only on the basis of stronger structure with main timber for strength. (See Plates- VIII, IX). A cart was usually drawn by a pair of oxen, but whenever the load carried heavy or ground was uneven more than two oxen were used. Sometimes six, eight, twelve or even sixteen oxen were used for this purpose. Thevenot noted that “these carts are drawn by eight or ten oxen according to the heavyness of the loads.” (See Plate-XIII, for light cart and Plate-IX, for a series of oxen used for carrying heavy load on a cart).

Henry M. Elliot in his Memoir has named the different parts of carts of North-western Provinces (present Uttar Pradesh), which are not so much

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184 *A ‘in*, II, p. 115.

185 Thevenot, pp. 73, 75.


188 Thevenot, p. 75.
different from the carts of Mughal period, according to him: *Harsa* is the long wood extending on either side, from the front to the back; the transverse pieces are called *Patti*; those extending beyond the wheels are called *Takani*. *Bank*, or *Painjani* is the wood that joins the *takanis*; and *Chakol*, the pin by which wheel is attached to the *Bank*; *Sujah*, the pins which attach the *Bank* to the *Takanis*; *Bankara* and *Gaz*, two pieces of wood in the front of the *Gari*, where it narrows to a point; *Phannah* and *Untara* are parts that project beyond the yoke,.....*Nah*, the nave; *Putthi*, the quadrant of a wheel.....’ 189

As far as cartage is concerned, most of the information come from European records, specially from those of the English East India Company and some from the Dutch. I have tried to collect some of the quotations of cartage obtained from the above records in Table No.2.2. These quotations are generally from the seventeenth century. During this period there were variations in weight (maund or man) and since for comparative purposes adjustments have to be made for them, I have put the rates cartage/maund in three different columns, the third converting the cost into 100 Kg./Rs./mile. The *man-i-Shahjahani*, it should be noted, continued under Aurangzeb (1659-1707) as the standard unit of weight.

<table>
<thead>
<tr>
<th>Reference</th>
<th>100 Lanes/mile</th>
<th>(RS)</th>
<th>Route (RS)</th>
<th>Distance (miles)</th>
<th>Speed</th>
<th>Direction</th>
<th>Approx. Distance</th>
<th>Approx. Time</th>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 22:** Cargae on Major Routes
It is clear from Table 2.2, that, cartage between Patna and Agra, generally was not very high, but in the rainy season the English factors had to pay a high rate partly due to the impassable roads and partly for speedy transportation. At the same time, from a letter of October 1620, it is also clear that, the transporters were compelled to perform the journey in the time agreed upon; otherwise a certain amount was deducted on the final payment. In 1639 the English factors tried to send their goods from Agra via Lahore and Multan to Lahri Bander, the port of Thatta, but realised that it cost them as much as the transportation through Surat. They found that the way through Ahmadabad was the cheapest one. In general the usual cost of transit was not very high, and it was high only when the carts were more in demand on occasions such as the emperor or his governor or any noble of high rank needed the carts for his camp or due to the impassable roads after the rains. During the famine in Gujarat, in 1630-32, the English factors had to pay five times the rate of the former years amounting to no less than 30 or 40 percent more of the prime cost of the goods themselves. In 1622 the usual cartage between Agra and Burhanpur was Rs.2 per maund; however the English factors had to pay Rs.3 per maund or Rs.0.0195 for 100 kg weight for a mile, perhaps due to the shortage of carts or problem of safety on the roads owing to the ongoing war in the

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190 EFI, 1634-36, pp. 130-31; 1637-41, pp. 135, 198.
191 Ibid., 1637-41, p. 275.
192 Ibid., 1630-33, pp.145-46.
In 1627 the Dutch factor Vapour, at Agra, complained to Batavia, that, due to the arrival of the local merchant with carts, numbering between 300 and 800, from Masulipatnam, with spices, the cartage had increased from Rs.1½ -1¾ to Rs.2½ on that route. The ‘Adhowiyas’ who used to take the contract for transport, agreed in 1633, to take Rs.45 for each cart between Agra and Ahmadabad, the charge covering the transit dues which the carters were to settle. For the travellers, according to Tavernier, a cart cost in hire about a rupee for a day’s journey, throughout India, and travellers had to pay from 40 to 45 rupees for a journey of thirty-five or forty days, from Surat to Agra, and also from Surat to Golkonda nearly the same distance.

The loads carried by these carts varied in the different regions of Mughal India. In 1616, the English ambassador Sir Thomas Roe wrote in a letter that a cart could carry a load equivalent to three camel’s load, and the load carried by a camel varied from 225.375 kg to 271.26 kg. Thus a cart could carry between 676.125 kg and 813.78 kg. In 1621 English factors at Patna tried to send their merchandise to Agra, loading a ton (1000 maunds) of goods; and on each camel two bales of such types were loaded, it means that the weight to be loaded on camels varied from 7½ to 9 maunds (a man-i-Jahangir = 30.14 kg).
kg.) on each cart, but the carters off loaded the goods just outside Patna, finding the loads too heavy.\(^{199}\) However in 1671 Marshall says that from Patna to Agra, a cart drawn by 6 oxen could convey 40 man-i-Shahjahani, i.e. 1339 kg.\(^{200}\) But Buchanan, writing about Bihar in 1809, gave the loads carried by the carts, mostly drawn by a pair of oxen, which varied from seven to fifteen maunds i.e. from 300 to 560 kg.\(^{201}\)

As far the speed of the cart is concerned, I have tried to arrange some of the information from the European sources, on the pace of carts in form of Table-2.3.\(^{202}\) For the distance between the places, I have mostly relied upon 'Memoir of a Map of Hindoostan or the Mogul Empire, drawn up by James Rennel.

### Table 2.3

**Average Distance Covered by Carts on Major Routes.**

<table>
<thead>
<tr>
<th>Stages</th>
<th>Via</th>
<th>Total Days Spent</th>
<th>Approx. Distance (mile)</th>
<th>Daily Average (mile)</th>
<th>Years</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agra-Surat</td>
<td>Burhanpur</td>
<td>50</td>
<td>745</td>
<td>14.9</td>
<td>1617</td>
<td><em>Letters recd. VI, p.238</em></td>
</tr>
<tr>
<td>&quot;</td>
<td>&quot;</td>
<td>47</td>
<td>&quot;</td>
<td>15.85</td>
<td>1630/1</td>
<td>Mundy, II, pp. 39-65.</td>
</tr>
<tr>
<td>&quot;</td>
<td>&quot;</td>
<td>35-40</td>
<td>&quot;</td>
<td>17-19.42</td>
<td>1640-67</td>
<td>Tavernier, I, p. 73.</td>
</tr>
</tbody>
</table>


\(^{200}\) Marshall, p. 425.


\(^{202}\) However Deloch, I, p. 285, has given a table for the pace on routes, but has not indicated the means of transport utilized and gives a general view of the days spent on the roads.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agra-Lahor</td>
<td>Delhi</td>
<td>24</td>
<td>517</td>
<td>21.54</td>
<td>1611</td>
<td>Finch, Early Travels, p. 155.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EFI, 1637-41, pp. 134.</td>
</tr>
<tr>
<td></td>
<td>„</td>
<td>22</td>
<td>„</td>
<td>23.5</td>
<td>1639</td>
<td>EFI, 1637-41, p. 135.</td>
</tr>
<tr>
<td>Agra-Multan</td>
<td>Lahore</td>
<td>35</td>
<td>631</td>
<td>18.02</td>
<td>1639</td>
<td>EFI, 1637-41, p. 135.</td>
</tr>
<tr>
<td>Lahor-Multan</td>
<td></td>
<td>11</td>
<td>114</td>
<td>10.36</td>
<td>1639</td>
<td>EFI, 1637-41, p. 135.</td>
</tr>
</tbody>
</table>

From Table 2.3, it is clear that, in 1617, carts completed journey from Agra to Surat, within 50 days. In 1632-33, Mundy covered an approximate distance of 680 miles via Ahmadabad, with a mixed caravan of camels and carts within 73 days (excluding the halt in Ahmadabad). The normal time spent on this route by the traveller was 35-40 days. The journey via Burhanpur, an approximate distance of 745 miles, was generally covered within 40 days. In 1613, Withington covered this distance in 37 days only, but Mundy in 1631, travelling with a caravan took 47 days. According to Tavernier, the distance of 415 cos (kos), via Ahmadabad, could be covered on the average at 13 cos (21.3 miles) per

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203 Letters Recd., VI, p. 238.
204 J. Rennell, Memoir of a Map of Hindoostan or the Mogul Empire, London, 1792, p. 318. (From Agra to Surat via Ahmadabad, was 680 British Miles)
205 Mundy, II, pp. 225-76. Mundy accompanied Baqir Khan, who was going to Ahmadabad with his army, but faced much trouble in following Baqir Khan and quelling the continuous quarrel between the carters and the camelmen.
206 Tavernier, I, p. 73.
207 J. Rennell, p. 318, [ From Agra to Burhanpur was a distance of 508 British Miles; and from Burhanpur to Surat was 237 miles, (Mundy, II, p. 66), thus from Agra to Surat was a distance of 745 miles.
208 Withington in Early Travels, p. 222.
day.\textsuperscript{210} On the route of Agra and Patna, an approximate distance of 544 miles,\textsuperscript{211} generally 30-35 and at most 40 days were spent.\textsuperscript{212} The distance of about 517 miles on the Agra-Lahore route was generally covered in 20-22 days,\textsuperscript{213} and Finch, in 1611, with carts covered this distance in 24 days.\textsuperscript{214} Table-2.3 shows that, the average distance covered in a day, by the carts varied from about 9.31 miles to 23.5 miles. However, the average distance covered in a day was the maximum on Agra-Lahore route, perhaps due to the good condition of the Imperial highway here.\textsuperscript{215} In 1623, Della Valle, who travelled with a caphila, from Ahmadabad to Surat, which consisted of above a hundred ‘coaches’, besides foot-men and horse-men, and great laden wagons, reports that the caphila “set forth three hours before day and staging not to rest anywhere, according to custom of the East (which is to make but one bout of day’s journey), having travelled fifteen cos.”\textsuperscript{216}

It is not very clear as to who owned the carts, and who plied these carts for hire. The European accounts generally associated Jats with the carts;\textsuperscript{217} although, earlier in 1527, Babur had blamed the Jats and Gujars for

\textsuperscript{210} Tavernier, I, pp.72-73. As approximate distance between Agra and Surat via Ahmadabad is 680 miles, an average kos of Tavernier will equal to 1.63855 miles thus average distance covered in a day was 21.3 mile.

\textsuperscript{211} J. Rennell, p. 318. (Distance from Agra to Patna put at 544 miles.)

\textsuperscript{212} \textit{EFI, 1618-21}, pp.191, 199.

\textsuperscript{213} \textit{Early Travels}, p. 244. Rennell put distance from Agra to Lahore at 517 miles (Rennel, \textit{Memoir}, p. 318)

\textsuperscript{214} Ibid., p 155.

\textsuperscript{215} Ibid., p. 244.

\textsuperscript{216} Della Valle, I, p. 93

\textsuperscript{217} Mundy, II, pp. 257, 261, etc.; \textit{EFI, 1622-23}, p. 90.
theft and plundering.\textsuperscript{218} We have some information about certain transporters called Adhowiyas, both in the Persian and European sources.\textsuperscript{219} Sir R. C. Temple says in a footnote of \textit{Travels of Peter Mundy} that this term perhaps has been derived from the word \textit{ada}, which means payments.\textsuperscript{220} \textit{Mirat-i-Ahmadi} only calls them ‘persons who plied carts for hire’.\textsuperscript{221} Only Mundy wrote about these ‘adowyas’ in some detail. These contract transporters generally used to give their carts on hire on two alternative terms. Either they hired out their carts; or they also took the responsibility of security on the routes in which case their charges were, of course, higher.\textsuperscript{222} It is evident from a letter of an English Factor that the adhowiyas also used to give oxen for hire.\textsuperscript{223} For shorter journeys, according to inquiries of 1880-85 into the conditions of lower classes in U.P. revealed, the farmers used to give their carts on hire in the off-season.\textsuperscript{224}

Ox-carts were also widely used by the Mughal administration. The \textit{A’in-i Akbari} reports that, there were 200 imperial carts, set aside for the

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{218} \textit{Baburnama}, transl. by A. S. Beveridge, reprint. Delhi, 2006, p. 454.
\item \textsuperscript{219} \textit{Mirat}, 1, p.261; English factors mentioned them at various places (\textit{EFI, 1618-21}, pp. 129, 182;\textit{1622-23}, pp. 63, 124, 173, 187, 192, 230, 231, 290, 322-23); Mundy, II, pp. 278, 291.
\item \textsuperscript{220} Mundy, II, p. 278.
\item \textsuperscript{221} \textit{Mirat}, 1, p. 261.
\item \textsuperscript{222} Mundy, II, p. 291.
\item \textsuperscript{223} \textit{EFI, 1622-23}, p. 124.
\item \textsuperscript{224} \textit{Report of the Indian Famine Commission, 1880-85}, Part II, reprint New Delhi, 1989, p. 99. ‘Almost every cultivator of any wealth keeps a cart, in which he yokes his plough bullocks...; few village of 30 or 40 houses but will contain 10 or 12 carts....... whenever a demand arises an immense number of these agricultural carts will turn out on the road, especially in the season when the field work is scanty.’
\end{itemize}
\end{footnotesize}
transport of building materials. (See Plate-VIII). Arif Qandahari for the same period, noted that thousands of carts, daily brought red sand stone to Agra for construction of the Agra fort by Akbar. Mundy also saw not less than 500 carts involved in the transportation of marbles for the King at Agra. Similarly Tavernier saw 300 carts involved in carrying marble for the construction of Tomb and Mosque at Aurangabad. Tavernier also reports that carts were forced to carry lime from Broach to Agra and Delhi, and in lieu of that service they were exempted from transit dues. Carts were also used in the imperial kitchen, to bring fuel, water, ice etc. and 600 carts were entrusted to bring 150,000 mams of fuel in the space of ten months. Carts were also used for hunting purpose. (See Plates- XI & XII).

Ox-carts carried much of the long-distance trade in India. Besides their slow pace, the rainy season precluded their use on certain routes. From Surat to Agra, the Burhanpur route was closed during the four month in the rain; and after the rainy season, the cart which passed these roads

225 Arif Qandahari, p.145.
226 Mundy, II, p. 241.
227 Tavernier, I, p.119.
228 Ibid., I, p. 35.
229 A‘in, I, p. 103.
230 EFI, 1618-21, pp. 258, 270, 283; Marshall, p. 425; Mundy, shared his experience in these words ‘It being tyme of Raines....wee arrived at Puttna....not meeting all the way one laden carte either going or comeing from thence, it being not then the tyme of Travell for Laden carts’(II, pp. 143-4). See also at pp. 111 and 125-6 for the troubles faced by him.
231 Tavernier, I, p.31.
first had to face many hardships, as it had to cut its way through the mud for making the way for other carts. On the other hand, it was also not easy to travel in the desert before the rain. Besides the driver (Bailwan), it was necessary to have extra persons to accompany the carts, due to bad condition of the road. (See Plate- IX). Tavernier noted that each cart was accompanied by four guards, two of them walking on each side of the cart, over which two ropes were passed and the four ends were held by the guards, so that if the carts happened to tilt on one side, the two guards who were on the opposite side would pull at the ropes tight to prevent the cart from turning over. Thevenot tells the same precautions being taken, except that he used the term ‘peons’ for ‘guards’.

6: HUMAN PORTERS

In the hilly and mountainous region of Mughal India, besides other means of transport, men also played very important role in carrying merchandise, baggage etc. Abu’l Fazl in his A’in mentions the utilization of human porters for carrying goods in the northern mountains. European travellers also noted importance of the porters in that region. In c.1626, Pelseart noted for Kashmir that “… pack animals cannot cross the

233 Mundy, II, p. 298.
234 Tavernier, I, p. 35.
235 Thevenot, pp.72-73.
236 A’in, II, pp. 78-79.
mountains, and practically everything must be carried on men's heads."\textsuperscript{237} Tavernier saw in the Himalayan region that the women used to carry the travellers on their back.\textsuperscript{238} But the most important evidence for the utilization of the porters in the Himalayan region came from the pen of Bernier. While describing the visit of emperor Aurangzeb to Kashmir, he say "Porters supply the place of camels; and you may judge of the immense number that will be employed if what they tell me be true, that the King alone has no fewer than six thousand. I must myself have three, although I left my large tent and a considerable quantity of luggage at Lahore: every person did the same, not excepting the Omrahs and the King himself; and yet it is calculated that there are at least fifteen thousand porters already collected in Bember; some sent by the Governor of Kachemire and by the neighbouring Rajas, and others who are come voluntarily in the expectation of earning a little money. A royal ordinance fixes their pay at ten crowns for every hundred pounds weight. It is computed that thirty thousand will be employed; an enormous number, when it is considered that the King and Omrahs have been sending forward baggage, and the tradespeople articles of every sort, for the last month".\textsuperscript{239} (See Plate- XIV, which depicts, loads being carried by porters in Kashmir).\textsuperscript{240}

\textsuperscript{237} Pelsaert, p.35.
\textsuperscript{238} Tavernier, II, pp. 206-7.
\textsuperscript{239} Bernier, p. 392.
\textsuperscript{240} D. D. Kosambi, 'The Culture and Civilization of Ancient India in Historical Outline', Delhi, 1972, Plate No. 21.
Monserrate in 1580 observed that the Afghans carried their burden on their back.\(^\text{241}\)

In the Deccan and South India porters were hired for carrying burden more than the beast of burden. Della Valle found in the Western Ghat that baggages were transported more frequently upon men’s shoulders than upon beast’s back.\(^\text{242}\) In the eighth decade of seventeenth century, Abbe Carre, who himself hired porters during his travel from Goa to Bijapur, seems to have observed them very carefully. He found the roads crowded with the professional porters who had no other occupation other than carrying heavy burden on difficult mountain roads, which a person without load could scarcely surmount.\(^\text{243}\)

In the plain area such as Gujarat, porters were also present as Jahangir himself observed the presence of walls for the porters, who utilised these walls to ease their burdens in the way. Jahangir was so impressed with those walls that, he ordered to build such walls in all over the empire.\(^\text{244}\).

As far as load carried by a porter is concerned, generally it was not fixed, as has been observed by Abbe Carre in the Deccan.\(^\text{245}\) Pelseart found the Kashmiris were able to carry twice the load carried by a Hindustani.\(^\text{246}\)

\(^{241}\) Monserrate, p. 149.

\(^{242}\) Della Valle, II, p. 292.

\(^{243}\) Abbe Carre, I, pp. 226-7.

\(^{244}\) Tuzuk, p.208.

\(^{245}\) Abbe Carre, I, p. 226.

\(^{246}\) Pelsaert, p. 34. By Hindustani perhaps he means people from the plain.
Usually they were paid for the full trip. Aurangzeb, during his visit to Kashmir ordered to pay them at the rate of ten crowns for every hundred pounds weight.\(^{247}\) In Deccan, Abbe Carre found that they were paid \(2\frac{1}{2}\) ecus or Rs.5 a load, however the great weight, for a trip of 25-30 days.\(^{248}\) The three women, who used to carry men as burden in turn, in the Himalayan region, were paid 2 rupees each for a journey of ten days.\(^{249}\)

\(^{247}\) Bernier, pp. 392.

\(^{248}\) Abbe Carre, I, pp. 226. One ecu was equal to two rupees or 4s.6d. (Tavernier, I, pp. 22, 305, 329; Bernier, p.200)

\(^{249}\) Tavernier, II, pp. 206.
Besides the emperor, the high officials of the empire, holding mansab had the obligation of keeping certain fixed number of carts, such as, according to A'in, a mansabdar of 10,000, had to keep 320 carts and that of 20, had to keep one cart. A'in has detailed information regarding this obligation in the salary-schedule of the mansabdras, since the number of holders of various ranks can at least be worked out for the 40th year of Akbar's reign. We can get the number of horses, elephants, beasts of burden and carts to be maintained by the mansabdar at least for that year (see Table-2.1). In this table the number of camels and mules has been given in the form of qatars, i.e. in files and according to Abu'l Fazl, each qatar of camels or mules was consisting five camels or mules respectively. I have calculated on the following formula. I calculated it on the following formula.

No. of camels or mules kept by the specific mansab holders = No. of holders of that mansab x No. of qatars of camels or mules to be kept by the specific mansab holder.

For example,  

\[ \text{No. of camels or mules} = \text{No. of holders of that mansab} \times \text{No. of qatars of camels or mules} \]

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250 A'in, 1, pp. 124-131.

251 Shireen Moosvi, EME, p. 212 and table 9.2 on p. 214. However this obligation continued in the reign of other Mughal emperors also as it is confirmed from besides other regulations, from the regulation of khurak-i daowab, but we do not find any other information in the form of table further in the reign of Jahangir, Shahjahan and Aurangzeb.

252 A'in, 1, pp. 99, 103.
number of camels kept by the mansab holders of 10,000 = 1 x 160 x 5 = 800, where 1 is the number of holder of that mansab, 160 is the number of qatars to be kept by that holder and 5 is the number of camels in a qatar.

And again to get number of carts kept by the holders of the mansab, I applied the following formula.

No. of carts kept by the specific mansab holders = No. of holders of that mansab x No. of carts to be kept by the specific mansab holder.

For example, number of carts kept by mansab holders of 10,000 = 1 x 320 = 320, where 1 is the actual number of holder of that mansab and 320 is the number of carts to be kept by that holder.

**Table-2.4:** Number of camels, mules and carts to be kept by the mansabdars in the 40th regnal year of Akbar.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>mansabdars of</th>
<th>Actual no. of Holders</th>
<th>qatars of camel</th>
<th>No. of camels</th>
<th>qatars of mules</th>
<th>No. of mules</th>
<th>Carts</th>
<th>No. of carts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10,000</td>
<td>1</td>
<td>160</td>
<td>800</td>
<td>40</td>
<td>200</td>
<td>320</td>
<td>320</td>
</tr>
<tr>
<td>2</td>
<td>8,000</td>
<td>1</td>
<td>130</td>
<td>650</td>
<td>34</td>
<td>170</td>
<td>260</td>
<td>260</td>
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<tr>
<td>3</td>
<td>7,000</td>
<td>1</td>
<td>110</td>
<td>550</td>
<td>27</td>
<td>135</td>
<td>220</td>
<td>220</td>
</tr>
<tr>
<td>4</td>
<td>5,000</td>
<td>9</td>
<td>80</td>
<td>3600</td>
<td>20</td>
<td>900</td>
<td>160</td>
<td>1440</td>
</tr>
<tr>
<td>5</td>
<td>4500</td>
<td>1</td>
<td>72 3/5</td>
<td>363</td>
<td>18 3/5</td>
<td>93</td>
<td>145</td>
<td>115</td>
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<tr>
<td>6</td>
<td>4,000</td>
<td>3</td>
<td>65</td>
<td>975</td>
<td>17</td>
<td>255</td>
<td>130</td>
<td>390</td>
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<td>7</td>
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<td>19</td>
<td>57 3/5</td>
<td>5472</td>
<td>15 3/5</td>
<td>1482</td>
<td>115</td>
<td>2185</td>
</tr>
<tr>
<td>8</td>
<td>2,000</td>
<td>4</td>
<td>50</td>
<td>1000</td>
<td>14</td>
<td>280</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>9</td>
<td>2,500</td>
<td>3</td>
<td>40</td>
<td>600</td>
<td>10</td>
<td>150</td>
<td>80</td>
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<td>9</td>
<td>30</td>
<td>1350</td>
<td>7</td>
<td>315</td>
<td>60</td>
<td>540</td>
</tr>
<tr>
<td>11</td>
<td>1,500</td>
<td>7</td>
<td>24</td>
<td>840</td>
<td>5</td>
<td>175</td>
<td>50</td>
<td>350</td>
</tr>
<tr>
<td>12</td>
<td>1,000</td>
<td>16</td>
<td>21</td>
<td>1680</td>
<td>4 3/5</td>
<td>368</td>
<td>42</td>
<td>672</td>
</tr>
<tr>
<td>13</td>
<td>900</td>
<td>12</td>
<td>20</td>
<td>1200</td>
<td>4</td>
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<td>40</td>
<td>480</td>
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Total = 35348  Total = 5395  Total = 13226
PLATE II

Packs being prepared for oxen. Baburnama, Illustrated at Akbar's atelier.
*Miniatures of Baburnamah*, Plate No. 1.
Pack oxen bringing building material for construction of Agra fort

Pack oxen carrying building material for construction of buildings at Fatehpur Sikri. Illustration from *Akbarnama*, c. 1600-05 A.D., Victoria and Albert Museum, London. (S., 2 1896 91 117.)
A painting depicting one-humped camel. Detail from a relief on the North side of topmost terrace of shrine at Mandor (c. 1200 A.D.).
A painting depicting besides other carts, a loaded cart drawn by a series of oxen. Reproduced from 'Indian Travels of Thevenot and Careri', New Delhi, 1949, p. 76.
A bullock-cart with solid wheels carrying load. Raznama, c.1582-84. Sawai Man Singh Museum, Jaipur, Plate 76.
PLATES -XI & XII


A light bullock-cart drawn by a pair of oxen yoked to shaft of cart, c. 1590. Sita Ram Sahu Collection, Varanasi.
An illustration from unknown manuscript of about 1600 A.D. showing porters. Reproduced from D.D. Koshambi, *The Culture and Civilization of Ancient India in Historical Outline*, Delhi, 1972, Plate No. 21.