TRADE DURING THE POST MAURYAN PERIOD

Introduction

India's contact with the West is as old as the beginning of Indus Valley civilization. This contact continued even after the downfall of the Mauryan Empire in spite of subsequent political anarchy caused by the onrush of the Greeks, Parthians, Sakas and Kushanas. The establishment of Satavahan power in the Deccan in first century B.C. and of the Kushana Empire in north India in first century A.D. gave fresh impetus to the growth of India's economic and cultural contacts with West Asia, a large part of which was either within the Roman empire or under its sphere of influence. The establishment of the Roman Empire and the increasing prosperity of the Roman nobility created a heavy demand for India's luxury goods and gave a further fillip to Indo-Roman trade connections in the early centuries of Christian era.

Rome enriched herself by the spoils and tributes from so many foreign lands and had acquired a taste for luxuries of every kind. The capital of the greatest empire ever established in Europe was filled with people who had inherited the great wealth and whose sole occupation was enjoyment of these riches. The retiring generals found their villas dull, rustic, and old fashion made and all the more unbearable because they had brought back with them masses of coinage, bullion and slaves. They had developed expensive tastes whilst staying in other continents and now they had means to indulge those tastes at home. They did so with feverish haste and great display. Oysters were brought all the way from Spain or Britain and wild blasts were imported from the farthest corners of Egypt to be featured in games. Common men always emulate the fashion determined by the elite.

Of all goods in particular flavour with luxury living Romans, Indian products were most popular. To meet the demands, new and greater efforts were made to increase trade with India and this was accomplished to a degree, which would
appear astonishing even today. The Romans' demand of Asian luxuries was unprecedented. Chinese silks, Indian pearls, jewels, fine muslin, drugs, specie, condiments, incense, ghee, ivory, dyes, cosmetics, oils and perfumes all fetched high prices.\(^3\) It appears that towards the end of the first century the greatly prized Chinese silk as well as furs were being shipped from Indian ports to the western countries because the land routes were blocked by Parthians and sea route gained much popularity. In return western merchants carried tin and lead to India, minerals which India herself did not possess, as well as wine, coral and glass - a widely exported Roman products, especially coloured glass - brightly coloured grifles and gold and silver coins. Special presents were carried for kings including maidens for harems. However, the principal means of exchange between India and Rome was gold. Therefore, Pliny bewailed the enormous drain on Rome's resources created by the demand for eastern luxuries. There was not a year in which India did not take at least 150 million sesterces from Rome\(^4\) in equal amount going to Arabia and China. Great quantities of Roman coins found in South India where jewels and spices were sold. Pliny also tells us that Indian wares cost a hundred times more in Roman markets than the Indian markets.\(^5\) Later, Vespasian's policy, in 69-79, of cutting down extravagant expenditure may have made some differences in the import of luxury goods from India but there is no concrete evidence of this.

The trade between Europe and Asia was so brisk that, despite the hostility of Parthia towards Rome and their periodic clashes and the increasing popularity of the Red Sea route: the Persian Gulf route nevertheless carried a flourishing trade and a land borne trade also grew considerably. This trade led to rise of great cities along the routes and new ports on the coasts. Petra the town of Nabataeans and Palmyra which commanded the Caravan routes to Asia, served as terminal points for the maritime trade of the Red Sea and the Indian Ocean Gerrha, Ommana. Spasini were all large mercantile towns to which Indian vessels regularly brought cargoes of
timber, black wood, and ebony whilst Arabia sent the frankincense, the spices of Cana.

Trade inevitably led to some tourism, especially to Roman and the Indian settlement in their respective areas of influence. There was a Yavana colony at the mouth of Kaveri river and foreign population were known to have existed in Madurai district. Mercenary Roman soldiers were attending the Indian princes, are mentioned in Tamil literature. Romans had close commercial contacts with Tamils in India especially for its cloth, dyes, pearls etc. Hence it is not surprising that the Tamil poems sing of Yavana ships bringing wine and other wares to the ports. A late map shows a temple of Augustus at Muziris on the West coast of India, which would indicate that there must have been a large Roman settlement to erect the temple honouring their deified emperor. According to Morteem Wheeler, "the temple of Augustus" at Muziris indicates an "official arm" long enough to reach at the Malabar Coast. Dyon Chrysostom, the Greek rhetorician and sophist, who lived in the reign of Trajan (98-117) mentions that the population of cosmopolitan Alexandria included many Indians who had come there to trade. About the Indian traders, Pausians also refer that Indian traders brought the marvelous creatures like the parrots.

The trade between India and Rome brought immense prosperity to India though Indian merchants who acted as middlemen in this trade. It also seemed that the Roman state also directly did not participate in this trade but it was not averse to collecting substantial taxes, on the cargo. It also considered the enterprise important enough to protect the routes from the Red Sea ports to Alexandria with forts, garrison, with military camps and to establish watering places along the routes. These facilities were double useful since the routes also gave access to profitable mining activities in the region.

Trade between India and Rome continued to thrive steadily during the second and third century A.D. But with the rise of great Gupta Empire, the heart of
the Indian empire moved inland towards central India and a splendid cultural renaissance set in with a distinctive Indian character. This however, interrupted the continuous flow of trade between India and Rome. The emergence of the Sassanian Empire in 227 also checked direct communication between the two nations. But the contact continued through Alexandria to which Indian flocked in increasing numbers until the fall of Roman Empire in the fifth century and the consequent decline of Alexandria. In the later phase, the Indian trade was diverted towards Southeast Asia. Rome's appetite for luxuries was so huge that India could not satisfy it. India's supply of precious stones, ivory and spices had begun to run out. Consequently, the Indian traders began searching eastwards for fresh suppliers of stones, ivory and spices which had begun to run out. They imported the goods from South-East Asia to cater the increasing demands of Roman people. This contact of Indians with Southeast Asian people later bloomed into an exceptionally fruitful cultural intercourse. With the decline of Roman Empire, the Roman demands ceased and the enterpot trade of India collapsed.

Presence of Kushan Empire in the political scenario of ancient India brought a sea change in the Indo-Roman trade. The vast Kushan Empire, which included Afghanistan, Bactria and much of Central Asia, comprised a variety of nationalities- Indo-Greeks, Parthians, Scythians, Iranians, Chinese and others. This role of Kushanas in providing a meeting ground for the great civilizations of the time and disseminating Buddhism to Central Asia and beyond has been extremely important for the advancement of trade. The cosmopolitan nature of Kushan Empire is aptly illustrated by their coins, many of which carry a Persian title for the King in Greek letters and the effigy of the kings in Turkish dress. The Kushan kings were in close with the West Asian and Roman emperors. The political ambitions of the Romans to expand into India also brought them nearer to Kushan frontiers. The Kushanas, it is suggested, also imported a large number of Greek sculptors from Asia Minor who settled in Punjab and were associated with the Gandhara School of
art. The cultural contacts between India and Rome were also felt on the sphere of astronomy, mathematics, art, architecture and sculpture, coin system and others. The exchange of envoys also strengthened the political contacts, which consequently helped the growth of trade. The impacts of Rome on the living style, language and culture of Indian people is clearly perceptible.

Having a vast empire, the Roman Empire enclosed an uninterrupted area around the Mediterranean Sea. The northern frontier was bordered by Hardian's wall between England and Scotland and the rivers Rhine and Danube on the continent. The eastern border ran across the territories of Modern Turkey, Iraq, Syria, Lebanon, Jordan and Israel. The provinces of the African continent were relatively small with the exception of Egypt. This vast empire of Rome opened the ample opportunity to trade with different countries in different directions in order to meet the needs of the people. On the one hand Rome, which was solely dependent on agriculture, had risen after centuries of triumph to be the mistress of a vast empire of the people with whom and through whom she conducted all her commerce. Again the establishment of comparative peace by the Roman Empire, which showed the ways for new explorations and developments. The geographical importance of Arabia, the Asia Minor and the north-eastern Africa serving as a chain for joining west and Western Asia and became the focal point of attraction. Roman merchants in Western Asia strengthened their business, with ample financial resources, thus consolidated their influence. But one most strange thing in this trade was, Indian merchants seldom met their Roman counterparts. The very reason was that the intermediaries of Indo-Roman trade were the Alexandrian Greeks, Syrian, Jews, Armenians, Arabs, Axumitis and the Parthians controlling the Somali land and the land route leading to the East.

India's contact with Rome, not only brought the financial prosperity but also the cultural which is clearly felt in art, architecture, language, coins, and on the living patterns of the people. Almost all classical authors of Imperial Rome talk a
voluminous trade and brisk commercial intercourse of Rome with India. They also supply us the information’s of trade articles and mode of exchange as well as the flow of Roman gold coins to India. In this context, Pliny complains about the drainage of wealth is which substantiated by the excavations of as many as 68 hoards of coins in India. However, it may be noted that the Roman coins were employed not as currency but as bullion in India. This heavy flow of Roman coins in India had one significant impact was that the mutilation of the gold coinage by the Kushanas and the Imperial Guptas.

About the various aspects of Indo-Roman trade, the foreign sources like The Periplus of the Erythrean Sea, Strabo's Geography, Pliny's Natural History, Arrian's Indika provides a good account to construct the history of this trade. But one major constraint in this way was the trustworthiness of these sources is questioned. In this connection, the excavations at different places like Arikamedu, Baroda, Maheswar, Navadatoli, Nasik, Paithan, Tagara, Broach, Kalyana, Soppara, Dwarka, Yelleswaram etc. has enhanced our sphere of knowledge. The findings of these places corroborate the facts left by the foreign literary sources as well as Indian sources also. The reports of excavations of different places, which throw some light on Indo-Roman trade, are inserted in this work to enrich the existing knowledge and to create a separate identity from the existing works. In this effort the classical Latin and Greek sources are also used in addition to the excavation reports of Berenike, Pompei and other places of Western world. By doing so we have tried not only to fill up the gap in the existed studies on the subject but also examine the interaction between Indian and the Western world at economic as well as social and cultural levels.

**Forest Produce**

**Timbers**

India was famous for the timber from antiquity. Kautilya refers to various types of strong timbers and 16 kinds of sandal trees. Among the various types of
timbers, the ebony, teak wood, black wood sandal wood etc. were important. There are enough evidences of trade of these goods.

**Ebony**

It appears as an article of trade of Tyre, referred to in Ezekiel. Where we see trade in ebony between India and Persia before the Christian era. In his book, Warmington, notes that the export from India of ebony and other woods was very old. Indian ships carried it coasting along. Gedrozia and the Arabs monopolised the trade in species and fragrant woods to feed the Roman markets. Theophrastues is the first to mention the ebony tree of India and to make distinction between the two kinds of ebony, a rare and nobler one and a common variety of inferior wood, according to Periplus, the large ships were built with ebony and other woods from Barygaza. Pliny says, that ebony came to Rome from India and was much in demand there, since the victories of Pompey the Great in Asia, was exhibited it at Rome." Again he points out that the second type of ebony grows as a shurb like the Cytisus, and is spread over the whole of India. Solinus notes that ebony was solely sent from India and images of Indian gods were sometimes carved from this wood and similarly on drinking cups.

The Indian ebony was known in Greece where too it must have been imported from India is borne out by the reference from Virgil. After the fall of Greece and rise of Rome, the exports of Indian ebony continued. Pliny observed that it was laid before Nero (A.D. 54-68) and it indicates that this tree was very uncommon in the country.

**Use of ebony**

Indian ebony, which was certainly known in Rome where it must have been imported and of this there can’t be no doubt. Pliny, citing Fabianus, declared that ebony would give flame although it burnt with a very agreeable small. There were two kinds of ebony; the rarest was the best and produced from a tree singularly free
from knots. The wood was black shining and pleasing to the eye. The other kind of ebony was produced of a shrub resembling the Cytisus, “found scattered over the whole of India”. Though it was unknown to Pliny which type of ebony he refers, he was clear about this that the first variety of ebony was coming from India.

Ebony was largely used for the purpose of ornament as well as medicine. According to Pliny, “the dust of ebony was a sovereign remedy for the disease of the eyes, and the pulps of its wood, receded upon a whet-stone moistened with resin wine” dispelled all films, which impede the sight. The root too applied with water, was capable of curing white specks in the eyes and with addition of the roots of dranculus in equal proportions and also with only, could cure cough. According to Muslim medical opinion in India, it is considered as an astringent, a Henuant and lithontriptic. The gum obtained from ebony tree has been used as a remedy for removing obstruction from any cause in the vision.

Ebony was largely cultivated in Malabar (Kerala) Coromandel, Orissa and North Kanara and from the Himalayas, Khasi Hills and from Bengal especially in Sylhet, Tiperrah, north Bengal and Bihar.

Teak wood

Another timber exported along with ebony in 1st century A.D. from Barygaza (Broach) to the Persian Gulf port of Apologus and Ommana was teak wood, exported ‘regularly’ in large vessels. This statement clearly refers that in Broach the teak wood was grown extensively. It has also cultivated in Bengal, Assam and Sikkim and throughout northwestern India as far as Shaharanpur. It has also been developed in western India between the Narmada and Mahanadi rivers although it has been found in Maharastra and Travancore. It is also found in Orissa although it can hardly be compared with the teak from Burma. Teak forests of Malabar, Travancore, and Gujarat and the Malaya Peninsula were best suited for building purpose.
According to Theophrastos, ships of this wood of India were seen in the Persian Gulf. The town of Siraf on the Persian Gulf was entirely built of this wood and in 1811 Teak was found in the walls of Persian palace near Baghdad pillaged in the 7th CBC. Hence we may assume that teak was exported to Persia. Again Periplus mentions that in teak and Blackwood and for shipbuilding. From Arthasastra, it can be assumed that the teak wood was an important item of lucrative business in India in third century A.D.

Blackwood

It is one of hard woods of Punjab and of western India. For its durability it was, as now, highly appreciated for agricultural implements, carriage frames, wheels, boat building, furniture and woodcarving. Along with teak wood, ebony, logs of Black wood also were sent from Barygaza to the Persian ports. Mandagora and Calliena gained importance in this trade later on as reported by Cosmos. It is strange that with Strabo nor Pliny even casually refer to either the teak or the black wood imports from India.

In first century A.D. the Periplus has recorded that in the reign of the elder Saranganes (Saraganus – probably Satakarni – I) Kalyana had become “a lawful market town” of Sisam wood. Most of the Sisam trade was conducted through Kalyan. Persia was the main country to which most of the Sisam woods were imported. After Persia the next country, to which exports from Kalyan, included the Sisam wood was Homerite region, which roughly corresponds to South Arabia.

In these circumstances it may be inferred that Sisam wood from Kalyana received there from the forests of western India in general, probably reached, if the same routes continued to exist from first to second centuries. Cyeneum in Eastern Sudan, and Auxum, the capital of Abyssynia. From these markets or from Persia it must have reached the markets of Rome in the wake of other exports from India throughout this period.
Sandal Wood

Most probably sandalwood was exported from India much earlier than ebony, teak wood and black wood. From the Book of Kings we learn that in view of Tyrean monarch, Hiram’s admission of Solomon, the king of Judah, in participation of formers western traffic. Solomon with his own ships, aided by shipwrights from Tyre, sailed to Ophir (Sindh-Sauvira region) and thence brought back to his own country among other commodities, “plenty of almug trees and precious stones”. It is written in the King of Books that King Solomon used the almug wood (from Ophier) for decoration in the house of the lord and in the royal palace and for harps and lyres for musicians. Some scholars question whether almug is really sandalwood. Forty years ago P. Joseph wrote that sandalwood could not be used for musical instruments.

In 6th CBC there are enough evidences about the export of sandalwood from India. In first century A.D. from Periplus, we find that along with teak, black and ebony woods, sandalwood was also exported from Barygaza (Broach) to the Persian Gulf, ports of Ommana. The Silapapadigaram speaks of Puhar and its streets were full of silks, corals, sandals and myrrh. Hence we may assume that sandal wood was exported from the port about the 3rd century A.D. Sandal wood, teak, ebony, eaglewood most of which grew in the hilly forest tracts of Coimbatore, Salem, Malabar and Karnatak. Laufer remarks that, “it is more probable that the sandal wood used in western Asia came from India.” According to Watt, “the sandal wood of Mysore and Coorg has not only been known from the most ancient times but has ranked as the finest qualities for centuries.” S.N. Majumdar thanks that is was sandal wood it was imported through Barbarcum in South India was also exporting the sandal wood to West Asian countries. From these various accounts it can be safely assumed that the sandalwood was a commodity of great demand in West sian countries for a long time. North India as well as South India were calering the needs of western people.
Use: According to Kautilya, it (sandal wood) was adhesive to the skin, retentive of colour, tolerant to heat.\textsuperscript{63} It’s medicinal utilities were quite well known in ancient Hindu material medical. An emulsion made of ground sandalwood is used as a cooling application to skin in erysipelas, prurigo and sideman. Its paste was applied to local inflammations.\textsuperscript{64} It is also useful for hemicrania, skin diseases, to allay itching and an approdisiae.\textsuperscript{65} Charak speaks of sandal as the best of all, which act as poultices and which eradicate bad smell and cure all cases of burns.\textsuperscript{66}

Region of Sandal: Sandal grows naturally in the drier parts of Mysore, Coimbatore, Salem districts, Madurai in the south, while in Maharstra it can be seen at Kolhapur. It is also found in Poona, Bombay, Gujarat & some parts of North India.

Bamboo

When Chan Kien in 128 B.C. reached Ta-hia (Bactria) he was surprised to see walking sticks made from bamboo\textsuperscript{67}. Hirth takes it to be a finished product of bamboo imported in a larger quantity.\textsuperscript{68} On enquiry the people of Tahia that they had brought them from India reported Chan Kien. Laufer speaks of the ancient trade route running from Sec. Wan through Yunnam to N.E. India Whence the square bamboo in the shape of walking canes was forwarded to Bactria in the 2\textsuperscript{nd} CBC.\textsuperscript{69}

Pliny says that, “the peoples of the East employ reeds in making war . . . The reeds of India are placed highest of all . . . The Indian bamboo are of a size of a tree, as we see in the case of the specimens frequently found in our temples. The bamboo grows especially on the banks of the river of Chennab.\textsuperscript{70} Thus, we have little doubt of the abundance of bamboo in Ancient India of the highest quality and its export to Rome for use in the making of temple.

Use: Apart from common use, the bamboo in India is basically used for house building, swords, bows, arrows, and obstruction purpose in canal. From medicinal point of view, bamboo is useful for cooling. But Pliny does not mention
that bamboo in Rome was used for arrow and bow as in the case of India. From Pliny it is clear that Indian bamboo was the most preferred one in Rome. The evidence of Pliny (A.D. 23-79) who published his Natural History in the year circa 75 A.D. does not find any corroboration in the Periplus, ascribed to about 60 A.D. as one of the exports from India. But these lacunae need not necessarily be considered that on this account Pliny’s statement should be discredited.

**Region Bamboo:** Usually bamboo is not confined in particular part of India. In almost all forest of India, bamboo is found. According to Pliny, that the bamboo, which was found in the temples, was usually found on the bank of Chenab. In tropical and extra tropical forests, the bamboo has been found largely. But in temperate zone, bamboo looks like shrubs.

**Consumer Goods**

**Food Grains**

In the Mauryan period, about the export of food grains to West Asian Countries, there is no clear-cut evidence. Kautilya, though give emphasis on agriculture does not refer about the export of food grains. It is only in the first century A.D. that we find definite proof that among food grains were exported to Egypt from Barygaza (Broach) by ship, “the products of their own places – Wheat, rice, clarified butter and sesame oil and other goods”. Their goods were not only consumed in Egypt but also re-exported from there to other towns and places like Taba, Pano (Raas Bina) and Opone.

The Periplus records that rice is exported from Ariaca and Barygaza to Opone and other ports of east Africa. According to Kalidasa, Magadha and the low laying plains of Vanga and of the Southern plateau produced sufficient paddy. According to Varahamihir, India was producing different sorts of paddies in different parts. These evidences points out that there was a large scale cultivation of rice and it may be presumed that India might be exporting the rice to other
countries. South India and Western Coast of India was famous for the rice cultivation and Periplus gives the clues that rice along with other commodities were exported to African countries. Just like rice, wheat was also exported to different parts of the world, evidenced by Periplus. Wheat was chiefly grown in the Northern and Central India and was exported from these regions though the port of Barygaza especially in the first century A.D. Yuanchwang refers to the plenty of wheat cultivation in Ahichhatra and Sindh.

Strabo mentions sugar, Indian honey, procured from trees without the help of bees. Charak and Sushruta mention the medicinal qualities of sugar in detail. The Periplus mentions honey, called Sacchari, exported to Africa and from Barygaza ships to the markets of east Africa sent it. Milindapanha also indicates the existence of sugar industry in its period. The Silappadhikaram also indicates the existence of sugar industry in its period. The Silappadhikaram refers to the maidens of Puhar pounding “pearls using sweet sugar cane as their pestles.” Hence, we may suppose sugarcane was exported from Barygaza as also from Puhar and Ganga. Rostovzeff says, “the production of honey was limited in Western countries and and no attempt was made there in Hellensitic and Roman times to learn more of it or to acclimatise any of sugar yielding plants in the Greeco-Roman but perhaps in the Hettenistic age.” This clearly establishes the fact that sugar was an item of export to Roman world from Hellenistic times, Kalidasa and Fahien also mention about the sugar cultivation.

These were some food products, which were exported to Rome as well as West Asian countries.

Exports:

Various kinds of dyes, which were exported by India, were copal, indigo and lac. It is evident that from a very early time India was famous for the production of various types of dyes. From Jatakas we know that a yellow dye was prepared from Karnikara flower and a saffron dye from safflower (Kusumbha), which were grown in the king’s conservatories. Kautily refers about various types of dyes.
Indian Copal

According to Periplus in first century A.D. Indian copal was exported from Africa\(^8\) covering roughly north western India, viz. modern Cutch, Kathiwad, and Gujarat to Malao an important town in the Arabian gulf. Apart from this type of copal, other varieties of copal were also exported from India. Yule identified the coneum with the Indian copal, the Malabar tallow or white dammar, a gum exuded from *Vateria Indica* order *Dipterocarpeae*. According to Watt, it is a large green of forests at the foot of Western Ghats from Kanara to Travancore and surviving upto 4000 ft. above sea level.\(^8\) Usually this gum or resin like copal was and has been used chiefly for making varnishes.\(^8\) Therefore, the Indian copal must have been exported through Gujarat areas to the Arabian ports like Malao & others in the first century A.D.\(^9\) What was the use of these commodities in the western land, it is very difficult to presume. But keeping the efficacy for varnishing purposes it maybe asserted that it must have been the primary object of export from India to western lands.

Lac

Another product, which Kautilya largely refers in his Arthasastra, was lac.\(^9\) Which was employed for the purpose of colouring. The Periplus reveals that “coloured lac” was exported from Arica or roughly north-western India to the East African ports, Adulis Avalites and Arabian ports in the first century A.D.\(^9\) Whether this export of lac continued after 1\(^st\) C.A.D. is very difficult to ascertain but keeping the utility of lac in view it can be assumed that this trade might have continued.

From Periplus it would appear as if lac was grown somewhere in northwestern India though he clearly does not mention about the area of cultivation. According to Saletore, R.N., the lac must have obtained from Northwestern provinces and especially from Gorhwal forests in Sindh, it was also expected to be found in Oudh and Punjab.\(^9\) The vast forests of Burma were capable of producing
an almost unlimited quantity of lac. Again this lac was produced in abundant quantity from the jungles of Birbhum (Bengal) and in Assam and Orissa.

The use of lac was multiple. It was not only used for dyes but also used to colour the tips of fingers, palms of the hands and soles of the feet. It was also employed as a varnish. Excepting to colour the textile, it was used for colouring the leather, wool and silk. Kalidasa mentions about the lac juice, which was used for colouring the tips of fingers.\textsuperscript{93} Bane (7\textsuperscript{th} C.A.D) also refers about the utility of lac-juice.\textsuperscript{94} This was also employed for medicinal purposes. A decoration of lac-juice has been used incase of enlargement of liver, in complaints of dropsy, liver & ulcer. Taking the uses of the lac into consideration it can be safely presumed that the women in Arab haerems to colour the different parts of body must have favoured this lac. Perhaps it must have played the important role to colour the leather, woolen goods in the Arabian region except silk because silk was dyed in India and re-exported to the Arabian regions.

\textbf{Indigo}

It was another dying ingredient, which was exported from India. Pliny refers it as indicum\textsuperscript{95} which according to him was “a substance imported from India “but its composition was unknown to him. The export of this product was probably made in the beginning of 1\textsuperscript{st} C.A.D. Pliny observes that it was, “not long since indicum began to be imported.”\textsuperscript{96} He further states that this product of India when powdered was black in appearance but when diluted in water, it yielded, “a marvellous combination of purple and caeruleum”.\textsuperscript{97} Staining pigeons’ dung with genuine indium of else by colouring Seleneusian earth or anularian chalk with wood also adulterated this dye.\textsuperscript{98}

Indigo was used to alleviate cold shiverings and diffusions inaddition with as a dye. It is also acted as dessicative on sores.\textsuperscript{99} Pliny’s reference about indigo as atramentum, it has been suggested rightly that he alludes to the real indigo.\textsuperscript{100} It was again beneficial in epilepsy, nervous disorders, bronchites, as an ointment to
cure sores and largely employed as a test regent. Considering the multiple benefits of indigo, India was cultivating this crop largely for the export purpose. Its medicinal use in the foreign lands can’t be said with authenticity but its use as a dying agent is undoubtedly clear. Although Periplus does not mention indigo as one of the exports from India, we know certainly from Pliny that it was exported from India to Rome where it was used not only as a dye but also as a medicine. There is no reference of indigo in Bible but it appears in the Talmud. Rabbies threatened punishment for the professional dyers in Talmudic times who made the substitution. Rathavnel reported that the Egyptians as early as 18th CBC used Indian indigo. Archaeologists of Israel have found the signs of dying facilities dating from 8th CBC and an indigo dyed cloth has been found in 2nd CBC.

Indigo was probably first cultivated in South India especially in Carnatics. As it was exported to Rome apparently from Southern and Western parts of India such a suggestion appears plausible but some epigraphic evidences point that indigo was largely cultivated in Bengal in 6th CAD.

**Purple**

Purple was another article of dyeing, which was celebrated among the Persians. At that time Indian purple was facing competition from Phoenician purple. Several Greek writers had observed that the Persians used the purple dye for their tunics. The Persians valued their scarlet robes so much so that they offered them as presents to the kings; the manufacture of purple continued down to first century A.D. has been borne out by Strabo and Pliny. Strabo had observed that a great number of dyeing works at Tyre had rendered the city unpleasant as a place of residence. But the main wealth of Tyre city was the superior skill of dyeing industries. These industries are continuing to work in cities still now. During Pliny (23-79 A.D.) the fame of the Phoenicia was confined to the production of the murex and purple. About Indian purple, Herodotus, Pliny and Strabo don’t mention. But from Megasthenes’s account it is clear that Indian purple was no less bad. Etesias
(415 B.C.) mentioned in clear terms, "Their (India) dye stuffs are superior to those used by the Persians," Actians also refers about the Indian purple in the 2nd century A.D.  

Indian purple, which was produced from vegetables, was mainly used for the purpose of dyeing. According to Ctesias, the purple grown at the banks of Ganga was not inferior to Greek counterpart. Probably under Nero, the Tyrian dye trade was practically liquidated but the use of purple continued under Ortho (69 A.D.) and Domitian (81-96 A.D.). So the Romans must have imported dyes probably from India for Aelian even a century later, refers to the superiority of Indian purple which must have been well known at that time.

**Live stock**

India was also exporting various livestocks like, the bull, cattle, birds like the parrot, maina, pheasant and even snakes. Among others, the Indian hunting dogs, the elephants and the peacocks were no doubt most celebrated.

**Peacock**

One of the most important items in the export of livestocks was peacock, which appears to have travelled to the kingdom of Solomon (South Arabia). About this there are much evidences in the Book of Kings in the Baveru Jataka; and it indicates that the trade of peacocks was also continuing like earlier in the post Mauryan period. Pliny mentions that it continued to attract the attention of Roman people in the first century A.D. He gives a detailed description about the peacocks. According to him by the first century A.D. the Roman people were quite familiar with the Indian peacocks. The peacocks might have been exported to West Asian countries in addition to Rome because in Pre-Mauryan period and in Mauryan period these peacocks were exported to West Asian countries. In the Post Mauryan period, there are so such evidences to point out that it was an item of export to West Asia.
Besides peacocks, Romans liked parrot and they call it by the name of Sittaces. Allien relates how it could become, "as talkative as children and speak with a human voice" if taught to speak like them. The bright plumaged birds had equally attracted the attention of Greeks and Romans. Strabo says that, according to Clitarchus, in India four wheeled Indian carriages, bearing trees with large leaves from which were suspended in cages different kinds of tamed birds, were solemnly driven in procession. Again, among the presents by the Indian Ambassador from Azes-I at touch to the Roman emperor Augustus was a patridge "larger than a vulture." Among the Roman Caesars, birds like the peacock, bright plumaged birds become popular. Caius Caligula (A.D. 37-41) on each particular day of the month offered as sacrifice, flamingoes, peacocks, black grouse, guinea hens and pheasants. In view of the Indo-Parthian trade connections and the commercial relations between Rome and India, birds like the flamingo from the Rann of Cutch where they still abound and the pheasant and peacock from the other parts of India might also have been taken for feasts. These could only have taken from India about which birds, Pliny almost during this period (A.D. 23-79) Strabo (23 B.C.-19 A.D.) and Aelian in the middle of second century A.D. had written with much enthusiasm.

Export of Animals:

There are enough evidences about the export of animals from India to West Asian countries. As it has already been observed earlier that the Indian animals were to be seen in the capital of Antiochus Iv Epiphanes at Antioch Again in the retinue of the Roman emperor, Tiberius in A.D. 21, besides a host of attendants, there were animals such as buffaloes, leopards and tamed lions together with bright plumaged birds. It is usually believed that the lion and elephants were exported from India as well as from Africa to Rome. During the reign of Augustus
(63 B.C. – 14 A.D.) the animals from India invariably found in Rome. It was main on the parts of Roman people to maintain wild animals, especially which were largely exported from India. Caligula (A.D. 37-41) who succeeded Tiberius (A.D. 14-37) also collected wild animals for his shows and it was difficult for butchers to feed the wild animals and therefore, these animals were served with criminals as their food. Sometimes the man from decent families was also thrown to these wild beasts.125

Among the wild beasts, which were exported from India, were the tigers, elephants, hunting dogs and others. The Greeks were well aware of Indian wild beasts like tigers. The Indian elephants were very much popular among the Assyrians and Egyptians also. These elephants were marching with the army in the battlefield and they were creating terror in the hearts of the enemies.126 African elephants were also used for the same purpose but there was great difference between these two varieties of elephants. Pliny observed in first century A.D., how the African elephants fought shy of the Indian, which was much bigger and much powerful than the African.127 But Cosmas in 545 A.D. however and probably from hearsay noted that the Indian elephants were “not furnished with great tusks like those in Ethiopia”. Unless the Indian elephants were not exported from India to the Egyptian Kingdom of the Ptolemies, its presence in the armies as a fighting unit can’t be explained. The presence of Indian elephants in Italy is widely corroborated from different sources. Claudius (A.D. 41-54) made the Senate decree, an elephant drawn carriage for his grandmother Livia’s image to match Augustus’s ritual procession and around the circus. Pliny gives a detailed account about the Indian as well as African elephants and ivory which were famous in the western land.128 The elephants in Rome were employed for gladiatorial combats. At the conclusion of gladiatorial combats, which the gladiators performed, the last exploit was fighting with elephants single-handed.129
The elephants were landed at Puteoli, now Puzuolo, on the coast of Campania and also at Alexandria over which the Romans had a firm hold over a century. Such exports of elephants from India continued till the fall of Roman Empire. The export of ivory to Assyria and Egypt is also symbolically presenting the fact that the Indian elephants and ivory were very much popular among the West Asian people. There can be no doubt about the export of Indian ivory to Rome where, as Pliny recorded the ivory tusks could be “constantly seen in the temples, like the bamboo.” With the Caesars, the import of ivory continued. Nero, the ruler of this dynasty, rebuilt what he called the Golden House whose dining room had a ceiling of fretted ivory, the panels of which would slide back and let a rain of flowers of perfume from hidden sprinklers showers upon the guests. Ivory was largely used for the purpose of chairs, jewellery, interior decoration, chariots and toys. The elephants were bred in the regions like Kalinga (south Orissa), Anga (East Bengal) Karusa (Shahabad district of Malawa), and Saurastra. The elephants of this region were exported to different parts of West Asia as well as Rome.

**Export of Skin**

Among the skins imported into India were the Serican types, which seem to have come from Serica, located in the north west China and Chinese Turkestan. Periplus reveals that from Barbaricum the skin were exported among other goods, this Serican goods in the first instance to the Arabian and Persian ports and then ultimately to Rome. Where as Pliny has noticed earlier, refers to their tissue and their dyes. These skin products might have imported from Serican lands and then it was exported to western countries where its demand was high. Kautilya mentions about the varieties of skins which were procured from Himalayan lands. Among other products, perhaps the heavy woolen coats, woolen clothes were obtained from Kaveripattinam, Chera kingdom in South India.
Hunting dogs

Next to the elephants, the Indian animals, which were very much popular among the western people, were the hunting dogs, internationally famous. Though there is no such direct evidence about the export of Indian dogs to West Asian countries, the sculptures depicting Ashurbanipal's offering a sacrifice after a bull hunts. And the hunting dog usually did such type of bull hunts. Therefore it is expected that the hunting dogs were exports from India, which is further proved by the statements of Darius, when he ordered some villages of India to rear dogs and in exchange they were exempted from taxes. These early evidences points out that the hunting dogs which were the favourite items of the western people, must have been same in the post Mauryan period and the Indian dogs might be expected to be exported from India. Indian dogs, which were introduced in Western land, were valued high due to size.

Another living animals, which we can name as brought from India, are snakes. Indian Cobra-de-Capello, known to the Greeks and Romans as “aspis” and other members of this order. There are clear records that the serpents were exported from India, Ceylon, Burma, Nicobars, and Malaya. An Indian embassy which came to Augustus, presented a small python and other snakes and Augustus exhibited in the comitum comities one fifty cubits feet long, while Strabo saw in Egypt a serpent nine feet long brought from India. These examples show that snake was also a favourite item of export to the European countries.

With great certainty we can speak that the Musk Dear which produced the famous odour which was very highly valued in the East, must had been imported to west through Persia or from the Indus or from the Broach before the time of Cosmas. It was established in trade during the Arabian epoch. The musk is known today in three kinds, the most valued coming from China, a less valued from Assam or Nepal or the least valued from the Central Asia. So it may be presumed
that Indians might meet the demand of Roman people for the musk dear to some extent.

Among the animal products, the mention may be made about the hides, teeth and horns of rhinoceros. Pliny says that the lycium was sent by the Indians in the skins of rhinoceroses and the camels but the more important were the horns out of which Romans made oil flasks, called gutti and the vessels made out of the horns of Indian rhinoceroses and the so called “Unicorns” have always been esteemed for their supposed medical properties and for the alleged property of rendering harmless any poison drunk out of them.

A Roman medicine was prepared out of the flesh of lizards. These lizards were usually available on Egypt, Red Sea coasts, Arabia and India. Of these Arabian and larger Indian lizards were said to be land crocodiles, were sent to Roman Empire salted. This must mean that Romans imported an Indian and Arabian preparation of the flesh of typical skins (genus-scincus), which range from Northern Africa through Arabia and Persia to Sind, yielding medicine and food today. The other products, which were in great demand in western Asian society, were tortoise shells, pearl, conch shells silk goods, lac etc. Tortoise shells, especially of Hawk Bill Turtle, which was found in Indian waters, was also in great demand. In the west, it was put to various uses but it was sought above all by wealthy Romans to provide a veneer for their rich furniture, in particular for decorating bedsteads of solid ivory; western people did not eat the flesh in ancient times. Usually the shells of tortoise were sent from Malaya Peninsula by the way of Muziris and Neleynda and reached to the Greeks at the marts of Damirice.

Pearl was the major item of trade between India and West Asia and it was also the favourite item of ladies. No greater praise could have been bestowed on pearls than these words of Pliny who stated at first rank then and the very highest position among all valuables belongs the pearl. In ancient times as now there are no fisheries of the true pearl in European waters, all references to British pearls, for
example indicating merely pearls from the river Mussel, turned to the Far East just as is the case today, the Romans could obtain inferior pearls in the Red sea and the pearls of very best quality from the Persian Gulf (Bahrein Islands) but their most abundant supplies came from India. Before the exports of Indian pearls to Rome, at first it was exported to Greece, which is clearly evident from the observations of Pliny. Arrian in the middle of second century A.D. observed that according to Nearchus in 325 B.C. along the coast of Persia at a place called Ilas; near an island called acaicandrus pearls were caught, “as in the Indian sea”. The allusions may be drawn to island of Bahrain but what is interesting is that Nearchus was certainly aware of pearl fishing in the Indian Ocean at that period. Another astounding observation made by Arrian about the pearls is that among the other pearls Indian pearl was. “Worth thrice of its weight in refined gold“.

Pearls appear to have been exported from Persian Gulf, India and Ceylon. During Augustus, the export of pearls and precious stones from the East especially from India through Alexandria must have not only continued but have been considerably increased. After his Alexandrian triumph when he returned to Rome, with the treasures of Ptolemocs, he made lavish gifts, for instance in a single donation to capitoline, Jupiter gave 16,000 pounds of gold besides pearls and precious stones worth 50000 gold pieces. This is not strange because the Egyptian pearls were also highly paid in contrast with Indian pearls. Cleopatra is said to have possessed two pearls respectively from India and Egypt. Various references about the pearls clarify the fact that the West Asian and Roman people largely imported the pearls from India in addition with other countries like Egypt. Not only the Buddhist and Indian literature but also the Greek and Roman writers from Megasthenes onwards, the Periplus and Pliny observed that the pearl fisheries were centred at Kolkai in the Pandyan kindom, controlled from Modura. The Periplus also tells us that pearl fisheries extending from Kanya Kumari to Kolkhoi or Colchi where actually the pearl fishing was carried out. From Pliny’s statement
it is clearly established that the Indian Ocean was supplying the pearls to Rome. He adds about the Indian pearls that it resembled in tint the scales of mirror stones and exceeded all other in size. It is no wonder that next to diamonds the Romans valued the pearls of India and Arabia.\textsuperscript{146} In Rome, pearls come to be considered, “an everlasting piece of property” passing from father to son like heirlooms and were offered for public sale like landed estates.

Pearl was also very popular in India from the days of Kautilya. Silapadikaram (5\textsuperscript{th} C.A.D) refers about the pearls that Tirumalavan was given by the king of great Vacciranadu whose sway extended “as far as the roaring sea in the east”, a pearl canopy as tribute. A woman’s breast was decked with pearl strings. The city of Puhar is described as a place where the surging ocean like dealer exchanged lustrous pearls for wreaths of flowers.\textsuperscript{147}\textsuperscript{147} The political disturbance in Rome probably checked in third century A.D. the export of pearls from India to Rome. But the popularity of pearls in India continued unabated. Fahien (399-414 A.D.) refers about the pearls, which were available in the treasuries of Ceylonese Buddhists. According to him, Ceylon was also a great centre of pearls. In India especially south India was famous for pearls. According to Pliny, the Korkai, Agaru, Kaveripatttinam were the main places where the large scale trading of pearls was taking place. At the same time the large quantities of inferior pearls were brought from the Persian Gulf of Barygaza to find a market there.

Spice

Spice in general may be said to include pepper, clove, mace and such aromatic and pungent substances. From the very early times its export from India is corroborated by different sources. Bible provides the ample evidences about this trade. The kingdom of Sheba (South Arabic) was an emporium of spices from where the spice was sent to Jerusalem, Phoenicia and Egypt. We are further told that the Arabs from south Arabia also seems to have taken the spice to Egypt with its routes, which appears to have existed from ancient times. In Egypt, the need of
spice was high because in order to preserve the dead body they were using the spice in large scale. Though most of the West Asian countries were demanding the spice, it is not clear how far India had fulfilled their needs. Arabs had kept the trade contacts with India from the Mauryan period to secure the spice from India. 

Again Indians must have been the commercial contacts with Greeks and Romans. One prickly shrub which is found in both Arab and India, named as liana and the knowledge about this plants in Arab indicates that there must had been a commercial contacts between the two lands. Again in Arabia, says Pliny, the olive tree distilled a sort of tear from which Indians made a medicament known by the Greeks as enhaemon which in Greek means “blood stopping” and which was called in Italy as “de lecie”. These statements can be implied to mean that Arabs must have been in contact with India, if this had not been the case, could never have prepared the medicament, which was also known, to the Greeks. So on the basis of these evidences it may be concluded that the spice trade was a flourishing trade between India and West Asian countries.

Among the spices, which India was expected to export to West Asian countries were, pepper, cloves, bdellium, myrrh, spikenard, macir, ammomum, cinnabar or calamus, lycium, costus, cardamon, sweet calamus, saffron and malabathrum. It is quite possible that Arabs from South Arabia who had practically monopolised the trade in spices, carrying them to various countries like Phoenicia, Israel, Egypt and Italy etc.

Export of Pepper

Early in the imperial era, pepper (Tamil-Pipali) became a staple article of Rome’s sea trade with India. But Pliny admits that he is unable to state definitely at what period the use of unguents found its way to Rome. An edict of Antiochus which prohibits the sale of exotics (enoticas) gives an idea that, until that date, the trade in exotics must have been current in Rome. Probably the trade in spice started in Rome, after the conquest of Asia Minor, Syria and Egypt by Rome. Frequent
reference about the pepper by the Augustan writers, which firmly establishes that pepper, was staple article of sea trade and almost removed it from the class of luxuries by reducing the prices considerably. The spice came from Malabar, Travancore and consisted chiefly of the common Black pepper, which was exported, in most quantities from Muziris and Nelecynda, being brought down from Neleyanda to Bacare in large boats. Tamil literature tells, how the Greeks carried away large sacks of pepper giving apparently gold in exchange and Roman money was deliberately imported into Muziris and Neleynda. So profitable was the trade of pepper was that this item was called "Black gold", the pepper being exchanged for gold. According to Pliny it was the cheapest pepper. Possibly the pepper was also used as a ballast on the journey back.

In South India, the Cholas, Cheras and Pandyas fought among themselves to control the pepper trade. But Cheras have final monopoly over this trade. The ports of Muziris and Nelecynda owed much of their prosperity to pepper trade. It is possible that Tondi was also involved in a small way in this trade though the Ponnai river whose tributaries would have brought down the pepper from the Malabar hills.

Due to its Indian origin, the Indian word for pepper is pervasive in the world. It is obvious that the He brew word for pepper is derived from the Sanskrit word pippali, which however refers to long pepper. There are references about the two types of pepper. One is black and another is white. The black pepper was the favourite item of western people. Originally it was obtained through the Phoenicians and Carthaginians (as Persians, Syrians and Lybians) the spice was brought by the Romans directly from south Malabar. Periplus indicates that the foreign merchants sent large ships to the market towns of the kingdoms of Ceraputra (Kerala) and Pandya viz, Nelecynda, Muziris, Tyndis etc. Again Periplus states that Broach and Ujjaini in North India were also exporting the pepper. The Egyptian traders were also carrying large amount of pepper from India.
Long pepper another variety of pepper, exported from Barygaza and was chiefly used for medicine purpose. It was more expensive than ordinary kind and it was available in Ceylon, Malaya and India also.

Pepper became the part of everyday life of Roman people since its chief use was a culinary spice. Again pepper find its presence in the every recipe, was more important than the salt and sugar. But besides this, the pepper was used in all kinds of medicines and drugs. Its use as medicine dates back from the time of Hippocrates to whom it was the “Indian remedy”. Therefore, the need for Indian pepper in Roman market grew in such a proportion that various attempts were made in Italy to substitute pepper with mustard and junipers berries. Again the cultivation of pepper in Italy also did not provide the expected result and this was the main reason of import of vast quantity of pepper by Romans.

The export of pepper continued till the fall of Roman Empire. There is epigraphic evidence that to prove that the vast quantities of pepper were stored in ware houses. Again the continuity of pepper trade can be assured on the basis of availability of Roman coins but these evidences are mere supporting evidences. Again Pliny observed that, “so large quantity of perfumes was burnt by Nero” during the obsequies of his wife, “Poppaea”. Unless their imports had been on a very large scale, such egregious waste of these precious substances could hardly have been possible. These are things, which indicate the huge trade of pepper between, the west and east.

Clove

One of the spices, which were exported from India to West Asia and Rome in the first century A.D., was clove (lavanga) about which Pliny does not mention much. But he refers about the caryophyllon, which he apparently confused with cloves; according to him “had a considerable resemblance to pepper.” but was more brittle and longer. He was evidently aware of the clove oil and its medicinal value but he was not certain whether it was imported from India or not. Since these
armoatics did not come within the notice of the author of the periplus and even when it occurs in a version of Digest List, clove is one of the nards, there was no great demand of this. But in the later phase, means in the period of Rome's decline and of the Early Byzantine Empire, references about the cloves are found. Cloves formed the part of rent paid by Egyptian estates to churches in Rome during the fourth century A.D. and Cosmas shows that in 6th century this aromatic was well known to come from India by way of Ceylone to the marts of west coast of India.

**Spikenard**

It was another important item, which was exported to Rome in first century A.D. From Periplus we find this commodity through the port of Barygaza was exported to Alexandria and thence to Rome. The Periplus reveals the regions where it was cultivated, alluding to the north thus: "though this same region and from the upper country is brought the spikenard and that comes through Poclais (Pushkalovati) Caspapyrene and Paropanisae (Hindu Kush) and Cabolithic (Kabul). After its collection in these regions, it was sent to Barrygaza for exporting purposes through the city of Pushkalavati.

Indian spikenard was famous in West Asian countries. The Syrian nard was held in high esteem in Rome. The references to Syrian nard, according to Dioscurias, only meant that such nard, as was cultivated in certain mountains of India, which looked towards Syria, obviously north-western mountain regions already referred to. There was another type of Indian nard which according to Pliny, was grown on the banks of the Ganges called Ozaentis (perhaps Ujjain) emitting, a fetid odour and condemned as useless. This was apparently the Gangetic nard of the Periplus, which was so useless as Pliny made it out to be, would hardly have been
re-exported from Muziris to foreign countries like Alexandria and thence to Rome. 171

Nard was also profusely found in the Chera Kingdom. 172 It was used to extract an oil, a fragrant one, for cosmetic purposes. 173 It was known to Pliny and Periplus as the sweet smelling oil of the Nard – the word probably derived from Narantam in Tamil. 174 According to Miller and others, the spikenard grows in the Himalaya and is shipped to Malabar. 175 Its oil was also used in temple. 176

About the prices of Spikenard, Pliny states that the larger leaves were worth denarii or a pound, smaller leaves sixty, the smallest seventy five. He also states that the genuine spikenard oil contains costus, omomum, and other elements besides Indian nard but adulteration and therefore variations in prices were very frequent. 177 The use of spikenard is multifarious such as: the root considered bitter tonic, stimulant, antiseptic and has been employed for the treatment of epilepsy, hysteria, convulsive affections, palpitations of the heart and intestinal colic.

Costus

Another important product exported from Barygaza to Alexandria and thence to Rome was the costus. According to Pliny, the root of the costus had a burning taste and a most exquisite odour. Again he mentions that this costus was cultivated in India at Patala, situated at the very mouth of Indus. 178 The real costus was and is still largely found at Kashmir but it was later cultivated in Arabia, Syria, Tibet, China etc. 179

Bdellium

It was also another aromatic product, which was exported through Barygaza in the first century A.D. to Alexandria and thence to Rome. This aromatic, which was so esteemed, was cultivated not only in Bacteria, Media, and Babylonia and also in India and Arabia. In India, bdellium was mainly cultivated in the region between the Hindu Kush and Indian Ocean. And it was transported to the West
through the Persian Gulf ports as well as by the overland route to Babylonia. The price of bdellium in its pure state in Rome was 3 denarii per pound. Its gum resin is an astringent, antiseptic, expectorant, aphrodisiac and good for enriching the blood. Medicinally it was so useful that it was exported to Rome from the very early age. It is also mentioned in Bible. It is a gum or resin of a tree and was used for perfume and incense. Pliny referred to it saying it came from India overland via the famous trading centre Nabatean, Petra.

Cardamum

Cardamum was another export product from India, again is not mentioned in the Periplus as one of the commodities sent out from the country. It was one of the exports of India in the first century A.D. can be seen from the Pliny who has observed that it was found in Arabia and India. It was rightly pointed out that cardamum was exclusively found in India. Cardamum was produced in Coromondal coast, Malabar, Travancore and especially in the high lands of Madurai, Trinnevelly and Dindigul. However, strangely, there is hardly any direct reference to Cardamom in Tamil sources although it is well known to classical accounts. The sea route from West coast of India to the Persian Gulf usually brought it. It must be noticed that Pliny says that the plants lost its strength when it was grown anywhere outside India. Perhaps the plant was considered perishable if brought by the sea and so came by the land routes only, or it may be that the Arabians kept the sea traffic in their hands for Pliny’s cardamum is Arabian and Median. That the spice came by the sea is proved by the inclusion in the Digest List. According to Strabo, the Cinnamon reached the Mediterranean from the countries no nearer than Burma, Ceylon and India. Then Arab traders were working as Middlemen to transport these things to Rome and Eastern Africa. By this they were earning much money. The people of Egypt and Syria were also getting this Cinnamon from the Arabians. Like all other products its medicinal value was immense. It was used in the preparation of the Mendesian unguents. Its seeds have been found useful for
neuralgia, gonorrhoea, an antidote to scorpion bite and snake venom. The oil from its seed has been applied to the eye leads to allay inflammation.

**Aloe**

Aloe was another gum resin, which was exported from the country. Although Periplus does not mention the export of any aloes from India still we know from the testimony of Pliny that the most esteemed aloes were those impored to Rome, in the first century A.D., from India. Pliny also noted that the aloe was also grown in the Asiatic provinces. Instead of being used as aromatic, it was also used as purgative for all diseases of eye. The Herbrew name for an aloe seems to be derived from Old Tamil. Miller says that the word for aloe in Sangam literature is naraikil “As the K” of akil is soft, the Prakrit it makes the transition from Sanskrit agaru to the Hebrew ahaloth and the Greek agalochon the more intelligible.

**Saffron**

One of the important exports from India must have been Saffron, which according to the Periplus was exported through Barygaza to Muza (Mocha). There was an active trade between Muza and Barygaza is clearly revealed in the Periplus which has recorded that the whole of Mocha, crowded with Arab shipowners and sea-faring men, was busy with the affairs of commerce for they carried on, “a trade with the far side coast and with Barygaza, sending their own ships there”. Among the imports into Maza the Periplus refers to saffron and so it may be concluded that saffron was exported from Barygaza to Muza in the first century A.D. But Pliny’s silence about this creates the problem to draw the conclusion. The locality of its origin may have been Kashmir where, as Kalhana recorded, it was available among the commodities, which even in heaven would have been difficult to obtain. It was used as perfume and medicine also. In the sphere of Ayurvedic medicine it has been famous as a stomachic and anti-spasmodic and stimulant and an aphrodisiac. It is considered a sovereign remedy. It must have been very popular in Rome, as Pliny reveals it was stewn in the halls,
theatres and courts. 199 Saffron was also used as colouring and flavouring agent. Among other products, which were exported to West Asian, countries as well as Rome were cloves, spikenard, costus, myrrh, mastich, macir, amomum, cinnabar and musk etc. These products were carrying less importance because of other low demand but they were the part of the trade. These products were not only famous for its food value but also for its medicinal value. Just like other products, these products had been exported from different parts of India to Rome and other West Asian countries.

Export of vegetable products

Among the vegetables products exported from India, the most important were palm wine, castor and sugarcane. Stratro mentions about this date palm: as the reeds, which yielded honey although there were no bees but whose fruit cater caused intoxication. But Pliny clearly states the date palm fruit was employed for the purpose of making wine 'by the Parthians as well as Indians and indeed throughout the entire East' 200 From Pliny’s reference it is not quite clear whether or not the palm wine was actually exported to India but his statement regarding its use throughout the East suggests that it might have been exported as it actually was not only during his time but also even later.

Castor

It was exported to West during Pliny which can hardly be doubted for he refers to castor plant as the fruit of the cicus which was grown in Egypt “in great abundance”. There were different names of this product among the European countries. Periplus does not also mention the name of Indian castor incidentally. But huge production of castor in India gives a hope that castor might have been exported from India which is not clarified yet. It was very useful for disorders of the joints, all kinds of indurations, affections of the uterus and ears also. 201 The light produced by the oil was very dim due to its thickness. Its leaves were applied with
vinegar for ersypelas and especially when freshly gathered, utilized for diseases of mamillae and defluxions\textsuperscript{202} with so many uses its export can well be appreciated.

**Cane sugar**

Sugar from India must have been exported from an early period. Referring to Arabia, which is also stated to have yielded sugar, probably date palm sugar, Pliny comments, “but that of India is the most esteemed”. The export of cane sugar can be substantiated from the Periplus, which clearly states that ships, “customarily fitted out from Ariaca (north west coast of India, especially the region round the Gulf of Cambay, modern Kutch and Gujarat) and Barygaza (Broach) to go to Egypt carried besides other goods, “honey from the reeds called Sacchari”.\textsuperscript{203} Scoff observed that “this was the first mention, in the history of European world, of sugar as an article of commerce”.\textsuperscript{204} This is not strictly correct for the sacchari of the Periplus is evidently identical with the saccharon of Pliny (23-79 A.D) who refers to the imports in Rome of sugar not only from Arabia but also from India which he specifically mentions as the better variety. From this it is clearly established that the cane sugar was an important commodity of export of Rome that time. The Roman knowledge about the Indian sugar was that it was an art by which the juice was extracted from the plant but it was never used for sweetening the table foods.\textsuperscript{205} Sugar was largely used for the medicinal purpose by the Romans instead of sweetening purpose; for this they were using the honey.

**Metals, Minerals and Precious Stones**

Now the question arises about the export of metals, minerals and stones, which played an important role in the export trade of India. Among the metals, the anticipated metal of export was silver, copper, iron and steel. About the export of gold there is no such authentic evidence. In regards to minerals, we may cite glass and sand in particular. In the matter of precious stones, the list of goods of export was quite lengthy which include beryls, carnelians, lapis-lazuli (saphire) amethysts, agates, onyxes, diamonds, and transparent stones of several kinds, corals and pearls.
The women usually used these precious stones for ornamental purpose while some of the stones had medicinal use also. In contrast, the metals were used in fashioning of implements and accoutrements of war; while other metals were used in fashioning articles of daily use and ornaments.

**Gold**

Gold was not regular article of trade but Pliny clearly states that gold from the Ganges reached the empire and implies the some of the famous “ant-Gold” of the miners of Dardistan and Tibet whose pick-axes seem to have been a curiosity at Erythroe. Biblical sources as well as the Book of Kings point out that the gold was brought from Ophir. But it is very difficult for scholars to point out the place Ophir. Quite possibly India is not the land of Ophir while some scholars view India as the land of Ophir because India was paying the gold as tribute to the King Darius-I. If the annual tribute from the days of Darius-I (521-485 B.C) to the defeat of Darius-III on 1st of October 331 BC at Arbela by Alexander of Macedor, was at the rate of 360 talents, the flow of gold from India to Persia for 191 years would come to 72000 talents of gold, which is indeed an extremely large quantity to be dispatched out of any country. With the death of Alexander the Great, this flow seems to have been temporarily arrested but whether it was revived subsequently it is difficult to state for lack of adequate evidence. This position continued in the later phase also. In the first century A.D., according to the Periplus, gold does not appear to have been largely exported from India. Scoff suggested that this was probably an allusion to the gold mines of Chhotangpur plateau, located from 75 to 150 miles west of the mouth of the Ganges. This is plausible though not certain because the Periplus itself is vague on this point.

**Silver**

Like gold, in the first century A.D., silver was not apparently exported from India and even later. Pliny narrates that after the conquest of Asia, probably including Asia Minor and Syria , first silver was introduced into Italy. Lucis and
Scipio in his triumphal procession in the year 565 from the foundation of the city of Rome, carried 4500 pounds of chased silver with 500 pounds weight of gold vessels. About the origin of this silver there is no clear-cut mention of this. Mention may be made of Chronicle, which states, that along with 3000 talents of gold of Ophir, 7000 talents of silver were exported to the kingdom of Solomon. This, again, does not clarify the statement whether gold was brought from Ophir or anywhere. Therefore, the possibility of supply of silver from India lies with further evidence; but now nothing can be said with authenticity.

Copper

This metal was required in India for coinage and inscriptions of Ancient India were sometimes, inscribed on copper plates. According to Periplus, “the copper was regularly sent from Barygaza loaded in large vessels to Ommana and Apologos in the Persian Gulf which was perhaps the surplus European metal exported to Malabar and Barygaza and thence reshipped by Indians to the Persian Gulf probably when Romans and Parthians were at war. Pliny also mentions that the iron, copper, arsenic, red lead as products of Carmania shipped to the Persian Gulf and Red Sea ports for marketing. In Schoff’s view, this copper was brought from Omanna including European copper from Canna. This view does not contain much water because in India, the large amount of production of coins in copper and some copper inscriptions point out the fact that the availability of copper in India was large.

Iron and steel

Indian steel and iron was exported from India to Egypt in the first century A.D. The Periplus tells us that “from the district of Ariaca (north-west coast of India) across the sea” were imported Indian iron and steel. The iron and steel imported into these regions must have been used for manufacturing instruments for hunting these animals. The Periplus again tells us that the iron was “made into spears and used against the elephants and other wild beasts”. Fine swords made
of Indian iron were famous since the time of Ctesias. Again some foreigners noticed the use of implements made of iron. Whether iron or steel were exported from India after first century, it is difficult to state for lack of adequate evidences.

**Minerals**

**Sand**

Among the minerals, exported from India, there was a kind of sand, which was used for polishing the marble. In Rome, after making the blocks of marble, they were cut into pieces by the use of this sand, which was pressed upon a very fine cleft in the store as it moved to and fro. For this purpose two kinds of sand were imported to Rome, one was from Ethiopia and other from India. According to Pliny, "this Indian sand was held in the next highest esteem after the Ethiopian sand which was a softer nature and better adapted for dividing the marble without leaving any freshness on its surface whereas the Indian sand "did not leave so smooth a face on it". Still for polishing marble, Pliny recommends the Indian sand, which was named as Male. This male type sand might have exported from the west coaster Malenad.

**Crystals**

About crystals Pliny refers that, "the East too sends us crystal, there being none preferred to the produce of India". He incidentally adds that certain Greek writers had mentioned a crystal vessel from India, which held four sestarii. The Greeks and Romans used it for ring stores, hand balls, burning lenses and so on but wealthy Romans of the empire used crystal above all as drinking cups, particularly for cool or iced drinks. These vessels are frequently associated with wealth luxury and extravagance. Pliny gives examples of these large cups and bowls, some of them from India and of high prices and foolish whims connected with the possession of them. Most of these things came ready made from India but sometimes they were made on the way in Alexandria.
When Pliny speaks of the unequalled excellence of Indian rock crystal glass, he does not refer about Chinese but he refers about rock glass made in Ceylon.\textsuperscript{220} The Greeks knew well that the Indians could stain rock crystals into the colours of real precious stones and Pliny refuses to give information about the extant on the subject. The Indians still make their imitations.\textsuperscript{221}

**Precious Stones**

The business of precious stones between India and West Asia is quite old. Tyre was the important centre of trade in West Asia for these types of precious stones like sardious, topaz, diamond, beryl, onyx, jasper, saffire, emarald etc. The trade between Tyre and Syria is mentioned in the Book of Ezekiel (6\textsuperscript{th} century B.C.\textsuperscript{222}) The trade on stones between Syria and India may not be earlier than the days of Ezekiel. The trade of Tyre with Arabia, Judah, Assyria and Palestine area is clearly mentioned in this book. Probably Pliny is the only author of ancient times who had clearly recorded the glories of Indian gems and had furnished adequate evidence of their export from India to foreign countries including Rome. The precious stones of India so impressed the Romans that in the Pliny’s words “Indeed the stones of India, it is said, quite dim the sight by their brilliancy”\textsuperscript{223} About the precious stones Strabo mentions. “India produced precious stones such as crystals, carbuncles and all kinds of pearls.\textsuperscript{224}

Pliny also points the Indian stones like the crystal, quarts, beryl, opal, sardonyx, onyx, carbuncle, amethyst and seven varieties of topaz.\textsuperscript{225} Milinda Panha also mentions of sapphire, gem, cat's eye, flax gem, sun and moon crystal, topaz, ruby etc.\textsuperscript{226}

**Beryl**

The emerald and beryl were very highly prized by the Romans. The beryl was the only precious stone, which was preferred to wear without the addition of gold. Pliny and Ptolemy point out that the beryl was found in Coimbatore
(Tamilnadu), Padiyur, Chera territories etc. But the Pandya areas were not famous for these stones. Of the large quantities of Roman coins found in the Coimbatore district Where the splendid six sided beryl prisms are found which may be given in exchange. For berly mines, Padiyur in Coimbatore district was famous for this. Excavations in coimbatore region have brought to light six sided beryl prism who has been interpreted as evidence of exchange of beryl for Roman coins. The stones were often polished in the original shape and worn by the ladies as cylindri in their ears. About the trade of beryl, the evidence of Josephus Flavious (A.D. 37-107) is important. According to this India was exporting beryl stones to Judaea prior to 1st century A.D. There can be no doubt that the beryl was exported from India to Rome, as Pliny clearly stated that the paedeors (lovely youth) Which was one of the precious stones “of the finest quality” Came from India where, as noted earlier, it was known as the "sangenon” On the basis of these evidences it can be presumed that the beryl stone was the important item of trade between India and West Asia.

Carnelien

Another important product, exported from India, was the carnelian, which is clearly mentioned in Periplus in the first century. It seems that these carnelion were brought from Pratisthan and Ujjaini to Barygaza for export purpose not only Rome but also Arabia and other regions of West Asia were also importing this carnelien. There are enough evidences, which point out that the carneliens were found in Arabia as well as the vicinity of Leucas and in Egypt also. But on the basis of availability of carnelian on these lands it can’t be predicted that these carnelians were brought from India. On the testimony of Periplus it may be concluded that possibility of Indian carneliane on these lands is more like all other exports from India, the carneliane along with other precious stones must have been first shipped to Alexandria and thence to Rome.
According to Pliny, there were three varieties of carnelian (sarda) stone; the red type, the pionia, and another class beneath which they placed a base of silver or leaf of gold. The Indian carnelian according to Pliny was transparent while those of Arabia were more opaque. India has always been the most plentiful source of the finest red sard which comes chiefly from the Decan trades especially with agates from Ratnapur near Broach in Rajpipla where are sard or sardonyx mountains of the Greek. Burma and Japan also produced the carnelian in great extent. Romans obtained their ready-made carnelian goods from India but sometimes they were manufactured on the way in Alexandria. With the discovery of Monsoons the trade in carnelian agate was increased vastly, especially when men like Nero set an example.

**Lapis lazuli**

From the very early times this lapis lazuli stones were exported from India. But Warmington strangely refutes this view, according to him; these stones were brought from Persia. Tibet and China through India to Europe. Kautilya refers about the varieties of lapis lazuli but his reference does not indicate that these stones were available in India in large scale.

This lapis lazuli, according to Pliny, was refalgent with the spots like gold. He also stones that it had other varieties with an azure and sometimes though rarely, purple hues with the best kind come from Media. In no case, according to him, was this stone diaphanous and it was not suited for engraving purposes when it was intersected with hard particles of crystalline nature.

Good Child says that it has been known from very remote times being much used by the Egyptians and to lesser extant by the Assyrias, Epiphanius, Bishop of Salamis says that the Tables of Law given by Moses were inscribed on lapislazuli. Beekmann says that the lapislazuli came from. Bokhara and it was sent thence to India and from India to Europe. Laufer also states that the stones came from the mines of Badakshan. This is very likely that lapis lazuli was imported from
Persia, Badakshan and China to India for reshipment via-Barbarism to Egypt and Rome. S.N. Majumdar thinks that lapis lazuli was obtained in the vaidurya mountain, most probably a part of Satpura range, mentioned in the Mahabharat. The evidences of lapis lazuli was also found in Mrichhakatikam, works of Kalidasa and Yuanchwang also refers about these. This wide ranging evidences clear the fact that the lapis lazuli was widely available in India.

**Agate**

Pliny and Periplus both refer about the agate which were available in India. Pliny relates how Indian agate possessed the properties of similar stones found in Sicily and Crete. The Periplus records, how the Indian agate was exported from Barygaza to Egypt and Arabia. It also states that the agate was brought down to Barygaza from Ujjaini and Paithan along with the Carnelian. Pliny and Philostratus, draw the special attention to the Indian agates which were large in size and there is extant a large antique agate-worked as a leopard's head. According to Warmington "Romans obtained their best and largest pieces from India. Besides being used in jewellery, the largest and finest onyxes from India were used by the Romans from making cups, toilet articles, statuettes and other things. A local industry of agate had been found in the neighbourhood of Rajpipla. Agate was abundantly available in the Deccan, Rajmahal traps of Bengal, Jubbulpore; the finest agate was coming from Ratanpur where these were cut, polished and sold largely in Cambay. However the excavation at different parts of South India, except Kodumanal, have yielded the limited numbers of chalcedony, agate, carnelian and others semi precious stones with pearls are least represented in archaeology.

**Amethyst**

Among Indian precious stones, observed Pliny, the very first rank belongs to the amethystos of India, for they had the very richest shades of purples. The amethyst was also found in that part of Arabia, adjoining Syria, known as Petra. India was producing five kinds of amethysts: - purple, imitated by the purple dyers,
inferior sapphire coloured (called socondion by the Indians) two kinds very pale and another wine red. The Romans obtained the Ceylonese pebbles in Tamil ports, probably through a secret trade, which was unknown to Pliny.

**Diamonds**

The Periplus states that they (Greeco-Romans) send large ships to the market towns (Muziris and Neleynda) from which "are exported great quantities of transparent stones of all kinds, diamonds and sapphires." Pliny describes the Indian diamonds as "Adoms" found out in a stratum of gold but in a substance of a kindred nature to crystal. He includes under Adome, other substances such as quartz, iron-ore, emery etc but he also says that diamond possessed the greatest value. Ptolemy also mentions that, "diamond is found in great abundance in the country of the sabrai towards the greatest value. Ptolemy also mentions that diamond is found in great abundance in the country of the Sabrai towards the Ganga River". He also refers to the town of "Kosa where are diamonds" which belonged "to the country along the eastern bank of Narmadas. So it is not unlikely that the diamond of Narmada and Ganga Valley was exported viz; Barygaza and Ganges respectively in the 2nd Century A.D.

Both Kautilya and Pliny refer about the six kinds of diamonds. The Junagarh Inscription of Rudradaman of 150 A.D. also refers to diamond (Kanaka-rajate-vajra) Watt says that "India was the first and for a long period the only source of diamonds known to the European nations." To the proof of Pliny's diamond, in the British museum there is an antique diamond set of several rings and one gold seal in the British Museum. All these sources point out that India was the sole source of diamonds. Diamonds were probably used by the Indians as amulets.

According to Periplus, the Cottonara District and Malabar areas were famous for the production of diamonds. As for its size, Pliny observed. it was as large sometimes as a hazel nut.
Coral

Among the precious stones, coral was one of the important item which had a remotest past from a commercial angle. The Periplus says that the coral was exported from Barbaricum, Barygaza, Muziris and Nelcynda in India and also to the Arabian port cane. In India, it was probably reshipped to West Asian countries. But Pliny gives a different version that coral or corals were native of India and Syrene. He observed that Indians valued the coral as much as the Romans. The prices of pearls and corals were determined by the fashions of each country. So it is clear that the corals were exported from India to Rome and other West Asian countries otherwise Pliny might not have gathered so much informations about this coral. Pliny says that the Indian pearl was a highly prized by a Roman lady as a bead of coral by an Indian man and coral was held by the Brahmanas to be sacred amulet besides an attractive adornment. It is possible that Greek merchants exchanged their coral at the Indian marts for which the pearls were brought upto the coasts from the Gulf of Manaar for that purpose. At that time, the Kaveripattanam in the Chola kingdom was also famous for corals. Similarly a poet who visited Uraiyur, the ancient Chola capital, speaks of coral and pearl together.

After the fall of Roman empire, the export of coral seems to have been diverted to the Byzantine Empire and also to Syria which was actively involved in the trade with India, carried large amount of corals in the first centuries of Christian era and it was presented for the sale in the fairs of Tyre. Century’s later coral was in much demand in the times of Marco Polo, of Vasco-da-Gama and of Tavernier and it was undoubtedly of immense value to the Romans in their trade with India and China.

Pearls

Pearl was another important item of export from early times. No greater praise could have been bestowed on the pearls than these words of Pliny who stated, "the first rank then and the very highest position among all valuables, belongs to the
pearl. We have enough evidences, which point out that the pearls were exported to Rome and to other countries. These pearls were at first exported to Rome and then it was transferred to Greeks. Pliny observed “Even to this day the Indian traders who bring us their wares, eagerly buy up their pearls and carry it away to foreign markets, while it is more eagerly brought up by the wealthy Romans to day, as it was wont to be done by the wealthy Greeks long ago.” From this statement it may be seen that Indian, not any other like Arabians, Persians, Syrians merchants sailed to Rome where they sold their pearls to the rich Romans who brought them eagerly just as the ancient Greeks had purchased such pearls from Indians. In an astounding observation of Pearl he state, the pearl was, “worth thrice its weight in refined gold.” Probably he was mentioning about some special pearls otherwise this statement is not correct for all types of pearls.

Pearls appear to have been exported to Rome from the Persian Gulf, India and Ceylon. It is said that the fresh water pearls seem to have prompted Julius Ceaser’s (81-44 B.C) invasion of Britain. During Augustus the export of pearls and precious stones from the East and especially India through Alexandria must have not only continued but considerably increased. When Augustus returned after the victory over Alexandria, he distributed the large amount of gold pieces in addition to pearls. It is not strange at all because the pearls, which were highly liked by the Egyptian people, might have come to the hand of Augustus.

Foreign writer like Strabo and Pliny were specific in their locations of the areas in India. Stabo refers to Sora (Chola), which he calls Perimuda, inhabited by fish eaters who fished out pearls. This city has also been referred to by Aelian and Pliny and identified with Simyulla (Chaul), which Pliny declared to be the most productive of pearls along with the island of Ceylon. But, Chaul at no period of Indian history was under the rule of Cholas although it was famous port for a considerable time and Mr. Crindle rightly pointed out that Aelians Perimuda must be located more south in the southern portion of Coromondala.
The pearl continued to be popular in India from the days of Kautilya (4th century B.C.). The city of Puhar (Kaveripattanam) is described as a place where the surging ocean like a dealer exchanged lustrous pearls for the wreaths of flowers. South Indian pearls were rated among the best and highly valued in the ancient world, as borne out by Greek, Tamil and Sanskrit sources. They reached in a considerable quantity to Malabar ports of Muziris and Neleynda from where they were exported to Rome. The Political disturbance in Rome probably checked the out flow of pearls but it never diminished the interests of Indian people.

Glass

There is not enough evidences about the origin of glass in India. The origin of glass has been attributed by an accidental contact of nitre with sand, to the Phoenicians but the story has been discredited. Kautilya’s reference about the glass and its style of manufacturing points out that glass was produced in India from 4th C.B.C According to Pliny, “Glass was exported from India. Pliny refers that the glass of India was made of broken crystals and therefore its value was high. Alexandria, Tyre and Cidon were famous for their works in glass, which spread all over the empire and very far beyond. It may be expected that the crude glass be exported from Alexandria to Barygaza, Neleynda and Muziris, doubtless for making mirrors. Besides that vessels of glass were also imported into Barbaricum. Moreover, much Greek glass reached in China as shown by Chinese annals which record glass of several different colours received as present from the west by the emperor Tsaou-tsaou, in the beginning of third century A.D.. In India, few glass objects of first centuries of Christian era have been found in Manikyala in Punjab were probably made from the crude glass imported from the west, while the fragments found at Bahmanabad in the Indus region are, “hardly distinguishable from the Roman glass of the imperial period.”

In different parts of India, the glass objects of Roman origin have been found. Paithan, the capital of Satavahan Kings, has produced various types of glass beads
and rim of cobalt blue vessels described as “fashioned by curling the ends of requisite
shape by tooling.” At Ter, a large number of glass beads were discovered as well as
two rims of glass cups and a rare solid base. Glass beads and apparently the glass
vessels have been excavated at Nevasa. Glass beads also reached at the urban
centers of Chola Kingdom where the excavations have brought to light enormous
quantities of raw glass and finished glass objects. Similarly some of the raw glass
unloaded in Pandyan ports of Nelcynda and Bakare. In South-eastern India, the
fragments of Mediterranean amphorae are largely found at Vasavamudram. The
bulk of glass from Arikamedu consists of beads and remains of bead making. A
few glass vessels have been reported from Ter, Taxila, Dharanikota, Karwan, and
Ujjaini.

Textiles

India was famous for the production of cloth, which is clearly evident from
the reference of Kautilya. Kautilya prescribed that those who manufactured fibrous
clothes rainments, silk clothes, and cotton fabrics were to be rewarded with presents
suches sceats, garlands, and with other prizes by the Superintendent of Weaving.
From the Periplus we learn that through the market-port of Barygaza (Broach)
which was fed by the market products of Ujjain and Pushkalavati, especially the
cotton goods besides other goods. From the Ganges, implying the Gangetic regions
where exported. great qualities of silk and other goods. About the export of silk,
nothing is certain. Whether the Roman people used the Chinese silk only or they
liked Indian made silk. As the Periplus states the export of silks and other goods
must and can only be taken to have been of Indian and not foreign origin.

There were two types of textile exports, besides silks, cotton and linens from
India, we have seen that India exported cotton textiles to Rome from very ancient
times. Before the discovery of monsoon the quantity of exported cotton cloth was
limited but after the discovery, the demand of cotton goods grew tremendously.
Indian muslin was very famous in Rome. According to the Periplus, the best
muslin was known as monache, sagmatogene and molchine were ordinary kind of rough cotton cloth. Textile material in some quantity came from Ujjaini and Tagara to Broach which exported them to Arabia and Egypt. The Argaritic muslin of Trichinopoly was very popular. Sri Lanka and Masulipattanam also manufactured good muslin but the best muslin came from Varanasi or Dacca. In the variegated textiles from Memphis and Panopolies the influence of Indian pattern is apparent. It is interesting that although ‘Argaritic’ muslin (from Uraiyur) were in demand in the Roman world, Tamilakam imported Kalagam and Kalingam from Kalinga in addition to a thin cloth variety from Egypt. The Tamil sources mention about the varieties of cotton clothes produced from Uraiyur. The Silapapdikaram refers about 32 varieties of cotton cloth.

**Woolen Blanket Export**

Kautilya mentions about the varieties of blanket, which were produced in India from the wool of sheeps and hairs of wild animals. Such blankets were coloured, some plain and others of a specialized type, which must have been of superior variety. From the port of Barygaza in the first century A.D. mention, may be made of cloaks, blankets, sashes of different colours, which were exported, to Muza. The Periplus does not reveal the areas from which these goods were collected. It may be presumed that these goods might have been collected from the wool producing countries like those of northwestern and Himalayan region. It is apprehended that these goods were produced locally and were brought to ports for export purposes.

**Silk trade**

Silk was mainly imported from China by the west. It was largely used during the reign of Augustus but the fashion was condemned as effeminate so that early in the reign of Tiberius, the Roman Senate enacted the law “that man should not defile himself by wearing the garments of silk.” The cost was enormously high
and from Aurelian we learn that silk was worth its weight in gold. Pliny and other moralists resented at the use of their luxury.

Rome imported the Chinese silk by the silk routes, passing through Iran. In the time of Periplus, Barbaricum, the ports of Sindh also exported silk goods to Rome. But more costly textiles reached Broach from Balakh, Muziris and Nelcynda and other markets on Kerala coast received their silk goods from the mouth of Ganga passing the eastern seacoast. In these way the Chinese silk either came by the sea routes or reached the Bay of Bengal from Yunnam, Assam and then along the Brahmaputra River, or it was exported by Singan-fu-Lan-chow, Lhasa and Chumbey valley to Sikkim and finally reached in Bangal. The discovery of silk in the tombs in Southern Russia indicate the use of Oxus route while the same sort of silk discovered from Panopalis in Egypt, indicate the use of sea route as well.

The antiquity of silk industry in India is uncertain but the weight evidence seem to the infoavour of importation from China by way of Brahmaputra valley, i.e., Assam. Bengal route early in the Christian era. Kautilya refers about the cinapatta variety of silk cloth. The Arthasastra (II, 11, 114) also refers to silk from Cina-Cinabhumijah but actual specimens are difficult to recover in archaeological excavations. A piece of silk found in a relic casket in Nagara is dated to early centuries AD. Though this underlines the importance of silk in Buddhist ritual, there is not information on the origin of the silk. There is also a fragment of Han silk in the tombs of Palmyra. Kalidasa and Manu aslo refers about the silk but they don’t clarify whether these were imported or originally manufactured in India. We have to accept that these silk clothes were imported from China, unless and until further evidence regarding the origin of Indian silk is not coming forth. Silk entered the internal circuit of exchange through gifts by the rulers to panars (Bards) as was a luxury item of the ruling and urban elites attire.

Though India had imported silk from China, yet the Periplus shows that the silk-yarn was exported from Barbaricum, probably in exchange of frankincense,
Indian muslins and mallow cloth were brought down from Ozene to Barygaza. The statement of *Periplus* may not be correct because the Chinese goods, which had fed the markets of west, passed through India to reimport to the western countries, especially Rome. The fight between the Parthians and Romans were mainly due to grab the route of silk, which was very much profitable. The merchants also used sea route, which was passed through the harbours of India such as Barygaza, Nelcynda and Kaveripattanam.

**Imports**

After mentioning the list of goods of export it is now the time to deal with the names of goods of export, which has long implications on the economy of different countries. For the list of imported goods we have to rely on the same sources, which has provided the idea about the list of export. Here one major advantage is that the archaeological evidence occupies the central stage to throw light on different goods of import. The favourable items of India which were imported from western lands were mainly aromatics, medicinal plants, roots, metals, minerals, mineral byproducts precious stones, live stocks, skins and hides consumable commodities like wines and dates.

**Arabian Incense**

According to Herodotus, “the Arabs procured the frankincense by means of the gum, storax which the Greeks obtained from the Phoenicians. He also provides the information that the serpents and nothing guarded these incense-bearing trees in Arabia but the smoke of storax would drive them away from the trees. It may be a fiction but it provides a good idea about the frankincense. In Pliny’s days, the frankincense, after being collected was carried on camels back to Sabota (Sabatha) a town belonging to Trogodyte on the Red Sea where a single gate was open to pass these goods. It was a capital offence to deviate the goods from high way. The frankincense was very much costly during the days of Pliny and it was sold during Pliny at six denarii, the second rate at five denarii and the
third rate at three denarii. The process of adulteration was taking place in Rome but it was easily identifiable. 298

A good account about frankincense was left in Periplus about its production and transport in 2nd C.A.D. According to Periplus, “it is shipped from Mosyllum and from Malao”299. It gives us the following record of the frankincense country with cana as its market town. “All the frankincense produced in the country is brought by camels to that place to be stored and to Cana and this place has a trade also with….. Barygaza and Scythia and Ommana and the neighboring coast of Persia.300 The Ships those were carrying these goods to the port of Barygaza were returning with cloth wheat, sesame, oil in exchange of frankincense.301 The Periplus mentions Barbarism as the only mart where frankincense was imported, most probably by the same ships, the goods like silkyarn, cloths were brought from India.302 Both Arabian and Roman subjects would naturally bring the incense which would ultimately reach to Chinese by whom it was highly prized, and in return the silk yarn was sent by China to the mouth of Indus which ultimately reached Arabia and Syria.303

Pliny says “The chief products of Arabia then are frankincense and myrrh. There is no country in the world that produces frankincense except Arabia.304 But Periplus and Strabo point about the Sabota land where from these frankincense was procured. This land is usually expected to be flanked by the Arabian sea in the west, the Persian Gulf in the east, the Indian Ocean in the south. On this description it is very difficult to locate the state.

The Sachalitic or Sabaean types of frankincense were certainly imported into India. Periplus gives the idea of export of frankincense to Syria and Egypt by Arabia. Herodotus bears the testimony to this effect that when he states that the Arabs paid the yearly tribute of 1,000 talents of frankincense to the kings of Persia.305

According to Periplus frankincense, like storax was transported by the Arabs to Egypt, viz. Alexandria, which must have proved to be a convenient port to sail to
India. The Arab ships which lay anchored at Barbaricum brought among their cargoes, frankincense which along with their other goods was carried up to the metropolis, by the river, probably the Indus. The other ports of India with which the Arabs were carrying the trade of frankincense were Barygaza (Broach) and the city of Ozene (Ujjaini).

It can be inferred, therefore, that from the Barbaricum the region of Sind, from Barygaza (Broach) the whole Gujarat and from Ujjaini which was in those days a great market for various kinds of goods, the whole of the Middle country (Madhya Desa) must have been served with the supply of frankincense.

The frankincense was quite popular in India for its medicinal purposes. It is used as an antidote to hemlock. It has an external application in carbuncles, blind boils and gangrenous sores and also acts as an internal agent in case of gonorrhoea. According to Pliny the best frankincense is recognised by its whiteness, size, rittleness and ready inflammability.

Storax

Another important item, which was imported to India, was storax. The Periplus speaks of the import of storax from Egypt to Cana, which was commercially connected with Barygaza and Scythia. It also records its import at Barbarycum and at Barygaza. It was usually exported from Egypt and from the Chinese records it is known that it was brought from Syria also. In 97 A.D Kan Ying reported to the Chinese that the Syrians after extracting the finest quality of storax from the odoriferous plants sold the residue to the foreign people. It passed through many hands before reaching in China and by this process it lost its fragrance. Basically the cheap varieties were sent to the people of India while the kings were supplied with the best quality of storax.

According to Pliny the trace of storax bore the same name and had a strong resemblance to the quince. Its tear has a harsh taste with a pleasant smell and its reed
was filled with juice. The worst quality was of a type, which crumbled like bran and was covered all over with a whitish mould. The Periplus mentions of two types of ointment imported at Barygaza one the most ordinary “not very costly not much” and the other. “the choicest ointment brought for the king.” The first type included that storax about which the Chinese people complained. The price of the best quality of storax was 17 denarii per pound. Compared with the price of the best type of frankincense, the finest kind of storax, on the authority of Pliny, was nearly thrice expensive. Its leaves have been used as a cure for stones in the kidney and bladder.

Though once it was imported into India from Syria, it was later cultivated in India where it has been found in the sub tropical western Himalayas from Chamba to Kumaon at the heights varying from 2,500 feet to 5,500 feet.

Sweet clover (*Trifolium Melilotus, order – Leguminosae*)

Another important item of imports into India was the sweet clover of which Watt has distinguished three kinds. One of these types was the straw berry headed clover and the second variety was red or broad leaved clover.

It is only from Periplus that we learn the sweet clover was certainly imported into India in the first century A.D. This account reveals us that the sweet clover was imported into the market town of Barygaza (Broach) and thence from Ujjaini. According to Schoff this sweet clover was probably intended for the manufacture of chaplets for reexport to Rome. This suggestion was perhaps made on the statement of Pliny who observed that “in later times the rose chaplet has been adopted and luxury arose at last to such a pitch that a chaplet was held in no esteem at all if it did not consist entirely of leaves sewn together with the needles. More recently again they have been imported from India or from nations beyond the countries of India...” From this statement one can conjure that Pliny was not sure of the locality. But with much more certainty it can be presumed that the sweet clover was imported into India in first century A.D.
So we may infer that the sweet clover (sliphium) was grown in Media and Bactria. But Pliny tells us the best kind of melilote was found in Italy especially in Camponia, in Greece at Cape Sunium and next to that in Chalcidice and Crete.\textsuperscript{317}

Again it may be gauged that the sweet clover was imported into India from Bactria rather than Media. The proximity of Bactria to India is a potent factor for its export because sweet clover was the perishable goods. On the same ground the validity of fact of import from the lands like Rome and Greece are also refuted.

The silphium was used not only as a fodder for horses in Media but its juice was utilized as a medicine. This juice which was extracted from the plants could be kept for certain period though it is not specified. According to Strabo this plant promoted the digestion of raw meat of beasts of burden which Alexander’s forces had to consume for lack of fire wood and also of food itself.\textsuperscript{318}

**Balsam** (*Skt-Rasagandhi*) (*Myrrh, commiphora Opobalsammum*)

It was imported into India including other commodities. It was consisted of four varieties viz. Mukul, muyrhl (rasgandhi) agaloch, opabalsammum etc. In the book of Ezkiel we find myrrh (Jaudea) and Israel (Palestine) exported it to tyre along with other goods and from there the Phoenicians must have exported to other countries including India.\textsuperscript{319}

The plant was mainly used for the preparation of one kind of unguents or ointments. From the early times this ointment was manufactured in India having a good fragrance. It is also said that the servants assisted by the ambassodars were using these ointments which might be costly. The plant of Balsam is not visible in India today which indicates that these plants were brought from the foreign lands to prepare this ointment.

About the origin of plants we may ascertain where these types of trees were cultivated. Josephus Flavius (AD 37-107) reveals where exactly the balsam was cultivated. “This (Jericho) “he says” the most fertile district of Judaea, nourishes the
palm tree as well as the balsam tree, the stems of which being cut with sharp stones, is received at the incisions, in drops like tears\textsuperscript{320}. As a consequence of the intrigues of the Cleopatra of Egypt with Mark Antony, king Hberod with Judaea was forced by the Antony to cede to her the entire coast of Palestine, which Antony had granted to her as personal property. This region included the city of Jericho on the Jordon with its surrounding plantations containing the most valuable plants, the balsam bushes\textsuperscript{321}. This indicates the importance of balsam tree.

The balsam was mainly used for the preparations of unguents ointments and balms and it seems to have had a many medicinal properties. Strabo mentions that it was an excellent remedy for headache, incipient, suffusion of the eyes and the dimness of the sight.\textsuperscript{322} Therefore the price of these goods were high because it was not available except the afore mentioned regions.

The balasam was first grown in Syria, next in Judaea and then in Egypt. In view of the close connection between India and Alexandria, it is usually expected that these goods night have exported from the port of Alexandria. From Periplus we learn the selected myrrh” was exported from Muza (Mocha).\textsuperscript{323} As the Periplus has borne out almost all the imports into the Indian waters and ports on the east and west coasts proceeded from that ports, it would not be erronous if we assume that this ralsom was exported to India from Muza Via Alexandria.

Myrrh was adulterated with pieces of mastich and gum. It was also drugged with the juice of wild cucumber in order to produce certain bitterness and with litharge for increasing its weight. But the cleverest method of adulterating myrrh seems to have been by mixing it with Indian myrrh, which in words of Pliny was. “a substance that gathered from a certainly prickly shrub. Which grew in India.\textsuperscript{324} The price of myrrh varied according to the number of purchaser and also depended on its variety. Myrrh sold at prices varying from there to 40 denorii for pound.
Cinnamon (Skt. Gudatvak, Hindi-Dalcina, Cinnamomum Zeylanium Beeyn F1)

From the very remote period the cinnamon was a product of import. But its import in the 1st C.A.D. can’t be doubted as we can see from the Periplus. It informs us that from the Avalites, Malao and Arsinoe, it was imported into India and other ports en-route to India, “the harder cinnamon”. According to Pliny, cinnamon was exported from Arabia and Ethiopia. He states that the right of regulating the sale of cinnamon was a royal monopoly of the king of the Gebanitae who could open the market for the sale by public proclamation. The observation of Watt points out that the Arabia and Ethiopia produced cinnamon, spikenard and other spices.

About the varieties of cinnamon, Pliny held that the thinnest parts in the sticks, for about a palm in the length, were looked upon as producing the finest cinnamon. The part that came after, though not quite so long was the next best and so on. The worst of all was that surviving nearest the roots as it had the least bark, which was the most, esteemed. But some other writers prefer to divide the cinnamon into two varieties, the white and the black. The black cinnamon was the favourite item.

Cinnamon was imported into India for medicinal aromatic, stimulative and carminative purposes. It has been used in flatulence, flatulent Cotic, spasmodic affections of the bowels, atonic diarrhoea and gastric irritation. It has also been supposed to act as a stimulant of the uterine muscular fibre and hence employed in menorrhagia and in tedious labour depending upon insufficiency of the uterine contractions. Due to these variety uses the cinnamon was imported into India.

Consumer Goods

Figs and Dates

From the Periplus, it is known that the market towns of Ommana, Apollogus and Cana despatched every year to Barygaza (Broach) wine and a great quantity of
dates and figs.\textsuperscript{329} This statement may be taken to mean that in the first century A.D. the dates in large quantities were imported to Broach. Although Periplus indicates that the imports of dates came to India from the ports of Persian Gulf but it does not mention particularly the names of ports. But the evidences of trade of dates are found in early times, which present the fact that the best kind of dates came from Thebais in Egypt, Judnea in addition to other kinds of dates.\textsuperscript{330} So on the basis of these points one may easily conjure that the dates were an important item of between India and West Asia.

Which were the regions from where India imported dates? The Periplus does not provide any conclusive idea about the original place of dates. As the Arab, Cryte, Judaea and Syria were the lands of dates and a flourished trade between these lands with India was continuing, therefore it is quite worthy to predict that these items were brought from these lands.

**Beverages-Wines or Liquors**

The foreign wines and liquors were the products of import from early times as Kautilya refers the foreign customers in liquor ships. But in 1\textsuperscript{st} C.A.D. we can say positively the wines imported into India. The Periplus reveals that the port of Barygaza (Broach)” received wines of which “Italian was preferred also Laodicean and Arabian”.\textsuperscript{331} The South Indian ports were largely receiving the foreign wines though not much and these were market ports of Muziris, Tyndis, Neleynda in the kingdom of Kerala. The use of wine became extravagant in the Pandyan and Chola courts.\textsuperscript{332} Roman wine was popular with Tamils who were familiar with its quantity and fragrance.\textsuperscript{333} In the *Puramuru*, a poet lauds a about the Roman wine which very much cool and fragrant.\textsuperscript{334} The amphorae sherds have been found from the exactions at Arikamedu, Vasavasamudram, and Karaikkadu.\textsuperscript{335} Though India was producing the wine from the Vedic period when some were the intoxicating drinks, wine was also imported from west.\textsuperscript{336} Wine making began in Asia Minor and Syria from very early times. Wine of the Damascus valley was an important article of
export in the period of Ezekiel. Strabo speaks of Greek wines of the Aegean islands and the Asiatic coasts near Ephesus to be the best of all. Wine was also made at Loadicea on the Syrian coast near Atioch. Strabo speaks of its richness and its export to Alexandria. Laufer, says that the grape wine belongs to the ancient cultivated plants of West Asia and Egypt.

According to Periplus, “the country around Muza produces a great deal of wine. Probably it was grape wine. The Periplus also speaks of “wine and great quantity of dates” exported from Ommana and Apologus to Barygaza. In Iran, the viticulture was in a state of flourishing condition. According to Posidanius grape wine was made in Damascus, Syria and from wines planted by the Perisans.

The yavanas also carried wine with themselves; it was referred in the Tamil poem where Nakkira exhorts a Pandya prince to drink in peace the cool and fragrant wine.

About the different qualities of wines in Europe, Pliny gives a detail account and mentions that, “the wine made from date plams... is used by the Parthians and Indians and by the whole of the east.

The concept of grape wine was not borrowed from the west solely because Kalidasa in his Raghuvamsha mentions about this means that it was also produced in India.

The Arab wine sent to India was probably so called because it must have come either from Arab ports or from Arab merchants or from both. Egypt, Babylonia, Judaea, Cyprus, Syria, Seleucia were the main centres of date production and it may be expected that these regions were providing date wine to East countries including India. It may be suggested that Arab traders were mainly exporting this wine to east. It is to this wine Herodotus refers when he observes that the plam cultivated in Bablon, supplied its citizens with, “bread. wine and honey”. “It need not be understood that the Arab wine was solely the date wine, though
primarily it was so because Syria also produced the vine which yielded the grape wine which was exported to India from Laodicea. Schoff’s suggestion that the grape wine from Yemen might have been included in the Arab wines.\textsuperscript{345} Supplied to India plausible though it requires further corroboration. It may be remembered that the Egyptians brewed the barely wine\textsuperscript{346} which might also have been exported to India.

So, the wine was the favourite items of Indians, which was imported from the west. Though there are enough evidences to point out fact that from the early period India was producing the some; out of a plant juice to which was intoxicating; the foreign wine was highly appreciated by the Indians.

\textbf{Metals and Mineral Products}

Among the various metals, the metals as copper, tin, lead, iron, gold & silver coins were mainly imported into India.

\textbf{Copper}

From Periplus it is known to us that in the first century A.D. the copper was shipped from the port of Bernice to the Indian ports of Barygaza, Meiziris, Nelcynda, Tendys etc.\textsuperscript{347} There must be a special variety of copper which was sent from Barygaza to the ports of Oman and Apologus.\textsuperscript{348} According to E.H. Warmington at the time of war between Rome and Parthia, there was the scarcity of copper and that was the reason why Indian exported copper though it was dependent on the copper of west.\textsuperscript{349}

According to Periplus the import of copper was from Egypt, for it tells us: “These are imported into the place (Sabbatha) from Egypt.....and most of its spurious; and copper and tin and coral and storax and other things such as go to Muza.”\textsuperscript{350} The main source of the European copper was the island of Sypruss. Soli, Curion of which the Roman government had complete control. The copper transported to India, could hardly have come from Italy or Germany. But it is more likely that it was shipped from the Carmania in first century A.D. from there the
copper must have been transported to the Persian Gulf and Red sea ports of onward transshipments to India.

In India, copper was mainly used for the coins making purposes. Copper was also used as an alloy in the manufacture of silver coins as also for making utensils.

**Tin and Lead**

The periplus again reveals us that in the first century A.D., the tin and lead were imported into India. It first mentions that it was imported into Muza and then into the Indian ports of Barygaza, Ujjaini and Nelcynda. According to Pliny, “India had neither brass nor lead and exchanged the precious stones and pearls for them.” He was probably misguided or he has ignorance. Because Vajaseyani Samhitā refers to *tin* (*trapu*) and lead (*Sisa*)- Kautilya’s Arthasastra mentions about the officers like superintendents of metals and mint were also dealing with the metals like copper, tin, lead and brass. It indicates that India had the tin and lead but it might not be sufficient enough to meet the needs of Indian people for which they felt the need of import of these metals from western lands.

The importance of tin as an imported article to India is hinted by the fact that the Sanskrit word “Kshatira” is borrowed from the Greek word, “Kasseteros". Marshall says that the Indo-Parthians at Taxila...would have little difficulty in importing copper & tin from the west or obtaining it more immediately from Kashmir and Afghanistan part of which they annexed to their dominion in the 1st century A.D."

These metals were largely used for coins during the first few centuries of Christian era. However, Romans used lead largely for manufacturing water pipes and soldered these with an alloy of lead and tin. Pliny looks lead and tin as the varieties of the same species. He uses the term ‘minimum’ in its modern sense of red lead.
Gold and Silver

The Periplus speaks of import of gold from Ommana and Apologus to Barygaza. It records further that the silver and gold plate were imported into Barbaricum and ‘‘Silver and gold’’ coins were imported at Barygaza. The Romans obtained their gold in great extent from Transylvania, which was still a gold field. It may not be unlikely that the gold of Egypt and Asia Minor might have crept into India through Ommana and Apologus, the intermediate ports of transshipment in the period of Rome’s trade with ancient India, as indicated in the Periplus.

Again the Periplus reveals us that the gold and silver coins were imported into India through the port of Barygaza. This import of coins was the result of favourable trade of India with Western countries. The profit in exchanging Roman currency for Indian, must have been due to the superiority of Roman gold and silver, as the first century was the hey-day of Roman empire, when the currency had not suffered any deterioration as it did later on. Into the South Indian ports ‘‘a great quantity of coins’’ was imported in the first century A.D. the trend of flow of gold and silver coins also continued in 2nd and 3rd century A.D. as Silappadikaram speaks of sale of gold in Madura and Puhar.

Not only the gold coins but also jewellery was an important item of import. Works of gold jewellery were discovered in treasure-hoards of Taxila, which Marshall thinks, were buried in haste beneath the floors of houses under the menace of Kushan invasion. Some pieces of gold jewellery bear a very striking resemblance with the contemporary art of south Russia and furnish interesting evidence of trade relations between India and Black sea region in the Saka-Parthian period. In the Kushan period the supply of gold was supplemented by imports from the Near East by way of Persian Gulf. According to Tarn, The Kushan Kings imported gold coins from the Western World. Marshall has also noticed that ‘‘an ingot of gold found in the Saka-Parthian city of Sirkap’’ bears a significant resemblance to the ingots which were traded in the Roman world. The archaeologists spade has
unearthed at Bhita, one gold ring, one hollow gold bead, two miniature gold beads tied together, one wheel of gold and also a disc of gold engraved with a human face; is expected to have the resemblance with the Roman jewellery.\(^{364}\)

There are two main concentrations of Roman coins in Peninsular India, the Coimbatore district of Tamilnandu and along the Krishna river of Andhra Pradesh.\(^{365}\) The coins mainly comprise the coins of Julio Claudian period. The distribution of Roman coins in various parts of India is indicating the degree of monetization in different regions of country. Thus under Kushanas and Satavahanas, the north and Deccan had a complex currency system and as a result any Roman coins imported were exchanged at same profit against local currency.\(^{366}\)

The influx of large amount of gold coins and gold jewellery is indicative of favourable trade of Indian with Western Countries. The Kushan emperors used the Roman bullion as their coins but most of the times they modelled their coins according to Roman coins after melting their bullion.

**Minerals**

We shall now deal with minerals like salt, asphaltus and glass. About the import of salt there is no such strong evidence. But, according to Kautilya; there were two varieties of salt. One was indigenous and other was imported.\(^{367}\) The opinion of Sama Shastri is that this imported metal was probably very costly and in view of high costs, comparatively fewer persons used it. Gerrhae (identified by Ajasson with Heart and the Dijihoun) an Arabian city, Pliny tells us, had ramparts and houses constructed with the blocks of salt, soldered together by being moistened with water.\(^{368}\) Another rich region of salt were Bactria, Crete, Egypt, Babylonia and Germany. So it may be expected that the salt might have been imported into India from Bactria, Egypt and Arabia where the salt was available in two forms, sea salt and rock salt. The Egyptian salt though acrid, calorific and bad for stomach, acted also as sudorific and was taken with wine and water, served as a purgative.\(^{369}\) Therefore it may be accepted that if there was any kind of imported
salt was used in India, it must be brought from these countries, which were rich in salt. And India's continued trade relations with the countries like Arabia, Egypt, Crete make the possibility deep-rooted.

**Glass**

Another important mineral imported was glass of which there seems to have existed certain varieties like ordinary, flint, murrhine. In 1<sup>st</sup> C.A.D. there can be no doubt that the varieties of glass were imported into different ports not only of Arabia but also of India. The variety of glass was imported into the ports of Muza. The *Periplus* records the import of “Vessels of glass” at Barbaricum and of crude glass at Barygaza. However, Rostovzeff says that glass was extensively used in Egypt and Phoenicia”. Into South Indian ports of Nelcynda, Muziris, Tyndis and Bacare were imported only crude glass.

We know from Pliny that the glass making was originated in Phoenicia and the sand of river Belus was long used for the industry. During his time the white sand at the Mouth of the river Voltumus was much used for glass making. According to Warmington, “Alexandria, Tyre, Sidon were famous for their works in glass which spread all over Roman empire and very for beyond. Alexandria is also noted to have become prominent in certain branches of glass making” about in 1<sup>st</sup> century B.C. and probably continued in the two succeeding centuries. The credit of discovery of glass blowing may go to Syrian glass workers who appear to have moved to Italy in 1<sup>st</sup> century A.D. and in the course of the century Italy probably became one of the chief glass producing areas of the empire. We may expect that India might have imported glassware from Italy, Syria and Egypt in the period of our enquiry.

Marshall opine that, “all glass vessels found at Taxila are of foreign origin and nearly date from 1<sup>st</sup> century A.D. The best preserved are small flasks of sea or jade green glass identical with those which are common throughout the Roman empire during the early centuries of Christian era. However, M. Hackin provides an
interesting fact from his recent excavation at Begram where he found the rich collection of glass ware, almost all of which was imported from Syrian or other factories round of the coasts of Mediterranean. The land routes of Middle East might have imported the glass vessel of Taxila and also by the sea route through the ports of western India mentioned in the Periplus.

**Mineral By-products**

**Asphalt**

One of the mineral by product which was also imported into India was asphalt. Though there are no enough evidences about its, import, its utility for different work, especially for the construction works, points out the possibility of import. From Strabo we learn that the liquid asphaltus, called naptha, was found in Susiana and the dry kind, which could be solidified, was available in Babylonia. He again pointed out that other types of asphalts were also found in Babylonia. But according to Pliny, “a type of asphalt which was found on the earth in the Vicinity of Sidon, was in the famous Maritime city of Syria”. Another kind of liquid bitumen, resembling oil, found in a spring at Agrigentium in Sicily, the waters of which was tainted by it.

Asphalt was exported from Babylonia, Syria, Sicily and Judaea to Rome or else. Pliny gives the idea about the varieties of esphalt and its different uses but about its import into India, he is silent. But it is surprising that neither Strato, nor Pliny nor the Periplus nor even Comas refer at any time to its export to India but in view of its various commercial and medicinal uses for men and beasts its import into India may be well taken as not improbable. Its great utility for building of ships may have been one of its great attractions.

About its utility, Strabo, has pointed that the liquid asphalt was used for smearing boats woven with reeds which became thereafter firmly compacted. According to Pliny in its liquid form it was used as the substitute as oil for burning
lamps and also for the cure of itch or scabies in breasts of burden. It was also employed for coating the inside of copper vessel rendering it fire proof. It was adopted as a substitute for lime and walls of Babylone was cemented with it. From Medicinal point of view, the Babylonian bitumen is said to have been very efficacious in curing cataract, albugo, leprosy, lichens, and prurugenous affections and used as bandolines for the eye lashes which were refractory and impede eyesight. It was applied topically with nitre, served as curative for toothache and taken internally with wine, alleviated the chronic cough and difficult respirations. It could detect any tendency to fits of epilepsy. Taking its multifarious medicinal qualities into account it may be expected that it was imported into India because Ashoka had taken special care to bring the various medicinal plants into India.

**Antimony**

We have evidence with regard to the import of antimony into India. The Periplus is our best authority for inferring that the antimony was imported into India in the first century A.D. It was transported not only to Ujjaini but also to southern market towns of Nelcynda, Muziris and Bacare.

Schoff observed that the stimmi (antimony) came from Eastern Arabia and Carmania. Pliny however tells that as antimony was a siliver ore, it came from Spain to Italy and from Italy it might have been exported to India.

Antimony was mainly used as a medicine for eyes. Hence, it was called by the most of the people as “platyophthalmon” or eye dilating and used extensively in calliblepheric preparations of women for beautifying their eyebrows. It acted as a check on the fluxes of eyes and their ulcerations, was employed as a powder with powdered frankincense and gum, considered useful in arresting discharges of the blood from the brain, sprinkled in the form of powder and found extremely efficacious in curing fresh wounds and dog bites. It was helpful in healing burns.
Orpiment (*Skt*-Manassila)

It was another mineral product, which was imported into India in the first century A.D. From Periplus again we know that along with antimony, orpiment was also imported into the south Indian ports of Nelcynda, Mluziris and Becare.³⁸³

According to Pliny,³⁸⁴ orpiment was a mineral drug, dug from the surface of the earth in Syria and was much used by the painters. It had just the colour of gold but was brittle like the mirror stone. Ball remarks that, “the United Kingdom, Austria, China, Turkey in Asia contribute to the supply of arsenic, orpiment and realgar”.³⁸⁵ Hence we may also expect that China and Turkey were also exporting orpiment to India.

Orpiment was used as one of the constituents for making gunpowder in ancient India. It was also used to prepare the paper, which was not ravaged by the insects.³⁸⁶ About its medicinal properties, Pliny refers; it was most remarkable for its antiseptic properties. Applied with vinegar, it was considered to cure alopecia and employed as an ingredient in ophthalmic preparations. It was applied with honey for cleansing the faces and believed to make voice clearer. If it would be taken with food and turpentine, it was reckoned as a pleasant medicine for cough and asthma. It was a detergent, astringent and corrosive.³⁸⁷

Precious stones

The precious stones which the mines of earth and of the ocean yielded, which have happily been defined by Kautilya (*manidhatuh*). These stones were very hard and of little colour. Generally the correct shells, diamonds, precious stones, pearls, corals were imported into India from the ancient times. The other sub classifications of these precious stones were via; topazes, emeralds and tortoise shells etc.
The Topaz

According to Periplus\textsuperscript{388}, the topazes were shipped to Barbaricum from Ommanitic and Parsidae regions. Strabo and Pliny\textsuperscript{389} both furnish some details regarding the precise regions where the real topaz was procured. Strabo mentioned that it was found in the islands of Ophiodes (Zamargat) in Arabia where the kings of Egypt appointed a guard to protect the locality where the topaz was available. So it is expected that the topaz of Arabia was imported into India. There were two kinds of topaz stones, the yellow and the genuine topaz stones and both were imported into India. According to the Periplus that the topaz stones were imported into India through Red Sea. From the Ommanitic and Parsidae regions the topaz stones came to the ports of Barbricum through Indus and to Barygaza (Broach) in the northern India and the southern ports like Bacare, Nelcyanda, Tyndis and Muziris in the first century.\textsuperscript{390}

Pliny\textsuperscript{391} considered the topaz the largest of all precious stones and the only one that among all these of high value. The popularity of topaz can be assumed to much earlier times and associated with the country of Ethiopia where it recorded to have been known. In the “Book of Job” we hear of the topaz of Ethiopia referring to wisdom. “The topaz of Ethiopia shall not be equal of him”.\textsuperscript{392} The importance of topaz can be alluded from this.

Pearls

From Periplus again we find that in about 60 A.D. through the markets of Ommanana and cane, the pearls of Persian Gulf was readily sold in the Indian markets. From there, “many pearls but inferior to those of India” was sent to the port of Barygaza (Broach)\textsuperscript{393} from where they must have been found their way into several markets of north as well as south India. Whereas the Periplus admits that the Bahrain pearls were inferior to those of India, Schoff has contended that the former though more yellow than those of the Straits of Mannar commanded a sale in India because their lustre kept better particularly in the tropics.\textsuperscript{394} According to Pliny
those pearls, found in the vicinity of the Arabia and Persian Gulf which forms the part of Red Sea, were “mostly highly valued” because there were a much clearer water than the Indian pearl which resembling in tint the scales of mirror stone,395 exceeded all other kinds of pearls in size and became the greatest favourite in Rome.

Corals

Pliny396 remarks that the corals were highly priced in India as pearls were at Rome. The Gauls ornamented their swords, shields; helmets with corals until the beginning of Roman trade in corals with India.397 Pliny gives an interesting fact that the large-scale exports of corals created a shortage in the place of production. The main centre of coral production was Mediterranean Sea. There were black corals in the Red Sea and along the Arabian coast but they were not so much prized. Corals of Rome were interchanged with the pearls of India.

According to Periplus, “the red corals reached at Barbaricum, Barygaza and at Muziris and Nelcynda.”398 It mentions its import from the further west into cara whence it was reshipped to India in Arab or Hindu bottoms.399 Tauffer says that “Persian corals have found their way all over Asia... and the coral encountered by the Chinese in Kipin may also have been from Persian origin. Red coral from the Western Mediterranean and Red Sea was on of the major items shipped to the East from the time of Periplus.400 Coral beads have been found in a stupa of Mirpur Khas, a site on the Indus in Sindh in early Christian era401 and in many stupas of Dharmarajika monastery in Taxila.402

The Manimekalai describes the whole streets of Puhar as, “full of silks, corals etc.”403 Uraiyyur is also praised for corals in the Tamil poem. Hence we may expect that the corals were imported in 2nd and 3rd century A.D. According to Kautilya,404 there were two types of corals such as ‘Alakandaka and Vaivarnaka” the two varieties of corals which is possessed of ruby like colour. The commentator notes that the first type is obtained in the mouth of river Barbara and the second
type is received near the island of Yavanas. Hence it may be presumed that Kautilya hinted towards the export of corals in India from the Mediterranean world.\(^{405}\)

The price of the corals can be assessed from the comments of Sukra,\(^{406}\) belonging to later period. He says that the corals weighing one tola deserve the half price of the gold of the same weight. Watt\(^{407}\) says that in addition to being used for adornment ornamental corals have been used as Hindu medicine from very ancient times and are mentioned by Susruta. Indian soothe-sayers and divines looked on the coral as an amulet endowed with sacred properties and a sure preventive of all dangers. Hence Indians valued it as an ornament as well as an object of devotion.\(^{408}\)

Its medicinal property was that powdered coral was considered an excellent remedy for patients who brought up or spat blood, calcined coral was used as an ingredient in composition for the eyes, being productive of certain astringent and cooling properties. It was also supposed to rebuild flesh in cavities left by the ulcers and to efface scars on the skin.\(^{409}\)

Among the other product, which was imported into India, were the skin of rhinoceros, ivory and horses. The Periplus informs us that in the first century from the Ptolemais of the Hunts, not only ivory but also the rhinoceros' horn were imported into India. About the ivory, the scholars refute the claim of Periplus\(^{410}\) on the ground that India was the main center of ivory trade and it was supplying the ivory to the western loads. Therefore the import of ivory into India remains inconclusive unless further evidence substantiates the facts. The horn of elephants was also used for making handles of swords and different kinds of armour.

**Horses**

The importance of horse from West Asian countries was increased insanely during the medieval period in comparison to ancient times. Horses have been imported in to India from Kamboja, Sind, Bactria, Persia, and Syria from the first century A.D. if not much earlier. Surprisingly, Periplus does not refer the import of horse from Persia, but it mentions the import of horses from Arabia.\(^{411}\) It relates
how the merchants from Arabia presented to the king and the chief of Muza (Mocha) horses and mules.\textsuperscript{412} Therefore the import of horses from the alien lands like Persia and Syria can't be denied but they might have been arrived in India by and land routes instead of sea routes. To the Pandyan coast came horses and other precious things, which are presumably exchanged for gems.\textsuperscript{413} Horses for breeding of which southern climate was not conducive, have always been imported into South India mainly from Arab countries. Pattinpallai and maduraikknchi make a reference of the import of horses to the South Indian Kingdoms.\textsuperscript{414} References of horses as gifts are fewer that other items perhaps due to the military importance to the rulers.\textsuperscript{415}

Trade in horses seems to have been an important factor in the commercial life of South India in 1\textsuperscript{st} C.A.D.\textsuperscript{416} Horses of Parthia are said to have been imported at Puhar from "distant lands beyond the seas."\textsuperscript{417} The horses are primarily imported for military purposes. The regular training of horses was its preparation for war. When the horses were incapacitated owing to old age, disease or hardships of war, were declared unfit for the war and existed only to consume food in the interest of citizens and country people, then they were allowed to breed.\textsuperscript{418}

**Slaves**

Before going into the deep of import of slaves from western countries to India, we should analyse the slave trade situation in the western world. "Besides the sale of slaves which took place as a result of the capture of cities or other military operation, there was a systematic slave trade in Greece, Syria, Pontus, Lydia, Gallatia and others. Egypt and Ethiopia also furnished a certain number and Italy a few. Of foreigners, the Asiatics bore the greatest value but the Greeks were highest of all in esteem and they were much sought for foreign sale. Greece proper and Ionia supplied the pretty Eastern princes with courtesans and female musicians and dancers. Athens was an important slave market. ..... but the principal marts were those of Cyprus, Samos, Ephesus and Chios."\textsuperscript{419}
Probably India took the advantage of the existing slave trade of western markets. Various kinds of slaves were imported into India in the first century A.D. From the Periplus we find that through the Arabian Gulf ports like Ocelis, Muza and Malao, slaves were exported to India. But whether they were only men or women it is not clear. Eudoxos (at the end of 2nd C.B.C.) who wanted to discover the Cape route to India, wished to bring some young singing and flute girls to India for her princess (Poseidonides).

In a legend about St. Thomas, we hear of an Indian king who made a Jewish slave girl to play on her flute and entertain his guest.

Another conclusive evidence in this regard is the unique specimen of the slave "Agesilas". Who was the architect of Kanishka's stupa near Taxila who made his relic casket. Tarn notes that the casket, "may have been anything from a skilled Greek slave imported from the west to a subject of Kanishka."

In another evidence, the Tamil poem speaks of "dumb mlechhas clad in complete armour" who acted as guards to Tamil kings and who were most possibly the yavana slaves imported from the west. The Silapapadikaram says that it was impressed by the stern discipline of the Yavana soldiers employed by the Tamil Kings as the guards of fortress gates. They were also permanently settled as guards of palaces and royal camps. There were also settlement of Yavanas in important trading and commercial centers like Puhar and Muziris. They were most likely Romans, which are indirectly attested by the Roman pottery, and other associate finds in excavation.

So it is the fact that in the first century A.D. the slaves were imported into India from the ports of Ocelis, Muza, Malao and Opone. And the slave trade during this period was mainly in the hands of Arabs who were the slave drivers of the day. But it is very difficult to determine that wherefrom they procured these slaves. Presumably they had brought from Syria, Persia and Mediterranean areas. Whether the slave markets of Greece, North-Western Assyria and Phrygia still continued to
supply slaves to the Arab traders, it is difficult to because for we have no definite proof to draw the conclusion.

These were the goods, which were directly imported from Western Asia and Roman world to cater the needs of Indian people, but the number of items of import was small in comparison with the number of goods, which were exported. Therefore it may be concluded that the trade was in favour of India, which is clearly expressed by Pliny. Pliny bluntly called them a "drain" on his country and he was not alone in raising his voice against the outflow of Roman wealth. "In one year" he said "does India drain us of no less than 550 million sesterces (£22,000,000) giving back our own wares which are sold among us fully 100 times of their prime cost." 428 Again he remarked. "At the very lowest computation India, the Seres and the Arabian Peninsula withdraw from our empire 100 million of sesterces every year so dearly do we pay for our luxury and our women." 429 Pliny was not the only author who had raised the voice but the other authors like Tacitus, Dion Chryosostom also gave the similar views of the drain of wealth. The emperor Tiberius in A.D. 22, also protested against the fruitless expenditure. "The very existence of Rome" he told, the senate once. "is daily at the mercy of concretion waves and storms and unless master, slaves and estates have the resources of the provinces as their mainstay, our shrubberies, forsooth and our country houses will have to support us. The neglect of them will be the utter ruin of the state. The cure of the evils must be sought in our own hearts." 430

From these statements it is clearly established that the drain of wealth was a great headache to the Roman historians as well as the rulers. The large amount of inflow of gold from the west was mainly used as the coins or for the ornamental purposes. The imports, which the Roman empire received for the extra ordinary amount, were not commensurate with the expenditure incurred in procuring them; for they were mere "baubles" fit only to satisfy the vanity of senseless women and the thoughtless wealthy. 431 The unquenching thirst of Roman people for the Indian
goods like spices, precious stones and aromatics created a favourable condition for the Indian traders. The traders of Indian peninsula earned much more profit out of this trade.

About the favourable conditions of trade in India has raised the serious questions among the historians. It has been contended that Pliny was alluding to only such traffic maintained along the northern route via. Caspian and Black Sea and that he omits the cost of pearl trade. Warmington also suspected about the validity of Pliny’s comment. He points out the fact that, Pliny was probably misguided because he did not take the cost of carriage, price of Indian goods, heavy charges demanded at the various points of routes into account before his computation. However Pliny’s comments may be hyperbole. There is little evidence that the Romans actually brought many of the items they desired from the East. Again they used the system of barter and exchange to get the goods of East. This being the case, there naturally would be little or no indication that the Romans were preoccupied with concept of balance of trade deficit or surpluses as we are today.

The Romans were paying a heavy price for Indian goods. There are various reasons, which are responsible for the rise of cost of Indian goods in the Roman markets. The first and foremost reason must have been the insistent and unceasing demand for constant supply of these Indian products. Secondly the intermediaries, atleast in the cases of commodities, not transported by the Romans or through Roman agencies, like the Arabs, Parthian, Jews, Indo-Greeks, Syrians, Phoenicians and Persians, must have played their parts in raising the total costs of commodities like aromatics, spices or precious stones which Rome had ultimately to pay. Thirdly, the distance through the land and sea routes, which were invariably so lengthy, arduous and expensive, must have contributed in so small measure in enhancing the total costs of every article. Fourthly, the Roman people had not developed the price controlling mechanism to check the inflation of the prices of the
imports from India or any eastern countries and the traders of Rome used every
device within their power to raise prices, citing various excuses in support of such
manipulations. Finally the Indian goods were not exported to Rome only the goods
were reaching at Persia, Arab, Ethiopia and Egypt and therefore, the comments of
Pliny about the drain of wealth by India holds no ground. The commodities, which
commanded such high and fantastic prices, were mostly luxurious goods for which
natural fancy prices had to be paid and they hardly remained steady or uniform. The
prices of single good like myrobalanum was two denarii per pound while the costs
of unguents ranged from 35 to 400 denarii per pound depending on the qualities and
places of origin. In view of the steady and encouraging demand for such goods and
the willingness of Romans to pay for them, the supply continued to meet the
demand until Rome collapsed and its demand with it.

The trade was favourable to India, such fact is endorsed by numismatic and
archaeological data. The presence, though sporadic, of the coins of the Roman
republic may suggest earlier coins could have been circulating even at a later period
in the Southern India when the trade considerably increased. The high value of
Roman coins, the aurii and denarii of Augustus and Tiberius in particular, occur in
hoards, found in South India and coincide with the period of Roman demands for
oriental luxuries and with the complaints about the paucity of such coins in the
empire. In Second Century AD the number of hoards increased, as do the
numbers of aurii in Kerala and Andhra Pradesh with many imitations.

About the various hoards of coins in different parts of India, raises various
questions about the idea behind this. It has been said that they were treated as
bullion or used as jewellery or ornament as also was the case of some local coins.
Sometimes these types of coin hoardings were regarded as status symbol. Again it
may be presumed that the coins were hoarded as protection of money for the safe
passage of goods. There for the coins played the dual role as high value currency in
trading markets but as prestige items in the hinterlands of markets.
Trade Routes

The trade routes between India and western world considerably increased in the first two centuries of Christian era. The establishment of comparative peace by the Roman Empire became a potent cause for new explorations and developments of trade. The geographical importance of Arabia, the Asia Minor and Northeastern Africa serving as a chain for joining the west and western Asia came into focus is this period. The Roman merchants in Western Asia strengthened their business with ample financial resources thus consolidating their influence. But one of the strange things is that Indian merchants seldom met with the Roman merchants because the intermediaries of this trade were Alexandrian Greeks, Syrian Jews, Arabs, Axumites and the Parthians. These people were not under the Roman subjects anyway and hence they wanted the trade between India and the west should not be carried directly but through them, their geographical position being midway between India and western world. The entire traffic between east and west was controlled by them with a view to conceal the actual sources of treasures of India and China from the Greeks and Romans; with an eye to gain more profit by acting as middlemen.

Rome and India were brought closer together through the Persia Gulf and the Red sea. According to Prof. Maiuri, the Indian ivory might have reached the shore of Campania by this route. He discovered, in 1938, an ivory statuette, identified with Lakshmi, at Pompeii, which he took to be purely an work of Indian art of C.97 A.D.(see figure-6) Inscription along the route record the coming and going of merchants and one dating to 2nd CBC refers specifically to the person having recently returned from India. Kingdom of Indian sub-continent may well have drawn a revenue from the trade but here again there is little evidence of direct state controlled participation. The Tamil and Prakrit sources frequently mention about the Yavanas who have been identified with those came with Roman trade from the Egypt and eastern Mediterranean.
The Roman Empire was established in Asia Minor, Syria and Egypt but Arabia was not under its control and the tribes of Caucasus did not care for its orders.

When Augustus rose to the imperial power in 27 B.C. and established his vast empire including various races of the west, the middle East and the North-East Africa hence Rome became ripe and ready for further developments in the intercourse of men and she backed her merchants with capital who pushed themselves with fresh enthusiasm into the East both by land and water.

Rome had two ports, Ostia and Peuteoli. Ostia was harbour less and more dangerous one for the sitting up of the Tiber “which was fed by numerous streams”. Strabo however says that “the good supply of tenders make it possible to sail away quickly before they touched the river or else, after being partly relieved of their cargoes, they sail into the Tiber and run inland as far as Rome.” Hence Puteoli was better used as a safer harbour where “the greatest merchant ships could moor with safety” and it was an important centre for transshipment to different provinces of Italy and it was ever filled with ships plying with Alexandria and Syria.

Rome and India were brought closer together through the Persian Gulf and Red sea. The Red sea is within the nearest distances from the Mediterranean Sea through the Heroopolite gulf. Most of the middlemen mentioned above, were living in this region, side by side of the Red sea and Persian Gulf. All the routes from India and China to Rome converged at the strip of land formed by Asia Minor, Palestine, Arabia and also by Egypt. Usually the merchants from east and west exchanged their products here.

According to Warmington, there were three routes from Puteoli to the Middle East. First it was ‘from Brundisium across the Adriatic, along with Egnatia and across to Belhynia or Traos, whence great routes to the Far East could be reached at Sardis, Tarsos, Antioch and other centers. The second route was “from
Italy to Ephesos by the way of Corinth and Athens or round the Peloponnese to Asia Minor and Syria – a route used in Summer by the sightseers and traders with Greece.” The third one was the direct route” from Rome to Puteoli to Alexandria’ the center of transshipment of Indian wares from the Red Sea and even from Antioch. This route was specially used from May to September.\(^452\)

In our enquiry of trade routes to Egypt, we will find the hinterland of Alexandria. The city of Alexandria was founded at the mouth of river of Nile by Ptolemy Philadelphos to serve the Egyptian merchants who had already established an indirect trade with India. About this harbour, Strabo gives a very good comment. According to him. “As far the great harbour, in addition to its being beautifully enclosed both by embankment and by nature, it is not only so deep close to the shore that the largest ship can be moored at the steps but also is cut up into several harbours.”\(^453\)

One merchant who starts his journey from Alexandria to India, he usually goes through two different routes. One route was passing by the Red sea and the other route was avoiding this route as far as practicable. The Red Sea with its treacherous Hiroopolite gulf proved very dangerous to storms and pirates. Hence the merchants preferred the route by Nile. They navigated in this river southwards for about 11 days in fair weather upto the horseshoe bend of the river. Two main important stations on the bank of Nile were Canepolis (Kenah) and Coptos (Keft), from which the roads struck out towards the Red Sea. One road connected Canepolis with Myos Harmos and another Coptos with Bernice. But according to Strabo,\(^454\) “Myos Harmos was more important as a naval station” but Pliny\(^455\) mentioned that this was “deep inland on the recess of the gulf” with its better landing places proved to be far superior. Both the ports were simultaneously used; Bernice as a center of unloading and Myos Hormos as a good natural harbour for vessels, filled with trees and guinea fowls.
There was a network of roads across the desert between the Nile and the Red Sea. The Canepolis-Myos Hormous route branched off at Aras towards Philoteras on the Red Sea just south of Myos Hormos. Another route branched off from the Coptos-Bernice road at Phoenician leading to Leucos Limen, standing further south of Philoteras. Besides these a track from Rhodesiya on the Nile joined the Coptos-Bernice road at Phoenician and another from Ombos was found joining that route at Apollonos (Wadi Gemal). Nubia south of Egypt was beyond the Roman influence with Meroe as its important centre from which also another route ran towards Ptolemais, standing further south of Bernice.\

The routes were well maintained and the Romans kept them intact. The Romans left them unpaved for camels and maintained the Ptolemaic division of the main roads into stages with fortified supply stations cisterns and armed guards. The roads were well equipped with large caravansaries and hotels for travelers. According to Periplus, Mussel harbour and Bernice were harbours of Egypt. But the Ptolemais had no harbour and was reached by only small boats and below it was Adults a port established by law.

The choice of routes was mainly depending on one’s taste and proximity of one’s habitation. The sea route was more risky due to bad weathers and the fear of pirates. Ptolemy-II first cleared the deep Canals and added locks to prevent flooding from the Fed Sea and founded Arsinoe or cleopatris. Augustus repaired it afresh. But the south wind and shoals were much distressing to the travelers. Pliny notes that the three land routes from the Egyptian sea-one from Pelusium across the sands following the line of reeds, the second route beginning two miles beyond Mt. Cassias and after 60 miles, rejoined the roads of Pelusium; and the third one starting from Gerrum, called the Agipsum route; all those routes led to Arsinoe. The sea route from Arsinoe to the strait of Babel Mandeb was again connected with sidetracks upto Aela and Leuce come on the east coast. A road joined Aela and Petra and that route through Petra passed to Persian Gulf.
The Roman merchants usually preferred the Red Sea route instead of land routes to India. One of the major reason of this was the main rivals of Roman merchants who were staying in the midway of the land route and the Scythians also had settled throughout the Central Asia. Again the land routes were time taking due to its enormous length and expensive also. Hence Augustus looks all steps to make the Red Sea Journey more convenient and profitable. He made all sorts of arrangements for collection of taxes.

The people of Arabs took the advantage in the commerce mainly due to their geographical position. The Arabs mainly supplied the Indian goods to Egyptians who in turn supplied it to Romans. The Sabaeans and the Gerraheans of the Persian Gulf prospered as traders and the chief intermediaries for a long time between the east and west. They used both the sea route and land route for commercial purposes. Strabo following Artemidorous, notes that “the masses of the country of the Sabaeans traffic in aromatic..............From their trafficking both the Sabaeons and the Gerrhaeans have become the richest of all; they have a vast equipment of gold and silver articles viz., couches, bowls etc. and costly houses.” They kept the Indians away from the Red sea and kept secret from the Greeks about the use of monsoons. The Arabs of Suez and the North-Western part of Arabia who served as an intermediary between the India and Rome and exerted a great influence down the Red Sea coast upto the Leucecome and also upto the Euphrates along the borders of Syria and Arabia. But the Nabateans occupies the most enviable position and could easily prosper by bitumen trade with the Egyptian, by the Caravans trade with the Persian Gulf. According to Rostovzeff, the Nabateans adopted the measures to safeguard the caravan routes to Babylonia. He says that “the native Arabs, reinforced by the Nabatanen colonies protected the Caravans and secured their water supply” as evidenced by a Nabatean inscription. found between Dumatha and Forat. It was the centre of many routes, the first leading to Leuce Come via-Aela, receiving the wares to be diverted to Rhinocula of Egypt and to
Gaza on the Mediterranean sea; the second connecting it with Bostra, Damascus, Palmyra and other important centres of Syria and the third one leading across Sinai to Arsinoe; besides the greater road from Petra to Gerrah and through the Northern deserts to Farath and Charax. Roads ran also from Petra to South Arabia, one via-Leuce to Arabia Eudemen and to Hadramaut by coastline. Both Indian and Chinese goods were carried through these routes.

Pliny gives an interesting fact about the different stages of routes connecting Arabia with India. In the first two stages, Pliny shows, the shipping along the coast of Arabia, Persia and Carmania with Barbaricum and Patala as the terminus. Barygaza and Sigerus rose to importance in the period of 3rd stage i.e. beginning about 70-50 B.C., according to Tarn, when the direct voyage between the Arabian coast and the Barygaza, cutting out Demetrius-Patala was introduced. In the period of 4th stage ie; after C. 50 B.c. and in the first two centuries of the Christian era, ships went straight from Arabia Eudemen to Muziris and Nelcynda, ports of South India exchanging Roman coins for pepper and aromatics.

A narrative of Pliny may be quoted here:–

“There (at Susa) after months” voyaging they (Onesi, Critus and Nearchus) from Alexander, celebrating a festival; it was 7 months since he had left them at Patala. Such was the route followed by the fleet of Alexander; but subsequently it was thought that the safest line is to start from Ras Fartak in Arabia with a west wind (Hippalus) and make for Patala, the distance being reckoned as 1,332 miles. The following period considered it a shorter and safer route to start from the same cape and steer for the Indian harbour of Sigerus (Jaigarh) and for a longtime this was the course followed, until a merchant discovered a shorter route and the desire for gain brought India nearer; indeed the voyage is made every year with the companies of archers on board because these seas used to be greatly infested with pirates.
If we trace the routes which were connecting India and Iran; then we will find two main routes. One road which started from Babylon and Susa and another started from Ecbatana and met at Persepolis. From Rhagae, the road was diverted to a side track, south-east ward to Carmana. Gulaskird was the junction of the two routes, from Persepolis and from Carmana and from this place ran the main Persian road towards the Indus. From Persepolis ran another road through Carmana and Phra to Alexandropolis and Kabul, probably used by the Romans. Alexander’s return from the Indus through the Makran route proved disastrous and hence it earned an ill reputation. People preferred the coasting voyage to the Makran route. The merchants took to main silk route upto Merv and then to the Herat Kandahar route to India.

The Himalayas never obstructed the journey of merchants from east to west and vice-versa. Here were so many important passes used by the merchants and travelers from all ages. The Khawak links Badakshan with Kabul, across the Hindukush range, the Irak pass links Balkh with Kabul across the Kohibala range and the Khyber; Kurram, Tochi, Gomal passes connect Afghanistan with India. Khyber Pass was the major traffic axis since the establishment of Peshawar as the metropolis in 2nd C.A.D.

There were several routes, which were connecting India and the Caspian region via, Bactra. There was a route from Marchanda or from Bactria which crossed the Oxus and ran towards the Caspian sea and then either crossing or rounding it, proceeded to the Euxine sea and the Mediterranean Sea. According to Strabo “the river Oxus was so easily navigable that the Indian merchandise, packed over the mountains to it is easily brought down to the Hyrcanian sea and thence, on the rivers, to the successive regions beyond as far as Pontus”. He also says, “the upper Aorsi ruled over most of the Caspian coast and consequently they could import on Camels, the Indian and Babylonian merchandise, receiving it in their turn from the Armenians and Medes and also owing to their wealth, could wear golden
It indicates that there was a large flow of merchandise from India or Babylonian region to the Caspian region. Pliny also points out this route of Commerce down to the Oxus and across the Caspian to the Cyros and says that the Indian goods were conveyed to Phasis in Colchis by this route. But Strabo speaks of the bad conditions of navigation is the Caspian Sea and also of the wild people of the Caspian area. Pliny also supports this view of Strabo. He hints at the dangers of navigation of the Caspian Sea, where the Indians were once victim to the storms and as a result the ship wrecked. Most probably, some of the Indians became fugitive and came through Parthia and planted Colonies in Armenia between 130 B.C. and 300 A.D. The area of uncultured and wild tribes was almost free from the foreign yoke. The region including Bokhara, Khiva and Turkestan proper was always infested with robbers and inhabited by wild tribes known as Scythae. The Indians, Bactrians, Parthians and Scythians served as a middlemen upto the Caspian Sea. They landed over the goods to the Armenians and Caspian tribes, via, the Albanians, the Iberians, the Colchians. Wares also sent up the Araxes to Artaxata in Armenia and then distributed to all parts of Asia Minor. There was another land route passing along the north west coast of the Caspian Sea upto the north east of the Euxine, where the Siraces passed the goods from the hands of Aorsi over to the Greek cities.

In Hellenistic Roman times, there were several trade routes connecting the Mediterranean world with the lands to the east. The Northern Silk route led to China and there were routes which combined maritime with overland caravan tracks: for example via: Petra-Capital of Arab kingdom of Nabatea and Via-Palmyra, the Arab trading station in Syria. There were also routes which connected Ptolemaic, Nabatean and Roman ports at the northern end Red Sea with maritime empire elsewhere in the Red Sea and Indian Ocean.

The silk route ran from China to Mediterranean passing through India of the Kushanas and the Sassanian territory who played an important role in the trade of
Asia Sassanians took the profit by controlling this trade route. Contact between the Mediterranean, Iran, India and China led to the repeated exchange of ideas, techniques and decorative motifs. From Loyang, the eastern terminus of Silk road, the road went to Sepeucia or Ctesiphon from where it forked on outside the Antioch and on other to Petra via Persian Gulf. But the Chinese chronicles points out that a route proceeds to Seleucia from south regions of Petra. This of course does not exclude the route of Antioch. The true western terminus of Silk Road was Seleucia where the western silk merchants had their head quarters.

The Silk route roughly covered an area of approximately four thousand three hundred and fifty miles from its eastern terminus to Seleucia. From Seleucia it went to Lopnor and the other toward the Bay of Bengal passing through Sikkim but the main road moving from Lopnor ultimately reached Kashgar. Moving further west, the branch of road could reach Bactra or Balkh also as it was considered as one of the main trading centre. Silk route connected China with India, central Asia, Parthia and Rome. It bifurcated itself from the main to Ujjain in central India and from there it joined the ancient international port of Barygaza on western coast.

The Silk Road was secured and existed for a long time due to the foundations of four powerful and prosperous empires during the opening centuries. The Kushanas acted as intermediary between the Roman and Chinese empires. The rivalry took place among the empires to get the control over road, which provided them immense economic benefits. Probably Kushanas had a good understanding with Chinese rulers. Therefore, Panchao had sent an embassy to Rome who passed through Kushana Empire. The Kushana Empire also advanced economic interest due to its advantageous position on the Silk route.

These were the routes, which were largely used by the traders for trade between India and western Asia; especially to Caspian region.

About the Indo-Babylonian roads, Strabo gives a detailed account. Strabo has observed that a road from Babylonia at Susa by Persepolis to the middle of
Kerman (Carmania). This road never carries to Seistan and probably therefore most of the caravan trade from India by southern route through Seistan did not, in Hellenistic times, go overland to Babylonia by Perspepolis but came to the sea at the Gulf ofOrmuz again as in the middle ages. Form this statement it would appear that the Upper Aorsi, tribes transported on camels, namely by roads alone, the commodities of India and Babylonia, after receiving them from the Armenians and the Medes or the Persians. This journey was not entirely on the load routes; sometimes they were crossing the rivers. Strabo elaborates the actual road through which the traders passed from India towards westward destinations. “The road” he notes “for merchants from Syria to Seleucia and Babylon lies through the country of the Arabian Scenitae, now called Malli (Probably an interpolation) and through the desert belonging to their country. After crossing the river (Euphrates) the road lies through the desert country on the borders of Babylonia to Scenae, a considerable city, situated on the banks of canals.

From Strabo’s account we may infer that there certainly existed a road from Caspian gates to Alexandria in heart. It coursed through Bactria, over the mountain passes to Ortospana (Bal Hissar of Kabul) down southwards, reached Prophasia (Farah) until it came to the borders of India and the banks of Indus. This statement of Strabo not necessarily indicates that the Indian merchants had no share in this trade excepting Persian and Syrian traders.

The Persian High way, which was the greatest advantage for the traders of Persia, was undoubtedly helpful to the merchants of India also. It was not only promoting the commerce between the west and East but also transporting vast quantity of military equipments of Persian Empire. This road was presumed to represent the Upper road from Sardir to the Valley of Tigris and to converge in a great measure into one of the great lines of the Roman Road. From a commercial angle it can be viewed that this Persian Highway was the main routes through which Indian Merchants were carrying their goods to the Persian empire.
Sea Routes

The merchants were also using the sea routes though the pirates endangered these routes. Again the unruly behaviour of monsoon increased the losses of wealth and manpower of the merchants. The merchants preferred this route still because the cost of transport was comparatively less than the land routes. Usually in the months of Asadha (June-July) to Karttika\(^{485}\) (September), the merchants were starting their journey when the Monsoon was favourable to them. These merchants were taking the help of some trained birds to discover the lands in the near-by-regions. About the time of journey, Periplus furnishes a good account. The periplus tells us that the voyages were undertaken from Egypt to North-Africa port towns and thence to India "about the month of July".\(^{486}\) The voyage was made by stages, as they had to depend on the winds chiefly. It relates, how the merchants in their ships from Opone came to Muza (Mochha) by stages and the voyage to that place was made "about the month of September, but there is nothing to prevent it from being earlier".\(^{487}\) So there is no doubt that the voyages from Egypt to India were made in the first century A.D. only in or about the month of July. The very basic reason for setting out from Egypt in July was to take the advantage of the Etesian South-West winds. The periplus explains it thus, "For at the same time when us with the Etesian winds are blowing on the shores of India, the wind set in from the ocean and the South-West wind is called Hippalus, in the name of him who discovered the passage across".\(^{488}\) Although the observation of Hipplaus might have been a discovery to the west in general, it was certainly known very well in India, centuries earlier or else, there could hardly have been any voyage or trade between India or west during this periods or prior to this.\(^{489}\) Pliny also furnishes the same account of Periplus.

About the return journey we may calculate the time taken by a ship to reach Mluziris from Ocelis as 40 days and if the ship left Egypt or the port of Alexandria in or about the month of July then, at the end of the month they must have arrived at
Ocelis and at the end of the August or the first week of September reached Muziris.\textsuperscript{490} In all probability, the ships must have weighed anchor at Muziris for the whole month of September and then set to sail. The Periplus vaguely relates "reasonably they put to sea about the month of September".\textsuperscript{491}

But Pliny who predicts the time of return was December did not corroborate this fact. Therefore, both the account, on the matter of return journey, was not sure and they probably gave this idea on the basis of hearsay. The gradual emergence of Red Seas as the main artery of Roman maritime trade to the east dislodged the pre-eminence of the Arab Persian Gulf.\textsuperscript{492} The Red Sea Route avoided the hostile Parthians closer to the Persian Gulf, required negotiations with the more malleable Arab traders and brought the west coast of India into quicker contact. In order to protect themselves, the traders took the help of board of archers in the Gulf Sea Routs.\textsuperscript{493} Cargo arriving at the port of Red Sea was transported overland to coptos and from there taken down the Nile to Alexanria. Such transportation was familiar to the Egyptian administration and economy since grain had been regularly transported down the Nile from the Upper Egypt to Alexandria under Ptolemies.\textsuperscript{494} The small-scale canal transportation was in Egyptian hands but the Greeks from Alexandria controlled the large-scale grain business on the Nile.\textsuperscript{495} The Laventines also participated in this trade.\textsuperscript{496}

About the sea-borne trade between India and Egypt, Strato\textsuperscript{497} informs us that Egypt under the Ptolemies had not developed a sea-borne trade with Indians, whereas Periplus\textsuperscript{498} states that the Egyptian ships came only as far as Arabia Eudaemon (Aden) because in the early days of the city when the voyage was not yet made from India to Egypt and when they did not dare to sail from Egypt to the ports across the ocean, but all came together at this place. It received the cargoes from both countries as Alexandria now receives (77A.D.) both from Egypt and abroad.\textsuperscript{499} But the Romans faced many hazards on the land routes to India for which they were compelled to open the sea routes instead of many difficulties. They
persevered hard for this purpose and employed all resources and energy at their command.  

About depicting the physical features of Egypt, Herodotus gives a detailed account from which one could trace out the possibilities of sea-route between Indian and Egypt. In Arabia, he observed, not far from Egypt, there was a very long and narrow gulf running up from the Indian Ocean. According to Diadorus, a canal which was actually excavated during 285-245 B.C. connecting the region of Nile with Arabian gulf, had mainly facilitated the Indo-Egyptian trade. The ports like Captos, Myos Harmos, Arsinoe is mainly helped to further the bilateral trade. From this date it may be said the commencement of regular trade between India and Egypt appeared and all vessels sailing from the Indian ports on the eastern and western coasts, sailed first into the Red Sea from the Indian Ocean until they reached the great international port of Alexandria which was practically the clearing house of commerce between the East and West.

Herodotus about Indo-Phoenician trade, makes a clear-cut mention. Referring to Arabia, which he called the last portion of inhabited lands towards the south and was the only country, which produced frankincense myrrh, cassia, cinnamon and laudanum, noted that Arabs were not getting any of these expecting myrrh without trouble. He again points out that the Greek’s procured frankincense from the Phoenicians who were not only familiar with the sea-route from the Indian ocean via the Persian Gulf but also with the route to the Mediterranean and thence to Hallas. The Phoenicians were well acquainted with the route from the Indian Ocean, from the Persian Gulf or the Red Sea into the Mediterranean.

In the age of Augustus, the Roman merchants from Seleucia reached at Ctrshipon, then passing Assynia and Kurdistan, they reached at media. From there, reaching at Behistan, they took up the route of Caspian Sea near Teheran. From here the route passing Haectompylos, near Jirm approached Teheran.
Myos Harmos was an important station of trade and commerce activities after Alexandria. From Myos Hromos camels took the goods to Coptos\textsuperscript{506}, which was another important centre. Coptos is situated on the right bank of river Nile and its modern name is Keft. From Coptos the goods were carried down to the Nile and then to Alexandria, the biggest and most important port of Egypt.

It is generally observed that many Arabian and Egyptian ships were entering into Indian Ocean but there is little evidence of Indian ships docking in the northern ports of Red sea and this may have been partly because Indian ships were not permitted beyond Ocelis.\textsuperscript{507} The Sabaeans in South-East Arabia are said to have acted as middlemen between India and Mediterranean world, prior to the development of Roman trade.\textsuperscript{508} Perhaps the coral reef made it dangerous to travel the long distance and to handle the situations for Indian traders.\textsuperscript{509} The Periplus, traders, manual probably dating to the mid first century A.D. states that Aden declined as a port after Ptolemaic times and this doubtless coincided with the growth of Red Sea ports such as Berenice, Myos Hormus and Leucos Limen.\textsuperscript{510} Strabo refers to a fleet of a hundred and twenty ships sailing from Myos Horamos to India.\textsuperscript{511} But the Indian traders were not allowed to move freely in the Red Sea because the initiative of Indian trade was going into the hands of Egyptians hands. Ostracon inscriptions in Prakrit at Quseir and some Tamil sources point out the names of Indian merchants.\textsuperscript{512} A much discussed Greek inscription found closer to Nile refers to an Indian, Sopho, (probably Sobhanu) who addresses prayer to the God Pan and was evidently Hellenised Indian.\textsuperscript{513}

These were the sea routes, which were mainly connecting India and Western World. Both land routes and sea routes were fraught with dangers of pirates, attack from marauding tribes, unhealthy monsoons. The sea routes were constantly blocked by different rulers inorder to derive maximum profit out of this trade. During the days of Augustus, the Yemenities, the Nabataeans. Himyars had their share in Indian trade and therefore they greatly opposed the direct trade between
Rome and India. On the Somali seacoast, during this age, the Arab Africans had led the foundation of Axumite Kingdom. Perhaps they prohibited the Indians to proceed beyond the Ocelis in the strait of Bab-el-mandeb. These Axumites preferred to meet the Alexandrian Greeks at Adulis though there was a trade route between the Abyssinia and Alexandria. Sometimes the traders or ship crews who spent sometime in India in suggested by a few votive inscriptions of Yavanas in western part of India and Deccan. These inscribed in Western part of India and Deccan. These inscribed in locally used languages like Prakrit. These occur in four major rock cut Buddhist monasteries known to have functioned as points along more frequented trade routes. The Yavanas mention their names and places from where they come and these are places generally associated with Deccan. The frequently mentioned being Dhenukakata that is another inscription is specifically described Vaniya-gama, a community of traders.

The ultimate success of the Roman trade lies with the ruin of Arab merchants. Certain other factors helped the Roman ambitions also. The new kingdom of Auxum secured the Roman alliance and trading ports of Guardafui were now free because of the quarrels of the over lands. Previously the were under active control of the Arabs.

**Transport and Communication**

Means of transport and communication, being an important auxiliary to trade, have always been the backbone of trade and commerce. In ancient period the people were mainly dependent on chariots, carts and ships to carry their goods for long distance. The beasts of burden have been used as an important means of transporting goods and passengers since the earliest phase of human civilization. Beasts were employed for transporting goods of short distance and also at places where the easy approach of vehicles was not possible. Animals like horses, elephants, bullocks; Donkeys were proved to be of great use. But mainly they were used in war to carry the war materials. Patanjali refers that the bullocks, camels,
horses and elephants were independently called the beasts of burden. But, at times, they pulled the vehicles, which were called Vahya or Vahana.\textsuperscript{519} Manu refers to beasts of burden, which included the horses, elephants, donkey and camel.\textsuperscript{520} According to his reference, it appears that the beasts of burden were properly trained and marks were endowed on them as a token of such training.\textsuperscript{521} Kautilya in his Arthasastra also mentions about this.

The cart was the mode of transportation from the time of Indus valley.\textsuperscript{522} Oxen mainly drew these carts.\textsuperscript{523} The process of transportation by carts was very slow and tedious. The Lalitavistara speaks of two oxen, Syjata and Kirti, which carried the goods of two merchants.\textsuperscript{524} We have also archaeological evidence to prove the use of carts in 1\textsuperscript{st} C.B.C. Excavations at Bhihita under Marshall, have yielded to the spade a number of antiquities, found on the floor level of the house, which is supposed to have been the house of Guild in 1\textsuperscript{st} C.B.C. The most noteworthy of the finds are two wheels of a terracotta toycart.\textsuperscript{525} Many other remnants of the similar carts and their riders were found in the buildings of the site. About the use of carts in the post Mauryan period evidence are found largely from the Jatakas.\textsuperscript{526}

According to Patanjali, carts used on land were called Sakatas\textsuperscript{527}, which carried goods as well as passengers.\textsuperscript{528} These sakatas were named after the kinds of goods or types of passengers they carried. Sakata was the name of large carts while the small carts were called as Sakati.\textsuperscript{529} The merchants who were traveling for foreign lands were moving with large number of carts and beasts of burden.

Fortunately, for us, the art forms of 2\textsuperscript{nd} century B.C., to second century A.D. present some examples of ancient Indian carts. Their representations are very useful for the structural study of the carts. The bas-relief of Jetavana monastery depicted in Barhut Sculptures shows cart.\textsuperscript{530} Being unloaded by the men of Anathapindika. This cart was very simple in structure because it was a loading cart. It was a cart of two isadandas with probably a wooden floor. Both the isadandas join the yoke (yuga)
and are tied. The wheel is not so solid and has sixteen spokes (ara). Accordingly, one Amaravati sculpture in the British museum, which depicts the merchants Trapusa and Bhalla, who adore Buddha, shows their bullock cart. The same merchant passing through Uruvela is shown on the bottom panel of the southern gateway of Sanchi. Two bulls are shown, one with its tail coming on the body. A covering was spread on the poles, which raised on the sides of carts. The spoked wheel is shown, the number of spokes being 24. Another scene at sculpture representing a scene from Vasantrara Jatak, shows a cart drawn by a pair of bullocks. At Goli, the same type of cart appears to see. Another Amaravati sculpture carved on a small frieze shows a similar cart but the wheels are solid. At Nagarjunakonda, both solid and spoked wheels are represented. The body of the cart is covered with openings at back and front. But an interesting picture is presenting in the sculpture at Barahuta. The scene depicting the caravan merchants in a desert, shows the two bulls in resting posture free from the cart. Yet there is another sculpture representing the scene of the purchase of a royal park from Prince Jeta by Anathapindaka showing a bullock cart and a cartsman lifting the yoke from the neck of animals. Here also the spokes number is sixteen.

Two oxen generally drew these carts. The instances of cow and bulls are also found which were yoked to the carts. But according to Panini, the oxen were suitable to cart. The word prastha was referred to a leader ox that was yoked infront of the cart along with other oxen. Generally, young horses and calves were unfit to be yoked in the cart. Similarly old oxen were regarded as useless to drag a single cart. The oxen were properly cared when they set out for a long journey and they were given kindered treatment. In a Gandhara sculpture, two carts men are shown; massaging is of the yoked oxen.

There were several kinds of chariots, which were used for transportation in ancient period. Kautilya provides a very good account about these chariots. According to him, the best chariot was measured 10 purusas (i.e., 120 angulas) in
height, 12 purusas in width. After this model, 6 more chariots with decreasing heights by one purusa successively down to a chariot of 6 purusas in width, were constructed. Such chariots were named as devaratha (Chariot of gods) Pusyaratha (festal chariots) Sangramika (battle chariots), Pariyanika (traveling chariot), Parapurabhiyanika (chariot used for assailing enemy's stronghold) and vainayikal (training chariot)\textsuperscript{539}

The chariot was the most speedy land vehicle of this time carrying goods and passengers.\textsuperscript{540} The driver of the chariots was called as Praveta, Sarathi, Suta or Prajita.\textsuperscript{541} The chariots were specially dragged on a particular type of road, which was mainly built for these were known as Rathya.\textsuperscript{542} Sometimes the chariots had a cloth-canopy over it and the seat of the chariot was covered with the woollen cloth or with the skin.\textsuperscript{543}

The chariots were usually named after the names the beast pulling the chariot. Patanjali refers to chariots drawn by horses (asvaratha), by camels (custraratha) and by asses (gardabharatha).\textsuperscript{544} According to Manu, the beasts of burden, engaged in pulling vehicles, should be properly trained, swift, endowed with lucky marks and perfects in colour and form and without being urged much with the good.\textsuperscript{545}

In the sculpture of Sanchi, these vehicles can be seen. All the chariots are more or less stereotyped with two spoked wheels, two horses with front and sides closed and opened at the back. The front side is often decorated with pellet borders.\textsuperscript{546} The number of spokes of the wheel varies in the sculptures at Sanchi, Barahut, and other places varying from 16 to 32.

The sculpture at Sanchi provides an interesting fact that the tails of two horses were tied to the front of the body. The purpose may be to avoid the contacts with wheels. In Amaravati, a festive chariot is carved with four horses and a charioteer. The representation of the Sun chariots found at Bodhgaya and at Bhaja shows the chariot was drawn by four horses, with two on the either side. It can be
summed up that the different people used the various types of chariots for different purposes during this time.

Excepting the carts and chariots to carry a large amount of goods, donkey carried the small amount of goods, bull, ox, camels. The camels were specially used for roads in desert. Manpower was also used to carry the goods. Goli represents a cart drawn by two men (Pl-IV, Fig.2). Manpower was so important in transporting the goods that Angavijja has included man (nara) as also a type of sajjivajana. On the east gate of Sanchi, we see a man depicted as carrying two loads on his shoulder suspended on a bamboo stick. Load- baskets were hung at the both ends of bamboo like sikya, formed by pending nets on the two ends of a strong pole. Rings of hard material, like wood or metal were provided on each end of a strong pole on which rested the pitcher. Sometimes the heavy loads were carried by two persons with a strong pole on the shoulder, in a basket suspended on the middle.

**Water Vehicles:**

Water vehicles plied both on river and sea. According to Patanjali, the water vehicle was called as nau. The person who was incharge of sailing the boat was called as Navika. These water vehicles were used for carrying goods as well as passengers.

About water vehicles, Kautilya informs us that the navah (boat) and mahanavah (large boats) were suitable for rivers with ford or without ford. The large vessels were provided with a Sasaka (Captain), Aiyamaka (Steersman) and servants to hold the sickle and the ropes and to pour out water. Patanjali also furnishes a good account about the water vehicles. He used the terms like Bhastra (skin carrier). Ustanga (possibly dongi of modern days), pitaka (a bamboo carrier) Udupa (small boat) and Utapata (long fishing boats) are referred as the means to cross the rivers. Ghatika was the temporary small boats made up of pots turned down water. Patanjali also informs as regarding caravans (Sartha) of the water vehicles. We come across the transactions of goods filled in five such vehicles.
Milinda Panha informs us that a ship was pieced together with timber of all sorts. About a pilot, he informs, as that he was expected test the shore inorder the guide the ship. This work shows acquaintance with ocean-going ships, freighted numerous passengers and provided with masts, anchors, straps, sails and ropes.

According to Periplus, in the gulf of Bharukachcha, there were some pilot boats known as trapanga and cotymba to guide the foreign ships coming to Bharukaccha through the entrance of the river, on which the emporium of Bharukaccha or Barygaza was stood. Trapponga was a large type of fishing boat and cotymba may be the modern Kotia type of boat. The Angavijja also refer to kottimba and tapanga as two types of boats. Periplus again says the sangara was probably made of two such canoes joined together by a deck-plat form admitting of a fair sized deckhouse.

About the construction of boats, the Greek writers, informs us that the ships and boats of India were constructed from the logs of fir, pine, cedar and other types of wood. In this connection, Periplus informs us that the large vessels like sangara and trapanga which carried great bulk of goods and were employed for the voyages to the ports of Ganges and to Chyrese (Malaya Peninsula). These vessels were constructed by fastening together large logs of woods.

On the Eastern coast of Chola Kingdom, there were as many as three types of rafts and ships. Of these one was a very simple construction mode perhaps hollowed logs, with planks sides and out riggers. This was the light boat for coastal traffic. In the Pandyan kingdom, as Pliny informs us, pepper was carried down to Bacare in boats, hollowed out of a single tree. The sangara type of raft was a more complicated structure and would seem to have been used merely for coastal traffic. It has been described as “very large” made of single logs bound together.

From Jaina sources we know that besides nava, which was common types of water transport, there were agatthiya, antarandakagoliya (Conoes) Koncaviraga
and boats having the shape of an elephant’s trunk and leather bags (daiya) and goatskin\textsuperscript{567} were also used to float.

There are enough evidences on Indian art and coins to corroborate the facts of literacy sources. A sculpture of Barhut, presents a big boat (PI-VI, Fig. 8) made of strong planks of joined with wooden dowels. This large boat was rowed by big four oars (tow on each side) of which only two are visible.\textsuperscript{568} The sculpture engraved on Eastern gateway of Sanchi, represents a river or a sheet of fresh water with a canoe crossing it and carrying three men in the ascetic priestly costume, two propelling and steering, the boat, while another sculpture engraved on the Western Gateway exhibits a piece of water with a large boat floating on it whose prow is formed by a winged gryphon and stern by a fish’s tail. The large boat contains pavilion overshadowing a vacant throne, over which a male attendant holds chaatr (umbrella) while another man has a chori, a third man is steering or propelling the vessel with a large paddle.\textsuperscript{569} The Amaravati representation of a boat\textsuperscript{570} (PI-VI, Fig. 1) is similar in construction to the boats reproduced at Sanchi and Barhut.

Satavahan rulers of second C.A.D. presented a scene of shipwreck in the caves of Kanheri, which is probably the oldest representation of a sea-voyage in sculptural forms. But the most curious fact is that the boats and ships of Sanchi, Barhut and Amaravati sculptures don’t show the sails and the masts. But the coins of Andra Pradesh show that the ancient Indian ships and big boats had generally two masts.\textsuperscript{571} Alexander Rao\textsuperscript{572} describes the coins and says that the coins of Yajna Sri bears a two masted ships, testifies the existence of a sea borne trade on the Coromondal coast in the first century of Christian era.

The above references give a good idea about shape size of boats through which the goods were carried in sea and rivers.

Both land routes and sea routes were not free from dangers. Whether Indian, South Arab or other traders came to Mediterranean world or westerners visited Eastern land, the journey was long and arduous and dangerous also. Storms at sea and pirates
could deprive the merchants and travelers of their valuable cargoes and lives.\textsuperscript{573}

Again overland caravans were slow, expensive and could be attacked by marauding tribes. In order to overcome such difficulties, the traders were sometimes taking proper precautions like knowledge about monsoon, winds, taking sufficient amount of food and water. Archers sailed abroad some of merchant ships as protection against pirates in both Ptolemaic and Roman times.\textsuperscript{574} Military units were stationed at some (eg elysma, Abu Shaar, Lukos Limen, Leuke Kome, Berenice)\textsuperscript{575} if not all the northern seaports were engaged in this sea trade. There may have been a Roman coast guard to protect the interests of merchants.\textsuperscript{576} The Roman army and auxiliary units provided protection to the Caravans in the desert of Egypt. Watch towers were placed on the hills from which soldiers can supervise the attack of robbers.\textsuperscript{577} Again Roman govt and military were also responsible for the repair or expansion of these ports or as in the case of Leukos Limen, the initial lay out.\textsuperscript{578} But some historians don't accept this theory. According to Casson, in effect the historical records reveal no measures taken by the emperors for the promotion of sea trade and these measures were directed to protect the mines and queries in the sea.\textsuperscript{579}

There are some inscriptions and other record from Egypt which provide adequate informations about the Indian merchants in Western lands. Two inscriptions on the Coptos-Berenice road mention that Numidius Eros returned from a trip to India in and CBC.\textsuperscript{580} A census list of Arsinoe district mention the names of hellenized Egyptians or Greeks who lived in India because they were granted exemption from personal taxes.\textsuperscript{581} A relatively recent document in this connection is a contract dated to middle of second century A.D. between a merchant from Muziris and a transporter. The papyrus is written in Greek but is partly damaged and the name of the merchant is lost. These references can be matched with those to Indians in Egypt. Dio-Chrisostom indicates that Indian merchants resided at Alexandria.\textsuperscript{582} These are some references which increasingly points out the fact that the Indian traders were directly involved in this trade.
An interesting fact has been unearthed in 1985 by Harraeuer and P. Sijpesteinj and published a papyrus, which deals with a loan agreement. The recto and verso who are more or less contemporary, mid century A.D. and both deal with shipment of goods from India. This agreement covers the transport of goods from the point of Red Sea where these goods had been unloaded no doubt in Myos Hormos or Berenice.\textsuperscript{583} It also refers about a loan contract between the two parties and the loan in question is a maritime loan that made possible the acquisition of goods. It contains a list of goods to be transported like nard, ivory and textiles all of which prominently figure in the first of export goods from India to Rome. Again it slightly refers about the custom duty, which was to be imposed on the party.\textsuperscript{584} But this contract paper has raised a hue and cry among the historians by interpreting the contents of paper in different directions and in different angles. However, L. Casson, finally points out that the agreement was signed to protect the goods against the brigands during the crossing. And again the costly nature of shipment had compelled the creditor to sign the document to get an assurance that his costly goods would reach the destination in good condition.\textsuperscript{585} This type of loan contract casts a picture which is much more similar to modern day transactions.

**Important Trading Centres in India**

The extensive trade between India and western countries facilitated to develop many trading centres in coastal area as well as by the sites of the trade routes. These points served as important marts as well as ports. Some of them were Broach Muziris, Kalyana, Sopara, Paithana and Tagara etc. these cities played a prominent role in the growth of inland and foreign trade.

1. **Barygaza**: Barygaza was the most important port, which was probably the first port of international importance.\textsuperscript{586} Bharukaccha was the other name of Barygaza. It received the goods not only from the interior and the Narmada River, at the mouth of which it was situated but also from the coastal ports. From Barygaza, the Indian products like ivory, silk, cotton, pepper etc. were exported.
while wine; glass products and girdles were brought in from western towns to the port.\textsuperscript{587} It is found that the western copper exported to Gulf was brought to Barygaza first: on this large market, the traders or sailors could have taken Roman pottery, other western items and Red polished ware also.\textsuperscript{588}

It also acted as a centre of redistribution of western goods. Barygaza was also a manufacturing centre and therefore imported some raw materials as well as commodities such as silver ware, wine and perfume not to mention slave girls and musicians.\textsuperscript{589} It is generally presumed that local merchants were handling this type of trade. A bead industry which was present there and the beads were found in large quantities in all stages of manufacture.\textsuperscript{590} It is significant that Barygaza had a direct communication route with Ujjaini in Central India which helped the merchants and traders in promoting the cause as well as the course of trade.

2. \textbf{Ujjaini:} - It was called Ozene by ancient authors. It was situated at the junction of two routes, one the Barygaza-Kausambi route and other one was coming from the Deccan. Hence Ujjaini gathered up and forwarded the trade between the N.W. India southern India and western India. Schoff says, "Ujjaini was the Greenwich of India. By its location it was trade centre of all produce imported at Barygaza where distribution was made to the Ganges Kingdom".\textsuperscript{591}

3. \textbf{Muziris:} - Due to its geographical location, Muziris gained an international significance. It is in the Malabar district, modern Cranganore. The port, according to Periplus, was situated in the kingdom of Pandya. The Periplus (54) speaks of this port. Muziris also finds place in the writings of Pliny, the naturalist, when he says, "if the wind called Hippalus be blowing, Muziris the nearest mart of India can be reached in forty days".\textsuperscript{592} The Tamil poem speaks of the Yavana ships arriving at Indian ports with merchandise and gold, the pepper and cargoes...."\textsuperscript{593} Muziris was one place which was well known to the merchants of Rome. According to the Peutingerian Tables (222 AD), the Romans were maintaining a force of two cohorts at Muziris to protect the trade and they had also built a temple for Augustus. But
Rawlinson has remarked that, "Muziris was shunned by the travellers on account of bad anchorage and the pirates". It is also found that the foreign merchants also maintained the force to protect their goods against the lootings. This is perhaps indirectly confirmed by Patrripattu which refers to a Chera king Imayavaramban Neduncerelatan punished the yavanas by binding their hands behind them and pouring ghee on their head and walking along.

4. Soppara: - It was a market town during the opening centuries of Christian era. It was the capital of Konkan. Horse trading was an important trade of this locality. The Periplus (52) takes it as a market town of the region which in the times of elder Saraganus became a lawful market town. The place had an intimate connection with Paithana via Kalyana.

5. Kalyana: - It was another important town in the ancient India. Its strategic location gives it more importance and therefore it was called as gateway of India. It is situated on the bank of the river Ulhas, twenty two miles from the open sea. It is mentioned in thirteen inscriptions, eleven of such are found at Kanheri Buddha cave inscription and the remaining two at Junar. The route from Kalyana via the Nana pass is definitely established by an inscription at Kanheri, which links Sopara, Kalyana and Paithana.

According to Periplus (52), the city of Kalyana was both a city and harbour. Cosmos (bk-XI) also refers to this port town and highlights its significance. But Ptolemy has failed to notice this port does not mean that the port has fallen into insignificance by that time. During the early rule of Satavahana, Kalyana grew into an international trading centre. But during Second Century A.D. the importance of Kalyana started to decrease. But from fifth Century A.D. it again regained its lost importance and the Alexandrian merchants Cosmos Indicopleeustes refers to this place. He mentioned it as "a great mart of trade where copper is produced and sesame wood and materials for Press"
6. **Symilla:** The *Periplus*\textsuperscript{601} mentions Symilla as a market town pearl fishery is located by Pliny\textsuperscript{602} at Perumala (Semylla). Now it is a fishing village of no importance, but in former times it was a great center of trade in teak and blackwood for ship building.\textsuperscript{603} Rawlinson identifies this port with Bankot.\textsuperscript{604}

7. **Dharanikota:** It finds place in Selarbadi inscription and once in a Kanheri Buddha cave inscription.\textsuperscript{605} Karle inscription records it for seventeen times and this definitely shows it was an important trading centre during the period of our study, situated on the delta of river Krishna.\textsuperscript{606} This place has yielded the Roman wares during the excavations. Some scholars question the identification of this city either in the western coast or somewhere in the interior, east of Karle. Burgess suggests that it was somewhere in or near western coast.\textsuperscript{607}

8. **Paithan:** According to Imperial Gazetteer,\textsuperscript{608} Paithan was one of the oldest towns in the Deccan. Recent archaeological discoveries have enabled us in confirming us the accounts of classical literature.\textsuperscript{609} It was most excellent and celebrated town mart in Deccan and also one of its oldest cities.\textsuperscript{610} According to *Periplus* (51) Paithan was an important centre of the textile industry. Ptolemy (VII, 1.6) mentions it as the capital of Pulamayi-II, the Andhra King (A.D. 138-170). Schoff has disputed this fact and is of the view that it was probably the capital of western provinces, the seat of Andhra monarchs, having been in the eastern part of the kingdom at modern Dharanikota on Krishna River.\textsuperscript{611}

Fleet\textsuperscript{612} draws our attention on an early trade route from the coast, starting from Masulipatnam, passing through Paithan and Ter to Chanore in Nasik and then crossing the Western Ghats to reach Barygaza on the western coast. Hence we may expect that the Paithan carried on smoothly through the parts of both the east and west coasts of India overseas trade with the countries of East and West. The figure of ship found in the coins of *Yajna Sri Satakarni* testifies to the fact that the king's power extended over the sea and carried on sea trade with the distant countries.\textsuperscript{613}
9. **Tagora**: - The modern name of Tagora is Ter which is identified by Fleet. It is situated on the western bank of the Terna River in Osmanabad district of Maharashtra. Tagara is one of the inland commercial enter ports from which streams of trade flowed to Barygaza in the 1st Century A.D. when Periplus records: “The goods were brought down to Barygaza.... from Tagara, much common sloth, all kinds of muslins and the mallow cloth and the other merchandise brought there locally from the regions along the sea-coast”. Cotton industry was the most thriving industry of this period and; Tagara and Pratishhana were the great centres of this trade. Excavations at Ter have yielded many objects of Roman origin which speak of its commercial contacts with the west. It had certainly some links with the Hellenistic world, a theory supported by the position of Ter in relation to the system of trade routes in ancient India. The flourishing state of Ter was due to its position on a major trade route traversing the peninsula. The goods like common cloth, all kinds of muslins, mallow cloth and other merchandise were exported from the port of Tagora.

10. **Melizigara**: - It was a small port and less important than others. At first it was a port of some size but subsequently it was dwindled into a mere fishing village. Muller and Me. Crindle have identified it with modern Jaigarh. It was the only port on Ratnagiri coast where the Arabians directly traded. Pliny knows it as Sigerus whereas Periplus (53) calls it Melizigara. Vincent Smith identifies this port to the port Jayagadha.

11. **Colchi (Modern Korkiai)**: - It was the earliest seat of Dravidian power according to Periplus. The Periplus (58) mentions a boat that “a harbour at Comari”, and it was important for pilgrimage and pear fisheries. Presently it is in the district of Tuticorin. Korkai is one of the few places of India found in the “Peutingar Tables” in the name of “Coleis Indorum”. It was perhaps the chief gateway to South India for Ceylonese colonists Dr. Caldwell who carried out stray excavations in
1877 and he found the factory of manufacturing of shell ornaments such as bangles, rings, beads etc.\textsuperscript{620}

12. **Cape Camorin**: - It is an important place of Indian trade with Mediterranean region. The Periplus (58) refers to this place in the narratives. Comari which is still the Tamil pronunciation designates the cape of the southern most extremity of India. Schoff, however, points the name in the Tamil form of Sanskrit Komari, a virgin which is applied to the goddess Durga or Parvati.\textsuperscript{621} In Southern India it was the most important pilgrimage place.\textsuperscript{622} According to Periplus this place was not only celebrated to its sacredness but also as an emporium, importing all the commodities for commercial purposes. It also absorbed near all varieties of goods brought from Egypt.\textsuperscript{623}

13. **Kaveripattanam**: - In the Chola empire, it was the most famous port of south India. It is known as Pumpahar in Tamil Sangam literature. Recent excavations at Kaveripattanam had proved beyond doubt that it had the colonies of Roman merchants and warriors.\textsuperscript{624} The Indo-Roman trade had undoubtedly influenced the economic, social and cultural life of the people of that region. The "Silapaddikaram" or "the day of the Anklet"\textsuperscript{625} bears the testimony of foreign contacts of the region. This epic points out that Pumpahar had the warehouse near the harbour and the Yavana abode also. It provides the valuable information about the foreign trade, crafts, occupations and city life of Tamil people. The early Tamil literature provides very similar reference to the brisk and very flourishing commercial activities of south India with foreign countries.\textsuperscript{626} The harbour it is claimed was generally safe for bigger ships. They could enter the harbour without removing cargo or slackening sail and yet be quite stable, steady and safe.\textsuperscript{627}

14. **Poduca (Pondicherry)**: - Poduca or Podouke mentioned in the Periplus and Ptolemy respectively may be identified with modern Pondicherry. It was an important trading centre of Indo-Roman trade on the East coast of south India. The geographical position of Arikamedu (Pondicherry) is consistent with the general
indication for Podouke by the Periplus and Ptolemy. Pondicherry is a European corruption of Pandu Checheri, meaning new town.

15. Arikamedu: -Before and after the death of Augustus, the merchants living in Arikamedu had regular contact with Roman world. The famous muslin cloth was the most important product of this place. Available evidence at Arikamedu indicates anything but a diminution of trade there after the middle of first century of the Christian era. According to Prof. N. K. Sastri, the objects found at Arikamedu have a striking resemblance with the objects discovered at Oceo, a maritime city of Siam, connected by canal to a port once on the littoral of the east coast of the gulf of the Siam. The trading station at Arikamedu flourished between 23 B.C. and 200 A.D. and Oceo commanded a large towards the end of the period.

Recent archaeological excavations at this site have yielded notable materials of Roman origin. These include amphorae, rouletted ware, pottery, Roman lamps and coins and many other things. The universal abundance of Mediterranean amphorae at this site clearly indicates a flourishing trade between India and western world at that time. Wheeler adds, “Among other industries of the town was that of bead-making, gold, semi-precious stones and glass were used and two gems, curved with intaglio designs by Graeco-Roman gem cutters, suggest the presence of Western craftsmen in the region”. Numerous sherds of Italian pottery of the 1st C.B.C. and of the 1st C.A.D. amphorae, Roman glass lamp, and Mediterranean wine prove that Arikamedu was a Graeco-Roman colony. The largest number of amphorae sherds has been reported from Arikamedu. Wheeler reported 116 sherds from the excavations and though the twice number of that have been founded in the renewed excavations in 1990-91.

16. Masalia (Masulipatnam): - It was a great port of Andhra Pradesh region. According to Mc. Crindle, the Sanskrit name of Masulipatnam was Masula, which survives in Machulipatana. Tavernier (I, IX) describes it as the best anchorage in the Bay of Bengal and the only place from which the vessels sailed for foreign
countries. At that time Bengal was famous for the cotton products like fine-hand printed fabrics, coarse printed goods. Therefore, Tavernier has opined that the supply (of cotton cloth) was never equal to the demand.

17. **Tamluk (Tamralipti):** - Tamralipti was the most notable centre on the East coast because it was one important point from where the trade was carried off with mainly south-Asia. Through this port, the Chinese silk products were also exported to western world. It was also a great seat of learning. During first and second centuries A.D. Tamralipti seems to have shared with other ports on the Indian coast trade contacts with Roman world, as witnessed by sprinkler and the profuse occurrence of the Rouletted ware, both believed to be originally coming from Rome. From Bamanghati, in Singhbum district of Bihar, Roman gold coins of Constantine and Gordion have been discovered. It indicates that the region of Bamanghati must have been situated on the trade routes connecting the port of Tamralipti. A road from Tamralipti to Barhut would pass through Bamanghati Berampur etc. all said to be ancient places to note.

These were some important trade centres in ancient India through which India was carrying its business with the western and Mediterranean countries. The Mediterranean of these places were collecting different goods from the near by regions and exporting these goods to the foreign countries to earn profits. Again the industries which were flourished mainly in the urban areas, producing goods to cater the needs of local people as well as for export purposes also. These places about which the foreign as well as indigenous literary sources give a detailed description in addition to archaeological excavations. But there are some towns which have come to the view of historians mainly due to its archaeological excavations, would be discussed with its findings. This would enable us to form an idea of the intensity of the Indo-Roman trade and its impact on Indian culture. Earlier, scholars like E. H. Warmington, M. P. Charlesworth have laboured hard to unravel the various facets of India’s trade with western countries on the basis of
literary sources. They could not utilise the archaeological materials as little progress was achieved in this sphere by that time. Recent archaeological excavations have widened the sphere of knowledge.

18. **Baroda:** - It is located on the ancient highway connecting Gujarat, Malawa and Rajasthan. It was one of the wealthy centres of commerce during second century A.D. Various interesting things have been excavated from this place. The discovery of Roman bronze handle with the figure of Eros is remarkable. Some of the Red polished ware signals that India had a good trade relation with Mediterranean region. The burnt brick houses and the use of Graeco-Roman wares indicate the prosperous city life of the people.

19. **Akota:** - It is located on the bank of the river Viswamitri and four furlongs from the South Baroda. According to Desai, probably it was ancient Ankottaka proper. Many objects of Roman antiquities have been found during the excavations. Though some of the goods were not of Rome, at least the Roman technique of art and architecture is clearly visible on these goods. Fragments of wine containers or amphorae, Arrentine pottery, dishes and bowls have been found form these places. It may be supposed that due to the great demand of Italian wine they were importing the wine in large extent and after the use they were throwing away the wine bottles. It is curious to observe that the fragments of pottery shred don’t bear any distinct potters mark like Arikamedu pottery shreds. Therefore it may be conjectured that the indigenous potters followed the technique of Rome.

One remarkable find deserves our attention in this regard. The find of the handle and several pieces of trefoil mouth of a jug needs our attention, as it is a unique find. Pots with trefoil mouth are common in Greek and Roman ceramics, and bronze. The most notable point in this context is the presence of relief on the handle. It represents a nude boy sitting on a bench, almost like a ploughshare and holding with both hands a rod emerging from the rectangular hole of the bench. Desai has interpreted the relief as Eros (a favourite subject of Hellenistic Roman
art) posing as an oarsman on a Roman trireme or the war galley with three sets of rowers. So it may be concluded that Akota was an unimportant centre in the early centuries of Christian era and it had been definitely in touch with Rome.

20. **Broach:** - It is situated on the western coast of Gujarat and was the first port of anchor. Unfortunately full scale excavation has not been carried out at the site which makes it impossible to assess the importance in the real sense. The minor excavations done so far have revealed the fragments of Red polished ware in association with bead industries.

21. **Bhokardan:** - It was located on the trade route form Ujjaini to Paithan. It gained its importance due to its economic and artistic activities. The excavations have revealed the fragments of red polished ware, Amphorae and Megraon ware. It has also yielded rotary querns of the type recovered at Nevasa and assigned there to Indo-Roman period. The recovery of amphorae shreds is a definite indication of the demand of the Italian wine and olive oil, which was highly demanded by the Indian people. Amongst the other things, the Graeco-Roman coins, a beautiful ivory statue of a female and a bead industry also which established the Indo-Roman contacts in the first century of Christian era. Fifty two sherds of Roman Polished ware have also been discovered at Bhokradan and one noteworthy feature of this ware is the occurrence of a decorated small pot which is an initiation of the Magarian ware.

22. **Brahmapuri:** - It is situated near modern town Kolhapur on the banks of river Panchajanya. It had certainly experienced the taste of foreign trade with western world which is clearly evident from the archaeological excavations. Several sherds, two complete vessels, imported pottery, shapes of certain glass beads and a number of foreign antiquities having Roman influence have been found at Kolhapur which shows a distinct trend of cultural migration. Several clay copies of Roman coins have been excavated in addition to metal vessels like Arikamedu and Nasik. It was remarkable to note that the fragments of handles of amphorae have also been detected from the Brahmapuri site by Sankalia when he revisited this place after
reviewing the report of Rawlinson.\textsuperscript{644} The discoveries of a unique bronze Graeco-Roman statuette of Poseidon,\textsuperscript{645} trephoil shaped bronze vessel and possibly the chariot, the spouted bronze jug and their imitations in five clay red vessels and shapes of certain glass beads bear evidence of cultural migrations.

23.\textbf{Dharanikota:} - It is found in right bank of river Krishna. The excavation of this city has yielded Roman glass bangles of varying shapes, fragments of Arrentine ware, rouletted ware, amphorae etc.\textsuperscript{646} This site is the second of its kind located on the eastern coast of India, the other being Arikamedu where structural relics of the types of wharfs (loading or unloading of vessels) and warehouses were also identified.

24.\textbf{Dwaraka:} - it is surrounded by the Gomati creek on the south and by the sea on the west. It shows its natural surroundings with the region in which it is situated, Okhamandala in Gujarat. This place is associated with Krishna mythology. The prominence of Dwaraka in ancient times is due to the commercial contacts with the outside world like Red Polished wave, amphorae and typical italic ware have been excavated.\textsuperscript{647} The shreds of Red polished ware of Dwaraka are made from very well levigated clay fired to a high temperature and oxidized completely.\textsuperscript{648} It is believed that this ware was imported from this Roman world but no direct evidence is available as their shapes are obscure in Italy or Rome’s African or Asian colonies. Dwaraka’s amphorae is thick, gritty and compact in appearance and has a coarse surface. The shreds also contain resin mixture and it may well be supposed that all Indian amphorae were wine amphorae.

25.\textbf{Maheswar and Navadatoli:} - Mahesawar is located on the Northern bank of river Narmada and Navadatoli is on its southern bank. The Red Polished ware excavated from this area bears a close resemblance to the Roman Samian ware and other red wares of Eastern Mediterranean area.\textsuperscript{649} It is expected that the Roman ware instead of being imported, it was copied by the Indian craftsmen for the commercial purpose. A large number of beads of semi-precious stones have also
been found. Possible Roman influence or contact is further supported by the discovery of the trowel like object with a long handle form Maheswar. The earliest recorded trowel comes from the Roman levels at Troy.

26. Nevasa: - It is situated on the river Pravar, a major tributary of the Godavari. Nevasa though far in the interior, imported the Mediterranean wine in amphorae. A copper or bronze dish with an amphalos and a rotary quern confirm its affinities with extra Indian types from the Western Europe. The most important feature of Nevasa was the gradual disappearance of the local ware and the emergence of the important Mediterranean wares which supporting, in turn, the theory of its link with imperial Rome. Approximately three hundred shreds of Red Polished ware and a few Magrarian sherds have also been found along with the scores of pieces of glass slags and incomplete bangle pieces. Two specimens of the finest, polished and transparent blue Roman glass confirm the Western contact of Nevasa with Roman region in the opening century. Six pots of copper are a brilliant recovery from this place. One of them with amphalos base has a parallel at Taxila. Marshal is of the view, "The origin can be traced to the Phiale Mesophalos, of the Greek and Roman" Patera Clipeate. These things clearly indicate the presence of Indo-Roman trade in the first centuries of Christian era.

27. Nasik and Jorwe: - Nasik is located on both the banks of the river Godavari. Panini, Patanjali and Katyana refer about it. Inscriptional evidences not only throw lights on its antiquity but also depict its political, administrative, religious and economic conditions between 200 B.C. to 300 A.D. According to the excavations, period-III (A.D. 50-200) at Nasik was the most flourishing and prosperous phase and it witnessed the brick commercial activities with Roman world for sherds of Samian ware, bowls of Red polished ware and sprinklers have been found.

28. Prabhas Patna: - It is geographically situated in the Junagarh district and occupied a minor place in the history of economic activities of India with the Mediterranean world during the opening centuries of Christian era. Excavations
have revealed the sequence of cultural and habitations covering different periods. During the period of 100 B.C- 600 A.D. this place saw an aura of Roman trade since several sherds, of course fragmentary, have been discovered which are definitions of Italian origin. One fragment of typical Roman amphorae is available to us along with some sherds of Red Polished ware to prove that it had a commercial link with the Roman Empire.

29. **Uraiyyur**: It is found in Tiruchirapalli district and was actively connected with the economic intercourse of India with Imperial Rome. Due to its geographical position it played an important role in this trade. Certain sherds of foreign ware along with native ware were excavated from this site. Rouletted and Arrentine wares have been unearthed from here. It is remarkable to note that some sherds of pot have been discovered containing Tamil inscriptions in the Brahmi script which is safely assigned to the first- second century A.D. During the early centuries of Christian era, the Tamil merchants seem to have acted as middlemen for Sri Lankan articles exported to the West and hence they faced the competition from indigenous (Sri Lanka) I lam Merchants.

30. **Yeleswaram**: It is situated on the bank of the river Krishna of Nalganda district. It was perhaps a flourishing town at the time of Iksavakus. The place has yielded sherds of Red Polished sprinklers recovered from this site were made of well levigated clay and were probably a Samian ware or its imitation. Red polished ware of Roman texture and fabric directly imported from the Mediterranean region is also available to us for analysis. “One Roman jar painted with black band at the junction or neck with a tapering body has also been discovered.”

31. **Kolhapur**: In Kolhapur two large metal pots of Satavahan period have been found. In addition to these, smaller bronze vessels, statuettes lamps, mirror stands were also available there. Most of the smaller objects were of Indian origin although some way show the influence of Graeco-Roman art. However, at least
ten of them were of Roman imports. Among the best-known Kolhapur bronze statuette, the statue of Poseidon is famous. The bronze vessels of Kohlapur have been assigned to a range of dates in Julio Claduian and Flavian periods (27 BC-98 AD). It is believed that most of the Kolhapur bronze products were prepared by companions of bronze workers. The Mediterranean bronzes have been found at Begram, Taxila, Ai Khoneum are most likely the evidence of overland trade rather than products of sea commerce.

The above-mentioned excavations establish the fact that there was a flourishing trade between India and Rome in the early centuries of Christian era. The potteries, which were excavated at different places, point out that there were two types of potteries. One type of pottery which was directly imported from Rome with wine and olive oil; and the other one was prepared by the Indian craftsmen in imitation of the former. Wherever the Roman merchants settled or travelled in course of trade, they probably threw away the used pottery which has been discovered in course of the excavations. The find spots of Roman pot sherds from different Indian sites clearly indicate the intensity of the Roman trade and the large area covered by Roman merchants in course of their travels in India.

In the last half of Third Century, there was an increase of discovery artefacts in India. Some were of Roman origin, or of Mediterranean origin or some Indian imitations of these products. Excavations at sites of Arikamedu, Alagankulam, Kadumanal, Karur, Ter, Bhokardan, to name a few, not only register such artifacts but also bring into purviews both local circuits of exchange as well as the possible relationship of existing population to new traders. Recent excavations at Arikamedu suggested that the Yavana presence dated to first century B.C. although megalithic occupation of these sites goes further back in time. Alaganakulam is located opposite to Sri Lankan Mantota on the island, some graffiti from this site being read as Sinhala, Prakrit.
Here we may also refer to the other parts and market centres of the Mediterranean region which played a very vital active note in India’s commercial relations with Roman world.

Adulius was an important distributing centre for semi-manufactured goods between India in one hand and Syria, Egypt on the other hand. It corresponds to the modern Zula near Massawa. As an emporium it is mentioned in Periplus possible due to its shallow harbours it gained importance. It is remarkable that Indian iron as well as muslin, cotton and other textiles, fabrics and gum were imported to this port although indirectly from Arabia.670

Alexandria was the chief port of Egypt for Indian commerce and trade. Before the emergence of Constantinople, the city of Alexandria was the main port of Roman Empire. It is remarkable to note that the ships from Alexandria went directly to West for articles of Egyptian grains in exchange.671 Mainly the goods from India flooded the markets of Alexandria because the Indian goods were carried by the Indian traders to Alexandria and after that the goods were mainly carried by the Arabians. Phoenicians, Roman traders to the different parts of Rome and West Asia.672 It was directly linked with the Roman post of Ostia.

Leukekome was an important centre in the Egyptian region and occupied a significant place in the Western trade of India and Egypt. It was the southern most emporium and port of the Nabotaeans whose caravans travelled constantly from this place to Petra.673 It is situated on the route from Aden to Mediterranean. The Periplus (19) refers to it as a white village, from which there is a road to Petra, which is a subject of Malichas, the king of Nabotaeans.

It was probably founded on the site of earlier Milesian colony of Ampelone. Leuke Koime started to function in 1st CBC. But it is difficult to know whether it was under the occupations of Romans or Nabateans.674
Ophir is the most well known potential Indian name of place which is found in Bible. The Bible identifies Ophir particularly with the export of gold. (II Chronicles ix: 10) Although there is nothing in Bible to prove that Ophir was in India but a widely held view among the archaeologists that it was in South-Arabia. In short, no one can sure about this unless and until no further excavation evidence found on this.

Muza, the Mokha emporium is mentioned by the Geography of Ptolemy and the Periplus, it was a seaport and it was identified with modern Mocha. Muza was inhabited by Arabs acquainted with navigation and full of merchants who used to carry trade not only in the Indian wares that come from the port of Barygaza but also the products in their own country. Muza imported purple cloth, saffron, muslins, cloak, spices, perfumes etc. while myrrh, while stones and alabaster were the chief articles of exports.

Arabia Felix or Periplus’s (26) Eudaemon Arabia is the modern Aden, which played a vital role in the Indo-Roman commerce. The town was called Felix because when voyages were not made from India to Egypt to the interior of India, all proceeded only as far as this town, which received the merchandise both of the Indians and Egyptians in the same way as Alexandria received foreign goods, which came from Egypt. It was an important centre of trade where merchandise of East was trans-shipped for the Mediterranean markets during the opening centuries of Christian era. During the rule of Homeric kings, this place lost its significance but it again regained its position by the 4th Century A.D. the direct intercourse between the Romans and the Indians offered the former the opportunity for monopolising the trade of Aden and asserting their supremacy.

Another important trading centre was Cana where Egypt was actively involved in her Eastern and western trade and commerce. Cana had a fine harbour, which was protected from all winds by projecting capes on either side and by island in the offing. Cana had brisk commercial relations with India, especially with
Barygaza. It has been taken as the chief emporium of international trade between India and Egypt where ships from both these countries met and traded. Cana was well fortified and it was a favourable locality for oceanic navigation and extensive commerce with India. To Cana, the frankincense was conveyed as a general mart in order to be shipped to the more distant emporium of Oman and Persian ports. Corn and wine came to Cana from Egypt. Indigenous products like aloe, frankincense and other articles of trade were exported.

Arsinoe-Clysme-Qolzoum was also an important port of Ptolemaic foundation. Lucian writing in about 170 A.D., indicated the ease with which a traveler could board a ship at Clysme bound for India. The archaeological evidence confirms the fact and points out that the port was active till the 4th CAD. According to Periplus grain, textile and viticulture were largely imported by South Arabia and India. It is likely that Roman military post at Babylone passing by canals between Clysma and Nile. Probably it was the most southerly Egyptian Red Sea port which served as both exporting and importing ports for mainly – less bulky, more luxurious commodities which could more easily absorb trans desert transportation costs.

Mirbat was in inland emporium of Zafar. It probably exported frankincense, myrrh and hides in the time of Ptolemy. Syagros was also commercially important because it had a port, which was depository of all frankincense collected in these regions. Between this place and Cape Guardafue, there was an island to the south, which was very large, and this island formed the centre of trade between Egypt, Arabia and India. Schoff has identified it with Ras Fartak.

Another important depot of the articles of commerce was Moscha. The articles were carried by ships which were arriving from Limyrica (Canara) and Barygaza (Broach). The Periplus (32) has also referred to it after describing Syagrus to it as harbour where ships used to come regularly from Cana and returned to Damirica and Barygaza. But Schoff points out that Moscha was another port.
Wherever, the port Moscha may be but it was a great commercial harbour, there is no doubt at all.

Berenice was also a very prominent place in the commerce of Roman Empire with Eastern countries, particularly India-Berenice had a fine natural harbour and there were dangerous rocks and violent winds from the sea, as described by Strabo. It was the southern most of the Egyptian Red Sea ports, which was probably the largest and most important at least in 1st CBC and 1st CAD. Ptolemy II founded the port in early 3rd CBC and named it after his mother. Strabo and Pliny the elder suggest the peak activity of the trade was from 1st CBC to 1st CAD. Probably the port continued to be inhabited till 7th CAD if not used as a commercial emporium, well into Byzantine period. Another important place, Nubia, was located on the river Nile. It is identified with Begerawiyeh. It received the gold from Sudan along with other things while from the Red Sea across Tigre, Myrrh, frankincense and other things came to this place.

The Petra of Periplus (19) was known a great trading centre of northern Arab in the history of Roman commerce with East. Due to its geographical position it controlled the Eastern trade from both directions. It had supremacy over land route and the route to Palmyra and the sea trade, which was diverted, to Alexandria. The importance of Petra declined in 105 AD. When Trojan established his sway over the region, Palmyra gained advantage of being supreme in the overland trade when it was revived towards the end of second century and obviously Petra had neither a place nor an effective role in the overland trade route, which she once reigned.

Ommana was an important town of Persia. Pliny (VI, 32) and Periplus (36) point out that it occupied a place of importance in the context of India’s trade with western nations. It received the products of the East and reshipped them and then sent them to the Mediterranean world through land routes. Myos Hormos was another important port. From 1st CBC to 1st CAD it was the peak period of activity of the port of Myos Hormos. Numerous scholars since 19th century have equated
Myos Hormos with Abu Shaar. Though it is considered as a commercial centre, no commercial port site has been discovered. These facts—the late date and lack of a commercial port—threw some doubt on the association of this port site at Abu Shaar with the ancient port Myos Hormos.\footnote{692}

After discussing the important marketing centres of Egypt and the Persian Gulf, which played a dominant role in the history of India’s commercial relations with the West. We shall now turn our attention to the remarkable ports and trading centres of Imperial Rome that facilitated the smooth flow of trade between India and Rome. Some of the recent archaeological excavations in Italy and Rome shed sufficient light on Indo-Roman trade. These finds also help in corroborating the evidence preserved in the classical accounts.

Pompeiopolis was a noted Cilician coastal city. The coinage of Pompeiopolis suggests that the city in the second and third century A.D. tallied with the tradition recorded in the early empire by Strabo. This harbour continued to occupy a significant place in the history of commerce of Rome.\footnote{693} Available evidence makes it clear that Hadrian had a hand in the construction of harbour installations of Pompeiopolis, though its completion and inauguration was probably done under his successor. Ostia was another port of importance from navigation point of view. By the time of Augustus the flow of traffic reached at massive proportions. There were links between the storage of foodstuffs and other goods are well represented in the archaeological records at Ostia. Commercially Ostia was very active and it formed an important feature of the town life of the port city.

Pompeii was another important town of the Roman Empire. It was located in Campania in the Bay or Naples. It was a small town at the mouth of the river Sarno. It was totally destroyed by the eruption of 79 A.D. It was from this place a minor work of Indian art has been discovered in course of recent archaeological excavations.
Portus was a great harbour and a brilliant gift of Claudius. It was constructed in the middle of first century A.D. In 42 A.D., the emperor Claudius embarked on the ambitious project of building Portus harbour. It was a mammoth man made port and it was only two miles up the coast from Ostia. Recent archaeological excavations have unearthed wonderful remains at the site. A canal was dug to connect it directly with Tiber and Rome had finally the harbour facilities she deserved. The remarkable by product of this newly constructed harbour was to denote the status of Puteoli from a great enter port to a provincial port, for all sea going vessels could now safely put in at Rome's new harbour. There are many evidence of presence of India traders at different parts of world. The discovery of Tamil – Brahmi graffiti on typical Indian megalithic Black-Red ware pot sherds of first century A.D. excavated in the manufacturing sector Quseir-al-Qadam on the Red Sea. One word has an incomplete inscription reading... atan which could have been the name of Catan well attributed in Tamil Brahmi cave inscription and in Cankam literature. A reading of graffiti on an Arikamedu sherd is also said to refer to a catan. An Ostracon from Quseir carries what has been read as Prakrit inscription mentioning 3 persons with seemingly Prakrit names – Halaka, Vishudatta and Nakada – suggesting home base in the Deccan. The language and script are also influenced in some extent by South-Indian language. It is also interesting that this almost incidental epigraphic evidence again underlines the links between Deccan, South-India and Red Sea.

Another port Leukus Limen was important to the merchants of this period. It was closest to the Nile. Archaeological evidence both ceramic and numismatic seems to indicate that Leukus Limen was founded sometime in 1st CAD. Several excavated areas of Quseir-al-Qadim attested the importance of its trade with India and South Arabia. Excavations of this site produced sherds with Himamgaritic and Sabaean(South Arabian) graffiti, the former mentioning a personal name. An unearthed wooden ring indicates that the harbour had been dredged or cleared at 1
east once in Roman times. The site revived in the medieval Islamic period. At that
time it enjoyed contacts with Africa, India and China.

In southern Arabia, three important centers as Timana, Khor Rori and
Shabwa bear some Indian products and corroborates the fact that there was a
flourishing trade between India and West Asia. Timna was known for incense trade
and its inhabitants had access to Mediterranean lands. Khor Rori in Dhofar was
ancient port site dated between 1st CBC to 7th CAD. A bronze statue he has been
founded at the site bearing close resemblance to female statues from Mathura,
dating 2nd CAD.

The excavations at Berenike have produced many things. On the paleo-
botanical evidences it has been identified that there were 65 cultivated plant
species. Thanks to the arid conditions, botanical remains tend to be preserved by
desiccation. Among the finds the most important things are: rice, coconut, amla,
mung bean, teak etc. The five excavations at Berenike have clearly shown that
investigating such a location contributes greatly to our knowledge of the commerce
between Rome and India. The port of Berenike is situated on the southern most
part of Rome. Although this port had been founded by the Greeks, its use increased
as soon as the Romans gained insight into the Monsoon system during the first
century A.D. and got the access to the already flourishing trading networks in South
Asia. In addition to these trading works in the Indian Ocean, important land
routes such as Silk Road and the Incense Road connected Arabia and South Asia
with Roman Empire. The Red Sea ports were surprisingly squalid places. Buildings
of the most part poorly constructed of sun dried bricks, field stones and chunks of
coral. Some of these port buildings at Leukos Limen lacked roofings. It seems
that the merchants built in expensive structures to keep their overhead costs down
and to increase their profits. The streets intersect at right angles indicating that the
site was well planned from the beginning and not laid out in a helter-skelter
fashion. It indicates about the participation of both govt and private parties to
develop the coastal harbours. The Red Sea ports were density populated only when merchants' ships left and returned from their voyages at specific times of the year. These ports primarily existed due to international trade.

From the above discussions it is obvious that the different international commercial routes and trading centres helped immensely the cause of commerce both in India and Imperial Rome. The Roman control over Egypt and Iraq facilitated her in organising her commercial network on a mass scale. Due to this enlarged volume of the trade, it was but natural that several trading marts and towns in India as well as in the Mediterranean region developed.

Business Organisations

The corporate organisations, which were common in the ancient India, were the guilds. There are many references about this organisation in Ramayana, Mahabharata, Jatakas, Kautilya's Arthasastra and others. These guilds spread throughout India in the ancient times and mainly controlled the inland as well as foreign trade. Therefore without going detail into it, the description about the trade and commerce of that time will be incomplete. In the earlier chapter, the origin, spread and the mechanism of guild organisations are discussed. Hence, in this chapter the further growth of the organisations and a comparison with Roman counterpart will be drawn.

After the disintegration of Mauryan Empire, large number of tribal republics and small kingdoms raised their monstrous heads in the political arena. Therefore this period is marked by political wrangling, petty warfare in the political scene. But it is marked by the intense activity of trade and commerce while the guilds tried to strengthen their stranglehold on the economic and trade affairs taking the advantage of political laxity. Literary and epigraphic evidence of this period refers to a number of guilds, their number being very much greater than eighteen met with in the early Buddhist texts. But Mahavastu mentions about two dozens of guilds.
About sixty crafts (of which eight are connected with the workings of metal) are included among over seventy occupations referred to in Milinda Panho.\textsuperscript{715}

There are many evidences in support of prevalence of guilds in the period of 200 B.C. to 300 A.D. The epigraphic evidence of Sanchi, Barhut, Bodhgaya, Mathura and the sites in Deccan refer to a number of donations given by the guilds of potters, masons, weavers, gem cutters, jewellers, painters, goldsmiths, ironsmiths, brass-smiths, bronze-smiths, carpenters, sculptors, terracotta makers, glass makers, ivory makers, perfumers, leather workers, bankers-cum-merchants, caravan merchants.\textsuperscript{716} This donation indicates the prosperity of guilds. The recording of donations on permanent materials also served as an advertisement to highlight their economic status and munificence. Though the above mentioned members are not mentioned as the guilds but it can be safely presumed that they were the members of guilds because at that time these occupations were organised into guilds. There are other references of different guilds in this period. The guilds of flour makers, weavers,\textsuperscript{717} oil makers, potters, manufacturers of hydraulic machines, corn dealers, bamboo workers, bankers etc. also find mention in epigraphs of this period.\textsuperscript{718}

This was the period when large number of foreigners entered into India. The Greeks, Sakas, Hunas, Parthians and Kushanas penetrated Into Indian and it developed the continuing commercial relations of India with foreign lands especially with Roman people.\textsuperscript{719} The discovery of South-West monsson ascribed to Hippalus in 46 A.D., gave impetus to mid sea voyage, reducing to time of journey, minimizing the danger of piracy and obviating the need of middlemen in Indo-Roman trade.\textsuperscript{720} The Indo-Roman trade reached at its peak during this period. The demand of luxury goods in an exorbitant rate gave an impetus to the growth of guilds. Because the large scale production of goods for export purposes were mainly done by the guilds whose quality was also praiseworthy.
The references about the guilds are also found in different texts like Manusmriti and Yajnavalkya Smriti etc. As Rick points out that Manu's views on loans and interests, on export through sea-borne trade and the duties on sea borne goods show that the fiscal system related to this matter had reached a higher stage of development than met with in Jataka tales. From Manusmriti and Yajnavalkya Smriti it is clearly evident that in the early centuries of Christian era the guilds had developed considerably and their authority in the internal matters was upheld by the state. References in these two Smritis show that the guild organisations had a much more developed form in the Yajnavalkya Smriti than the Manusmriti. For the first time Yajnavalkya Smriti states that besides being the judicial authority for its members, a guild also functioned as one of the ordinary courts of law. He also mentions about the executive officers of the guild. Their (the executive officers') qualifications, powers and rules regarding vocational apprenticeship are also clearly mentioned in Yajnavalkya Smriti. It further mentions that the rules of the guilds should be followed like the rules of the state. This means that sometimes there was no difference between the state laws and guild laws. It indicates the powerful position of the guild. Manu mentions of agreements as one of the titles of the law. Many epigraphic evidences of this time mention about the munificent grants given by the guilds to temples or other institutions. A Nasik inscription of the time of Nahapana makes a note of two different rates of interests which two guilds, referred to in the epigraphs, were to pay an the endowments made with them and also to their registration in the nigama sabha (traders' assembly).

In the post Mauryan period the elements of state control were loosened and guilds enjoyed considerable freedom in their own spheres; yet when they were at fault royal intervention became necessary. The lawgivers justify this. The view of M. V. K. Rao is doubted here because he points out that some groups like guilds themselves desired that the authority of the state should be exercised over the whole social and economic life of the people. Yajnavalkya mentions that it was the duty of
the king to restrain the guild members in case dissensions erupted among the members of the guild. According to Brihaspati, the king is the highest authority to pass the judgements. Again he gives very good information that if a guild cheated the king of his share of profit earned in the trade, it was to pay eight times as much and was punished if it moved to another location without the permission of the authority.\textsuperscript{727} The king had the authority to enforce the maintenance of laws, contracts and agreements between the individual members and guilds. It is mentioned by Beniprasad that it was the duty of the guilds “to codify the usages and enunciate it on any occasion”\textsuperscript{728} On petty grounds also the king had the authority to punish the guilds. The Nayadharmakha provides an interesting fact\textsuperscript{729} that the king of Mithila Kumbhanga banished the guild of goldsmiths only on account of the fact that they could not repair his earrings.

\textit{Manu}\textsuperscript{730} says that a member of corporation who after entering duly an agreement if he breaks it in avarice, he was to be banished by the king from his realm. He might be fined or imprisoned also for his mistakes. \textit{Yajnavalkya}\textsuperscript{731} prescribes the forfeiture of the property and banishment as punishment for misappropriation of property of a corporation. Brihaspati enjoins that the member of a guild who falls out with his association or neglects his duty should be fined. There are the various restricts on the functions of guilds. Though they were given certain freedom, these regulations were necessary to control their authority. Every guild had its own rules and regulations on its customary rules. About the distribution of profits, \textit{Manu} gives an indirect clue that the total income should be distributed among the workers in joint production.\textsuperscript{732} In this connection, \textit{Yajnavalkya} lays down some clear injunctions that when a group of traders carrying on business jointly for the purpose of making profit, the profit and loss of each shall be, either in properties to the share of the capital contributed by each, or as may have been agreed upon among themselves.\textsuperscript{733} He further states that if any one of them is found to be crooked, they should turn him out, depriving him of any profits that he may
have earned. In case a member was honestly unable to do his allotted duty, his work was allowed to be done by his substitute. These rules laid down by Yajnavalkya were equally applicable to priests, cultivators and artisans.

Guild funds were derived from various sources. The individual members are allowed to contribute by way of subscription towards the common guild stocks. Before being a member to guild, every person had to deposit certain amount of money for his or her guarantees. The fairly large amount of money was in flowing to the guilds by way of gifts bestowed by the kings on members, executive officers and elder men. This was regarded as the property of the guild. Again the second most important source was the profit earned by the execution orders. Even a member of guild who earned the money by his public works was regarded as the property of the guild. The guild has the authority to fine the members, who violated the laws of the guild. It also contributed a handsome amount of money to the guilds. Amongst most important source of guild fund were profits earned by their functions as banks. In doing banking business, the guilds received permanent deposits guaranteeing the regular payment of interests, which was to be utilized for the charitable objects that the donors specified. Such endowments were often made by kings, officials, traders, artisans and other classes of people.

Among the expenditure, the guilds spent a quite good sum on purchase of raw materials, which they would turn into finished products and sell it at profit. Considerable expenditure would have been incurred in travelling in connection with business, transport of merchandise, wages of labour and payment of different duties. A sizeable expenditure must also have been incurred by the guilds, particularly the prosperous ones, on the care and protection of treasury and merchandise and ensuring safety of the members of the guilds against robbers and irregular troops and even the exactions of unscrupulous kings. The expenditure on this head usually became heavy when they maintained armed guards to protect the caravans and traders against the attack of robbers, violent tribal people etc. According to
Brihaspati, a portion of the profits of the guilds was earmarked for the developmental works, charity and piety and it is found clearly in different epigraphic references.

The most important contribution of guild to the development of economic activities was the banking facilities. In the post-Mauryan phase, the minting of large amount of money facilitated the trade and commerce and money economy occupied a predominant position. Due to the changed circumstances, the essence of banks was clearly felt and guilds took the advantage of the situations. The guilds now gained such reputation for their efficiency as well as integrity in providing dependable credits and banking facilities that not only to private individuals but even high government officials began to deposit money. A Mathura inscription of the time of Huvishka (106 A.D.) refers to the charitable acts of high officials of foreign origin and a predominant endowment of 550 puranas (Silver coins) with a flour makers’ guild and another guild with a view of serving one hundred Brahmanas every month and distributing daily a fixed quantity of edibles to the poor out of the interest on deposits. Just like this, the Nasik inscription, Junar inscription and Godhwa inscriptions also clearly exhibits the bank like functions of guilds. Major part of these money deposits must have gone towards expanding and upgrading their respective trades and crafts. At times, the guilds lent out part of the endowed sum to other parties obviously a rate of interest higher than the stipulated in the original endowment and earned same profit.

The guilds successfully performed their task showing internal coherence, resourcefulness, fair and honest dealing and faithful discharge of their responsibilities and obligations. The public reposed faith in them because of their high credit prestige. Therefore the royal officials and kings instead of depositing money in royal treasury, thought it prudent to deposit money on the guilds. Probably it had again increased the faith of public on the guilds.
The change of membership of the guilds did not affect the terms of contract. Usually it is said that the terms of contracts of guild lasted “till the sun and moon an earth endure” and bound the guilds for generations to come. The migration of the guilds under the economic pressure or political compulsions as pointed out by Mookherjee did not affect .... their distinctive corporate personality or individuality, their internal cohesion or .... the credit, their legal relations and liabilities.\textsuperscript{743} The guilds paid much more importance to the confidence of the people than any other things. Even after the migrations the people did not lose the confidence in them.

As per the agreements, in respect of endowments, the guilds not only provides articles they manufactured or traded in, such as supplying of cloth by the weaver's guild and oil by oilmen’s guild but they also undertook other tasks of beneficence unrelated to their profession, for example, the weaver’s guild providing light meals to the monks or oil-men’s guild providing medicine to them.\textsuperscript{744} Sometimes the guilds were taking the help of other people, to complete their contract, the tasks which were beyond their capacity. Curiously enough there is also evidence to show that sometimes the guilds were giving the contract to another party if they were overburdened with the work. For example, in the Vasudevahindi, it is stated that the king Agrasena of Mathura entrusted the guild of goldsmith with the work of fashioning a golden anklet, which the guild assigned to another party.\textsuperscript{745}

In ancient India, the guilds had a very limited scope in comparison with modern banks. It is not clear whether people were depositing money in the bank only for safety purpose or for the purpose or for the purpose to earn money, which is common in the modern banking system. Usually, from epigraphic sources, it is known that the principal (nivi) deposited with guild were everlasting and the interests were spent on religious activities. About the rate of interest our knowledge is very limited. Still then it was highly praiseworthy because thousand years back a
system, which was evolved for smooth transactions of money and is quite similar to our modern banking system.

The multifarious activities of the guilds were quite helpful for the traders to facilitate the trade and commerce in a very smooth and steady manner. It not only provided the social security to the artisans but also checked the fraudulent practices by controlling the quality. It was an obvious reason for which the high quality goods of India were much liked in the foreign lands. Now the Indian guilds may be compared with Roman guilds of more or less the same period and it will show what an extent such a comparison holds good.

Roman guilds have been assigned to periods from the days of First Republic Circa 509 B.C., but their variety and formation became the features of Roman economic life in 2nd Century A.D. in India, however, the origin of the guilds can be traced from the period of Rig Veda, prior to 800 B.C. and considerable light can be thrown on this from 4th Century B.C. On the basis of Kautilya’s Arthasastra. From that time until 7th Century A.D., the guilds became an integral part of the Indian system and continued to be so for a thousand years hence. The chief reason for this early development must have been the earlier commercial connections of India with the other trading centres like Babylonia, Assyria, Egypt, and Persia etc.

In India, the guilds were primarily organized on the basis of caste system while the Roman guilds organized the guilds on the line of citizenship, religious and political considerations and on the basis of trade and profession. Again guilds in India could hardly have been established for only social purposes for they were bodies intended mainly if not entirely, for commercial undertakings. They appear to have had little to do with social objectives for Indian society unlike the Roman. Again the profit orientation was the sole concern of Roman guilds while the Indian counterparts were devoid of this. The prices were fixed by the guild, which was careful about the interests of consumers.
About the strength of members of guild a faint comparison can be drawn. The Roman carpenter’s guilds in 3rd Century A.D. were reputed to have had 60 officers with about 1500 members. About the strength of Indian guilds, we have no conclusive evidence but it can be assumed that the Indian guilds had never so many members in comparison with Roman counterparts. The guilds of Rome were also undertaking various organizational and other activities owing to their affluent circumstances, raised memorial structures and temples with their funds. The baker’s guild raised a huge marble monument through the agency of its high officers in 144 A.D. in honour of Antonius Pius. The guild of perfumers, during Augustus, built and dedicated a temple to Jupiter. They could also make advances from their own finances. Suetonius tells us that, during Augustus, when his palace at Palatine was burnt down, the guilds of minor officers, the city tribes and the people of every description contributed to their mite. These types of munificent contributions were given by the Indian guilds, which are clearly evident from the donations of Lata’s Silk weavers’ guild, and the inscriptions of Sanchi, Barhut, and Budhgaya clearly give the evidence of their generous contributions.

There were a large number of guilds, which had mushroomed in the whole western lands. Sometimes there were some famous guilds that had established their guilds throughout the country. But in Indian context, there was no lack of guilds, which were prevalent invariably in all major cities of ancient India. In the matter of functions and working patterns, there were not much more differences between these organisations in India and Rome. These organisations were working to channelize the resources, labours and were providing smooth progress to trade and commercial activities.

Cultural Contacts

Geographically India and Roman Empire were far away from each other in ancient times but a close commercial and diplomatic ties were established which resulted in significant changes. The exchange of embassies further strengthened
the relations between the two sub-continents. In 25 B.C., Augustus Caesar received
an Indian embassy, which gave the foundation to the indo-Roman relations. A
three-man delegation arrived at Antioch with slaves and tropical animals and an
ascetic from Broach who ritually burned himself alive.\footnote{In another instance,
Augustus received the embassies in 21B.C. 17 B.C. and 14 B.C. and they brought
with them the gems, pearls, elephants and tigers.\footnote{It is providing an indication that
there was a marked increase in trade and commerce between India and Rome.
According to an ancient map, there was a temple of Augustus on the Indian coast
near Calicut.}}

A custom collector of the Emperor, in 45 A.C., was driven off and he came
to Ceylon. He learned the native language in 6 months and was then able to inform
the king about Rome and Caesar. The Sinhalese ruler was duly impressed,
especially by the stall weight of denarrii. In exchange the Roman Emperor also sent
three people, one of them met Pliny and he was interrogated.\footnote{Pliny writes that the
reliable knowledge of the annual use of South East monsoon and the voyage of
Egyptians to Muziris and Nelycinda in two days.\footnote{About the knowledge of
monsoons Indians were well aware before Hippalus’ knowledge of monsoon,
which gave an advantage to the Arabian and Roman sailors.}}

There are enough evidences about the Indo-Roman trade which clearly
indicates that Indo-Roman trade was in a flourished condition at that time. One
vestige of this trade is an ivory statuette of an Indian goddess (a Lakshmi)\footnote{(see
figure-6) at her toilet, it was discovered in 1938 in Pompeii and must date before the
destruction of the city in 79 A.D.\footnote{Again cotton was found in the north cemetery of
Meroe in Sudan and there are features in iconography of Sudan in the 1\textsuperscript{st} B.C. Such
as gods with triple heads and two pairs of arms and gods with elephant trunks which
are typical only of India.\footnote{On Novembers 30 1959, it was announced that a
Graecian urn of copper having dolphins and three bronze handles and dating from
269}}
The 3rd and 2nd century B.C. was accidentally dug up at Charasda in the North-Western Frontier.

There is a whole group of Yavanas mentioned in the cave inscriptions of Western India. Apart from the Yavana, Irila who has a foreign name, the others are all native Buddhists who have made architectural donations in the construction of monasteries and Chaityas of Junnar, Karle and Nasik. The only sense in which these Yavanas can be regarded as Greeks is that they may have been Greek citizens or Indian traders with Greek affiliations. In additions, to the gifts at Nasik mentioned above, other Yavanas donated the following gifts: five gave pillars, one a hall front, and another refractory for the monastic community.

According to Fergusson, the Chaityas of India bear a remarkable resemblance to the early Christian church. Behind both of them lies a common tradition - the private basilicas of Roman Emperors. The plans of Caitya halls at Bhaja and Karle bear similarity with the private basilicas of the Palatine, of Porto, of Kremna and of Aspedos. In each case the structure is longitudinally disposed, with triple aisles and terminates in a semi-circular apse. It is expected that in the construction of these Caityas, the Yavanas might have been employed. It is already noticed a Chola King employed Yavana architect. There is also legend, for what it is worth, of St. Thomas voyaging India to offer services as a carpenter or architect to King Gondphornes (reigned 19-45 A.D.). St. Thomas claims ability to fashion in stone, "pillars, temples and courthouses, for kings".

Now a days the scholars point out that the Gandhara art not only derived purely from Greek but also from Roman art. These include the pilasters each with a panel upon it and quasi-Corinthian capitals. In the Greek architecture the fluted columns are absent and they could be traced to the Roman modillions. In Roman Palmyra for example we find such pilasters with panels and fluted less columns. Another feature of the classical origin used decoratively at Taxila was the gable. It is used over the false doorways in the shrine of the double headed eagle at Sikap
and in the Jaulian Stupa.\textsuperscript{768} The broken pediment is found in the plinth of the Dharmajika stupa.\textsuperscript{769} Lastly the alternation of semi-circular and three sides framing arches on the plinth of the North-Western stupas seems to be derived from the Roman or Byzantine alternation of semi-circular arches and pediments.\textsuperscript{770} In another context the presence of Roman influence can be traced; the motifs of Buddhism sometimes borrow fabulous animals from the classical sources purely decorative purposes and without attempting to explain them through a mythology of their own construction. The very absence of explanations of tritons, centaurs, hippocamps and sphinxes which are to be found in the art but not in the literature and it provide the conclusive proofs of their foreign origin.\textsuperscript{771}

We know from some inscriptions that the indo-Greeks both patronized the art in India and were the owners of artistic objects. And the epigraphic evidence point out that Indians owned the western type objects. The Phialo-mesomphalos (round silver dish with a raised central boss) from Taxila has the name of the owner, Mimjukritasa,\textsuperscript{772} as against another silver boul from the same site which is inscribed with the name of Thedorus son of Thavara.\textsuperscript{773} This verifies the statement of the Periplus noted earlier, that among the western imports at Barbaricum were silver plates and the glass vessels. The sea green translucent flasks from Taxila are typically Roman blown glass\textsuperscript{774} and the glass ware excavated at Begram in Afghanistan (assigned to 3\textsuperscript{rd} quarter of 1\textsuperscript{st} century A.D.) was primarily believed to have been made in Roman Syria.\textsuperscript{775} Even some furniture and utensils at Taxila were of western type, including an iron folding chair with crossed legs and an iron candelabra and for the bronze ladles and spoons and a gadrooned flat copper saucer, Roman prototypes have been cited.\textsuperscript{776} Another imported object was the copper incense burner from Sirkap whose handle is in the shape of a horned and a winged lion. These types of objects were originated in Iran. It is found at Palmyra and Hatra.\textsuperscript{777} There are indications that the imported objects of Taxila. arrived by sea not overland first, an oval seal engraved with cupid and cock,\textsuperscript{778} of which a similar
intaglio was found at Arikamedu.\textsuperscript{779} And in another example a flat bowl of bronze with a ram's head handle terminal from Taxila of which an example has now been found in a cave near the Red Sea.\textsuperscript{780} These objects establish the trade contacts as well as cultural contacts between India and western Asia.

The impact of Iran people is also found in different spheres of the ancient Indian life. It has been suggested that Pushyamitra may have been an Iranian, a worshipper of the Sun Mithra.\textsuperscript{781} The fact that according to Kalidasa, he revived the asvamedha or horse sacrifice in India\textsuperscript{782} would at first seem to suggest that he sought his inspirations in the Vedas where the horse sacrifice is attested (Rig Veda, p. 162) and if this is true then his ruling deity would be the Vedic Mitra instead of Avestic Mitra. The Persian influence is also expected when they dominated the North-West India. In the coins of North West India, the Parthian names and portraits were found. Gandphomes seems to have copied a unique silver coin of Mithridates II (88 B.C.), having a one side the seated king holding an eagle and crowned by a city and he also uses an epithet found only on Parthian coins.\textsuperscript{783} The Parthian interlude in India must have been of short duration. When Kushanas occupied this region, they also adopted some Greek and Iranian gods on the coins. The Iranian angels Sraosha and Rashnu of Avesta can be recognized in the doorkeepers of Mihira- Rajna and Srausha who were worshipped by the Magas in India, according to Bhavishya Purana.\textsuperscript{784}

It is observed that the worship of Sun was introduced in India by the Persians.\textsuperscript{785} The earliest Sun temple in India may be that of Jandial in Taxila\textsuperscript{786} and it is certainly related to a Persian Fire Temple in plan, including its pradakshina patha or the passage which forms an ambulatory around the cella, a feature which we find already at the Ayadana (place of adoration) at Susa of Artoxerxes II (405-385 B.C.).\textsuperscript{787} The ambulatory at Taxila may have been of Persian inspiration but circumambulation itself is a widespread Aryan practice.\textsuperscript{788} But the possibility of Jandial temple being intended for a fire cult is strengthened by a deep foundation
for a tower with the steps at the back of the sanctuary on the summit of which a fire must have burned judging from the Iranian analogies. There is no doubt that Taxila was more or less influenced by the Persians. According to Strabo (XV, 714), Aristobulus saw that the corpses in Taxila were exposed to vultures. These types of practices are not allowed in India. Therefore, it might be the impact of Persians who did these things and Wei Shu reported it.\textsuperscript{789}

The interactions between India, Persian and Iranians continued during the Sassanian period also. During the reign of Ardashir (226-241 B.C.), the indo-Muslim writer Feristha claimed that Adarshir reached as far as Sarhiad in his march on India.\textsuperscript{790} At any rate, as, we have seen it was Adarshir's reign that Mani made his voyage to India for preaching his religion. It is suggested that Mani had borrowed his belief in metempsychosis from Buddhism.\textsuperscript{791} Again a relief carved on the cliff of Shahapur represents the triumph of a king (possibly Shapur-I) over an Indian people. Some of the Hindu books on grammar and horoscope were regarded as holy books in Shapur's court. The Sassanian state manual, the lost Ayinnameh, which survives in Arabic references might in same manner have drawn on Arthasastra for certain features of military tactics advocated although an opposite borrowing has been suggested.\textsuperscript{792} The coins issued by Hormazd-I (272-273 A.D.) and Peroz (294-301 A.D.) present the figure of Buddha.\textsuperscript{793} These evidences point out the intercourse between India and western world.

Though India and Roman Empire were far removed from each other geographically, close commercial and diplomatic ties were established which resulted in significant exchanges.\textsuperscript{794} India sent an embassy to Augustus Caesar in 25 B.C. A three men delegation arrived at Antioch with slaves and tropical animals and an ascetic from Broach who ritually burned himself alive. Again Augustus received further embassies in 21, 17, and 14 century B.C.\textsuperscript{795} They ambassadors brought with them gems, pearls, elephants and tigers. Florus in 110 A.D. says that among the foreign ambassador received by Augustus were "Seres and Indian living right under
the sun, bringing elephants, as well as gems and pearls among their gifts" and having been four years on their journey. Dio cassius (XXVIII, 156) mentions about the embassies in the reign of Trojan (98-117 A.D.). He says that upon Trojan’s return to Rome in 106 A.D. the emperor received many embassies from barbarian courts and particularly from the Indians. Then the emperors like Hadrian (117-138 A.D.) and Antoninus Pius (138-161 A.D.) also received the embassies from the Indian Territory. The Indian embassies also reached in Syria in 218 A.D. to welcome the emperor Dandamis, who was the source of Bardesanes on the Indian gymnosophists. Among the ambassadors received by Aurelian (270-275 A.D.) at his triumph in 274 A.D. were Indians, not to mention Arabians, Persians, Bactrians and Chinese. This exchange of embassies is further indicative of a growing trade relationship between India and West-Asia.

Conclusion

India’s trade relations with West Asian region and Rome reached at its pinnacle of growth during the post-Mauryan period. The two sub continents of ancient world met each other not only on the commercial front but also on the cultural plane. When Rome was at its height of glory, India (both North and South) already enjoyed peace and prosperity under different dynasties. Peaceful conditions, surplus wealth and the commodities made the situations favourable to an effective foreign trade and both countries utilized the opportunity to the fullest extent with their capacity and resources. Kushanas established peace and stability in India in north and Satavahans in Andhra region became the potent factor for the prosperous trade. From the other side, the prosperity of Romans increased the demand of luxurious goods to suffice their inordinate ambitions to maintain a comfortable life. They tried to carry ahead this with feverish haste and great display. The Indian goods were the focal point of their attraction because of its quality and the availability. The products like pearls; drugs, spice, condiments, incense, ghee, jewels, perfumes, cosmetics, dyes and others were directly imported from India.
Sometimes the Indian merchants were also carrying the goods of Sri Lanka and China to the western countries.

Various foreign accounts like Pliny's Natural History, the Periplus of Erythrean Sea, Strabo's Geography, Arrian's Indika and Indika of Ctesias throw much more light of this trade and provide a good knowledge about the geographical condition of India. But one of the greatest lacunae of these accounts are they primarily depended on the secondary sources to construct the history of India. Some recent excavations have cleared the clouds of suspicion and widened the sphere of knowledge. Again the validity of archaeological facts is beyond the question mark. About the cultural contacts between these lands may be constructed more on the findings of excavations than the literary sources. So, the archaeological sources have taken a commendable task to present the picture of Indo-Roman trade.

The Indo-Roman trade was favourable to India; it was commented by most of the ancient authors. The long list of exports exceeds the list of import in quantity and this clearly indicates that India had occupied a prominent position in this trade. The vast geographical boundary of India was producing various types of goods to cater the needs of indigenous as well foreign people. Excepting some luxury items like wine, liquid storax, lead, glass, copper etc. the Indians were not demanding more goods and this placed India in a favourable position. The comments of Pliny about the drain of wealth to India again strengthen the statement. But many historians on different grounds doubt on Pliny's statements. The mention of Pliny about 550 million sesterces which was drained by India; is representing the whole East Asia instead of India only. It has been rightly observed that, if the sums represented the whole value of imports the value of trade had been very small. But in order to evaluate the money value of Roman imports it is essential to know the total annual quantities of Roman exports, which must have partly paid for them. Again the price of Roman currency should be determined before making any comments on the statements of Pliny. If we accept the statements of Pliny as

275
correct, then there are various reasons to justify the statements. First of all the Romans demand for Indian goods were much higher than the availability and this was the reason, which raised the prices. Secondly, the whole profits of this trade was not coming to the hands of Indians because the agents like Arabians, Parthians, Jews, indo-Greeks had played their own role to raise the prices. Thirdly, the distance through the land and sea routes which was invariably so lengthy, arduous and expensive, must have contribute in no small measure in enhancing the total cost of goods which came through such routes. Finally there appears to have been hardly any effective price control mechanism in Roman Empire to check the inflation of prices of goods and the greedy traders had taken the undue advantage of the prevailing situation to garner more profits.

The transportation system in post-Mauryan period was not so well developed. During the Mauryan period the Grand Trunk Roads were constructed which specially helped the traders to carry their goods easily. But in the post-Mauryan period the construction of the roads were not maintained properly. It created the problems not only for the traders but also for the Silk Route which was famous for its trade that became the focal point of attention of traders who were carrying the goods by land routes. Lacks of scientific progress in the transportation system and the continuance of the age-old systems of chariots and carts drawn by the animals was the greatest misery of trades. Again the land routes were not safe because the wild beasts in the jungle and wild tribes, robbers constantly troubling the traders. In order to protect their goods form these attacks the guild was providing the armed men to the traders and sometimes the traders were also organising the armed men on their own. Equally dangerous was the sea route where the pirates were constantly looting the traders at the slightest opportunity. It was the duty of the kings to take the interests of the traders into account and; to maintain the law and order, but their apathetic attitude towards this caused a great hardship to the traders. The Indian ships were not were built enough like the Roman and Arab
counterparts face the storms in the sea. In order to face the turbulence of South West monsoon, the ships of Roman Egypt had supremely strong hulls which were fitted with a rig meant primarily for safety and not for speed. Moreover, such ships were big and sturdy enough to use against southwest monsoon over open water. The use of big ships for indo-Roman trade had tremendous economic implications. Since Indian goods that attracted the Romans were not bulky and cheap commodities, rather compact and costly merchandise, a cargo of such goods would have represented huge investments. Possibly the use of small ships by the Indians became the main cause which did not permit the traders to carry their goods for a long distance. Therefore large share of profits were going to the pockets of Arabs, Romans and other traders who were acting as middlemen in this trade. But the knowledge of monsoons by the Indian people much before the discovery of Hippalus provided an advantage to the Indian traders. The deplorable conditions of transportation system had a very adverse effect on the trade and commerce.

The growth of trading centres at the different parts of India as well as along the routes connecting India and West Asia is clearly indicative of growth of trade and commerce. Literary evidence and the inscriptions show that the construction and restoration of harbours was a part of broad policy of Imperial Rome. In contrary, the Indian kings did not formulate any strong measures for the upliftment of trade centres and mart towns. But the long coastline of India had naturally provided the good harbours and trader enter ports through which the trade of India was mainly carried out. Along the land routes the trade centres also grew up to facilitate the commercial activities. The goods from distant villages were coming to these trade centres and from these places the traders were collecting the goods. The descriptions provided about the trade centres in different classical accounts portray a good picture of flourished condition of trade and commerce.

Among the business organizations in ancient India, the guilds were playing a predominant role. It was supplying the qualitative goods to the international markets
and it was probably one cause of highly appreciation of Indian goods in international markets. The technical know how was imparted by this organizations to the people and produced a large quantity of goods, mainly for export purpose. The most important function of the guild was the bank like functions. Though it was not a modern bank, it was keeping the money of the people by paying the interests. It was investing money in different commercial activities. Sometimes it was providing finances to the trading organizations. These multifaceted functions of guilds provided a leeway to the progress of commerce and trade. Besides this, the guilds were also involved social activities.

A trade and commercial activities should not be viewed only from the angle of export and import of goods. The cultural intermingling and transportation also provides enough indications of smooth trade. The impacts of Greeks, Romans, Arabs and Iranians on different walks of Indian life, ranging from art, architecture, language, coins etc. were enough to prove that there was a thriving trade among these countries. Again the excavations of some mounds of coins in different places of India points out the fact that the trade was in favour of India though some scholars challenge this theory on different grounds. It again unravels the fact that the Indian religious system was much more influenced by the western counterpart.

In the third century there was a falling off in the trade and for a time India, though much written about it in the West, faded away into a land of fancy and fable. The collapse of Roman Empire and the rise of Parthians gave a jolt to the Indo-Roman trade. Again the direct link of Chinese people with Western people through the Silk routes kept the Indian traders in abeyance. Taking the prevailing situation into account the Indian traders diverted their attention towards South-East Asia, which provided much greener pastures. India's trade with West Asian countries passed into the oblivion for a short time and again it revived in 11th century A.D. with the upcoming of Sindh merchants.
NOTES

3 Singhal, D.P., *India and World Civilization*, p. 79.
7 Ancient Indians, it appears originally used the term Yavana for the Ionia-Greeks, but later for all foreigners from the West. Somewhat in a similar manner, modern Indians use the term Angrez, the English for all westerners.
9 Dion Chrysostom, *Orationes XXXII*, p. 373. In another oration he mentions that the Indian Brahmins excel in self-control, righteousness and love of God.
10 Singhal, D.P., op.cit., p. 81.
12 Ibid.
13 Ibid, p. 83.
17 Bunbury, E.H., *A History of Ancient Geography among the Greeks and Romans from the Earliest Ages to the fall of Roman Empire*, pp. 42-49.
18 Warmington, E.H., *The Commerce Between the Roman Empire and India*, p. 2.
20 Ibid.
26 Chakroverty, H.P., op.cit., p. 238.
27 History of Plants, IV, iv, p. 6.
29 Pliny, XII, 8, p. 9.
30 Ibid.
33 Saletore, R.N., op.cit., p. 187.
34 Ibid.
35 Pliny, *Natural History*, III, BK-III, Ch. 9, p. 109.
36 Ibid.
39 *Periplus*, 36, p. 36.
40 Saletore, R.N., op.cit., p. 186.
41 Ibid.
42 Chakroverty, H.P., op.cit., p. 239.
43 *Theophrastus*, V, 47.
45 *Periplus*, p. 36.
46 Imperial Gazetteer, VI, p. 383.
47 Chakroverty, H.P., p. 240.
49 Periplus, p. 36.
50 Imperial Gazetteer, XIV, p. 322.
51 Raichoudhury, H.C., Political History of Ancient India, p. 483.
52 Saletore, R.N., op.cit., p. 189.
53 Saletore, R.N., op.cit., p. 189.
57 Periplus, (36), p. 36.
58 Chakrabarty, H.P., op.cit., p. 240.
60 Sino-Iranica, p. 552.
61 Watt, G., Commercial Products of India, p. 978.
63 Arthasastra, BK-II, Ch. XI, p. 79.
64 Saletore, R.N., op.cit., p. 190.
65 Ibid.
68 Ibid.
69 Lauffer, Sino-Iranica, p. 535.
70 Pliny, Natural History, XVI, ixv.
71 Ibid.
74 Chakrabarty, H.P., op.cit., p. 234.
75 Brihat Samhita, VIII, p. 30.
77 Ibid.
78 Beal, op.cit., p. 200.
79 Strabo, XV. 1, p. 20.
80 Chakrobarty, H.P., op.cit., p. 235.
81 Milinda, IV. 37.
82 Srivastav, Balram, Trade and Commerce in Ancient India, p. 262.
84 Jataka, II (doddaru), no. 172, p. 66.
85 Ibid, I, Puppaharatta, no. 147, p. 313.
86 Periplus, (8), p. 25.
87 Watt, C., op.cit., p. 146.
89 Ibid.
90 Chakrabarty, H.P., op.cit., p. 231.
93 Saletore, R.N., Life in Gupta Age, p. 416.
94 Ibid.
95 Pliny, Natural History, III, BK XXXV, Ch. 25, p. 241.
96 Ibid.
97 Ibid, p. 145.
98 Saletore, R.N., op.cit., p. 195.
99 Ibid.
100 Warmington, E.H., The Commerce between the Roman Empire and India, p. 362.
101 Chopra, R.N. & Others, A Glossary of Indian Plants, p. 141.

280
105 Ibid.
109 Chakrobarty, H.P., op.cit., p. 216.
110 Saleatore, R.N., op.cit., p. 197.
111 Pliny, *Natural History*, II, Book-IX, Ch. 64(40), p. 448-49.
113 Saleatore, R.N, op.cit., p. 199.
114 Ibid.
115 Saleatore, R.N., op.cit., p. 204.
116 Ibid.
119 Ibid.
120 McCrindle, *Ancient India as Described in Classical Literature*, p. 78.
122 Saleatore, R.N., op.cit., p. 205.
123 Ibid.
124 McCrindle, *Ancient India as described in Classical Literature*, p. 75.
126 Ibid.
127 Pliny, *Natural History*, II, Ch. (8), p. 255.
131 Ibid.
133 Saleatore, R.N., op.cit., p. 212.
134 Warmington, E.H., *The Commerce between the Roman Empire and India*, p. 156.
135 Ibid.
137 Warmington, E.H., *The Commerce between Roman Empire and India*, p. 166.
138 Ibid.
141 Saleatore, R.N., op.cit., p. 262.
142 McCrindle, *Ancient India as described in Classical Literature*, p. 79.
143 Saleatore, R.N., op.cit., p. 263.
144 Ibid.
148 Romanis, F. De and A. Tchamia, op.cit, pp. 26-27.
149 Chakrabory, Haripada, op.cit., p.129.
150 Pran Nath, *Early Indian Economics*, p.148
152 Ibid

Thapar, Romila, *Cultural Passes*, p. 567.

Pliny, op. cit., 12. 14.28. Four denarii per pound for black pepper and seven and fifteen respectively for white and long pepper.

Ibid.


Ibid.


Ibid.

Pliny, *Natural History*, XI, BK-XII, ch. (41), 18, p. 137.


Pliny, *Natural History*, III, fn. 54, p. 113.


Ibid.


Saletore, R.N., *op.cit.*, p. 221.


Pliny, *Natural History*, XI, BK-XII, ch. (41), 18, p. 137.

Ibid.


Pliny, *Natural History*, III, BK-XIII.


202 Ibid.
203 Periplus (14), p. 27.
204 Saletore, R.N., op.cit., p. 242.
206 Warmington, E.H., *The Commerce between Roman Empire and India*, p. 258.
208 Saletore, R.N., op.cit., p. 247. Mortim
210 Ibid.
212 Warmington, E.H., op.cit., p. 268.
213 Ibid.
214 Saletore, R.N., op.cit., p. 248.
215 Ibid.
216 Haripada, Chakraborty, op.cit., p. 123.
221 Warmington, E.H., op.cit., p. 248.
222 Saletore, R.N., op.cit., p. 251.
223 Ibid.
224 Ibid.
225 Chandra, Moti, *Trade and Trade Routes in Ancient India*, p. 111.
226 Ibid.
229 Watt, G., *The commercial products of India*, p. 556.
231 Saletore, R.N., op.cit., p. 254.
232 Ibid.
234 Ibid.
238 Schoff, W.H., op.cit., p. 171.
239 Chakraborty, Haripada, op.cit., p. 251.
240 Ibid.
241 Beal, I, p. 11.
244 Warmington, E.H., op.cit., p. 240.
245 Singh, Ajay Kumar; *Indo Roman Trade*, p. 145.
246 Saletore, R.N., op.cit., p. 257.
247 Champaklakshmi, R., op.cit., p. 184.
248 Ibid.
249 Warmington, E.H., op.cit., p. 245.
250 Ibid.
251 Chakraborty, Haripada, op.cit., p. 245.
252 Ibid.
253 Ibid.
254 Ibid.
256 Singh, Ajay. op.cit., p. 145.
257 Saletore, R.N., op.cit., p. 259.
258 Warmington, E.H., op. cit., p. 263.
263 Ibid, p. 262.
265 Chakraborty, Haripada, op.cit., p. 256.
266 Ibid.
267 Saletore, R.N., op.cit., p. 264.
268 Champaklakshmi, R., op.cit., p. 184.
269 Ibid.
270 Ibid.
274 Begley, Vimala, op.cit., p. 114.
275 Ibid.
280 Saletore, R.N., op.cit., p. 266.
281 Ibid, p. 266.
282 Chandra, Moti, *Trade and Trade Routes in Ancient India*, p. 126.
283 Ibid.
284 Champaklakshmi, R., *Trade, ideology and urbanization*, p. 182.
285 Silapadikaram, 6, 88, Quoted from Champaklakshmi, op.cit, p. 183.
287 Chakraborty, Haripada, op.cit., p. 222.
288 Chandra ,Moti, *Trade and Trade Routes in Ancient India*, p. 125.
289 Chakraborty, Haripada, op.cit., p. 222.
292 Boulnois, L., *The Silk Road*.
294 Ibid.
295 Salles, Francois Jean., *Athen, Aden, Arikamedu*, pp. 130-151.
298 Chakraborty, Haripada, op.cit., pp. 266-70.
303 Warmington. E.H., op.cit., p. 266.
304 Pliny, *Natural History*, XII, p. 32.
306 Ibid, p.66.
307 Saletore, R.N. op. cit., pp.112-114.
308 Chakraborty. Haripada, op.cit., p.267
309 Pliny, *Natural History*, XII, p.32.

284
311 Warmington, E.H., op. cit., p.266.
312 Saletore, R.N., op. cit., p. 113.
314 Ibid
316 Pliny, Natural History, IV, Bk-XVIII, p.265.
317 Saletore, R.N., op. cit., p.125.
318 Chopra, R.N., Nayar, S.L. and Chopra, I.C., A Glossary of Indian plants, p.75.
319 Saletore, B.A., India's Diplomatic Relations with the West, p.220.
320 Saletore, R.N., op. cit, p.125.
321 Ibid
322 Chopra, R.N., op. cit., p.75
323 Saletore, R.N., op. cit, p. 128.
324 Saletore, R.N., op. cit, p. 129.
325 Periplus (Schoff) (13), p.27
326 Strabo, Geography - I, Bk-II, Ch (13), p. 111
327 Saletore, R.N., op. cit, p.117.
328 Pliny, Natural History, III, Bk-XII, Ch (5), p. 168.
329 Me. Crindle, The Invasion of Indian by Alexander the great as described by Arrian, p. 342-47.
331 Saletore, R.N., op.cit., p.145.
332 Champaklakshmi, op.cit, p.188.
333 Ibid.
335 Champaklakshmi, R., op.cit, p. 189.
336 Chakrabarty, Haripada, op.cit., p. 265.
337 Strabo, XIV, I. p.15
338 Ibid
340 Ibid
343 Pliny, Natural History, XIV, p.102.
345 Herodotus, Persian Wars, I, BK-II, Ch. (6), p. 68.
346 Ibid.
347 Saletore, R.N. Op.cit, p.148,
348 Ibid.
350 Pliny, Natural History, VI, BK-XXXIV, Ch (2) p. 149.
355 Encyclopaedia of Britannica, Vol., XIV, p.314
356 Pliny, Natural History, XXXIV, p.17.
357 Periplus, (36). p.49
359 Saletore, R.N., op.cit, p.151.
360 Chakrabarty, Haripada, op.cit, p.272
361 Marshall, J., Taxila- II, p.620
363 Chakrabarty, Haripada, Trade and commerce in Ancient India, p.272
364 Ibid.
366 Ibid.
368 Ibid.
369 Periplus (10) p.26
371 Ibid.
373 Pliny, *Natural History*, XXXVI, p.65
378 Singh, Ajay Kumar, *op. it*, pp.154-159
379 *Periplus* (49)p.42, also see (56) p.45 of Schooff, J.
381 Ibid.
383 *Periplus*, (39) p.47.
384 Pliny, *Natural History*, VI, BK-XXXII Ch(22) p.118.
385 *Ball, Economic Geography*, p.162
388 Pliny, *Natural History*, XXXIII, p. 34.
390 Ibid.
393 Schooff, J., *Periplus*, p. 156.
394 Ibid.
395 Pliny, *Natural History*, VI, BK- IX, p. 56.
396 Pliny, *Natural History* XXXII, p. 11.
398 Ibid.
399 *Periplus*, (39), p. 33.
403 Ibid
408 Salotore, R. N., *op. cit.*, p. 175.
409 Ibid.
412 Ibid.
414 *Pattanippallai*, l. p. 185.
It is interesting to note that Bactria received gold from Siberia. Some specimen of jewellery found in Siberia and South Russia, are believed to have been made by the Greco-Iranian artists. Hence it may be assumed that it was made in Bactria and was transferred to Siberia or Russia along the routes of Caspian sea.

Some specimen of jewellery found in Siberia and South Russia, are believed to have been made by the Greece-Iranian artists. Hence it may be assumed that it was made in Bactria and was transferred to Siberia or Russia along the routes of Caspian sea.

It is interesting to note that Bactria received gold from Siberia. Some specimen of jewellery found in Siberia and South Russia, are believed to have been made by the Greco-Iranian artists. Hence it may be assumed that it was made in Bactria and was transferred to Siberia or Russia along the routes of Caspian sea.

Begley, Vimala, op.cit, p. 23.


Begley, Vimala, op.cit, p. 23.


Ray, H.P., op.cit, p. 65.

Ibid.


Chakrabarty, Ranabir, *Trade in early India*, pp. 228-29.

Ibid.

Ibid., p. 242.


Singh, Ajay Kumar, op.cit, p.28.


Thapar, Romila, *Cultural Past*, p. 564.


Schoff, H., *The Periplus of the Erythraean Sea*, p.188.

Crende, M. C., *India Described in Classical Literature*, p. 111.

Charlesworth, M.P., *Trade Routes and Commerce of the Roman Empire*, p. 69.

Rawlinson, H.G., *The Commerce Between India and Western World*, p. 120.


Ibid.


Singh, Ajay Kumar, op.cit, p. 30.

Chakraborty, Haripada, op.cit, p.105.

*Periplus (42)*

Pliny, *Natural History*, VI, p.54.


Rawlinson, H.G., *The Commercial intercourse between Indian and the Western World*, p.119


*Imperial Gazetteer*, op.cit.

Ibid.

Rapson, *The coins of Andhra Dynasty*, p.22.

Chapekar, B.N., *Report on excavations at Ter*.

Schoff, W. H., op.cit, p.51.

*Indian History Congress*, 1951, Altekar,A.S., p.28.


Singh, Ajay Kumar, op.cit, p.33.

*Archaeological Survey of India Report*, 1936-37, p.64.


Ibid., p. 235

Singh, Ajay Kumar, op.cit, p. 35

From Mathura, Epigraphica Indica, XXI, p. 55.

Deshpande, M.N., *Ancient India, R.C. Majumdar, Classical Literature Ancient India*.

Thaplyal, Kiran Kumar, *Guilds in Ancient India*, p. 30.


Rick, R., *Social Organisation in North-East India in Buddha’s Time*.

Thaplyal, Kiran Kumar, *op.cit*, p. 31.

Ibid., p. 32

Jain, B., *Guild organizations in North India*, p. 50, Jain takes Nigama Sabha of the Nasik inscription as town hall but at another place (p. 51) he takes nigama as in the sense of guild of merchants.

Srivastav, Balaram, *Trade and Commerce in Ancient India*, pp. 215-221


Thaplyal, Kiran Kumar, *op.cit.*, p. 131.


Nayadhammakha, p. 105, as referred to in J.C. Jain, *Life in Ancient India as depicted in Jain Canons*, p. 90.

Manu, VIII, p. 219, quoted from Thaplyal K. K., *op.cit*, p. 131.


Manu, VIII, p. 210

Nigam, Shyamsundar, *The Economic Organizations of Ancient India*, p. 121.

Bandopadhyaya, N. C., *Economic Life and Progress in Ancient India*, p. 226

Thaplyal, K. K., *op.cit*, p. 70.


Ibid.

Brihaspati, XVI, 5-6.


Thaplyal, Kiran Kumar, *op.cit.*, p. 94.

Ibid.

Ibid.

Mookherjee, R. K., *Local Government in Ancient India*, p. 120.

Thaplyal, Kiran Kumar, *Guilds in Ancient India*, p. 95.

Jamkhedkar, A. P., *Vasudevahindi: A Cultural Study*, p. 142. The reason for such may be that the guilds were generally taking up many contracts for their popularity. But if they thought that it was impossible to complete within stipulated time, then they gave that contract to other guilds.

Saletore, R. N., *op.cit*, p. 593


Ibid.

Saletore, R. N., *Early Indian Economics*, p. 596


Ibid.


Thaplyal, Kiran Kumar, *op.cit.*, p. 94.


Ibid.

Singh, Ajay Kumar, *Indo-Roman Trade*, pp. 49-65


Ibid.

The Dawn, December 1, 1959, *The urn covered by a slate stone lid contained a complete corpse.*

Jairazbhoy, R.A., *Foreign influence in Ancient India*, p. 126


Fergusson, J., and J. Burgess, *Cave Temples of India*, 1880, *PIS IX and X.*

Lalit Kala, 1957, nos. 3-4, p. 23

293
767 Ibid.
768 Jairazbhoy, R. A., *Foreign Influences in Ancient India*, p. 130.
770 Ibid.
771 Ibid.
772 Ibid.
773 Ibid.
774 Ibid.
775 Jairazbhoy, R. A., *Foreign Influences in Ancient India*, p. 140.
776 Ahmad Nizamuddin, *The history and Archaeology of Taxila*, p. 234.
777 Jairazbhoy, op. cit, p. 140.
780 *Daily Telegraph*, July 22, 1960, p. 18, quoted from Jairazbhoy, op. cit, p. 140.
782 *Indian Antiquary*, 1932, p. 203.
790 Elliot and Dowson, *History of India as told by its own historians*, VI, p. 55.
792 Heichelheim, F. M., *in Economic History*, February 1938, pp. 5-6.
795 Ibid.
798 Jairazbhoy, R. A., *Foreign Influence in Ancient India*, p. 112.
799 Warmington, op. cit, p. 138.
800 Ibid.