Chapter two

STATEMENT OF THE PROBLEM AND METHODOLOGY
A historian must re-enact the past in his mind—man thinks historically, he has before him certain documents or relics of the past. His business is to discover what the past was which has left these relics behind. This means discovering the thought—expressed by (them). To discover what this thought was, the historian must think it again himself. 1

Introducing the Research Problem:

The primary concern of the present study is to throw new light on the ancient urban maritime aspect of Goa’s History that is neglected as more importance is given to the study of the maritime history during the colonial period. This study was undertaken to gather and interpret critically all the available information, oral, visual and written concerning maritime aspects in terms of religion, material, ideas, concepts, inscription, sculptures, proverbs, folklore, art, architecture, historical relics, monuments, etc., to lay more stress on the indigenous sources available for the study of ancient maritime ports of Goa.

Much research has been undertaken on large port cities, inland markets, temple towns and administrative centres like Broach, Sopara, Dwarka, Surat, Cochin and Bassein that are located along the western seaboard. However, the small ports, which played a very crucial role in linking far away countries through commerce, have been largely neglected.

Today, India’s maritime scene owes a great debt to these ports, some of which continued to serve as gateways to India’s maritime interest, and to those communities of merchants, traders, ship-owners, shipbuilders, port administrators, kings and princes who were the main pillars of the prosperity of these ports. 2
Study Area

The ports of Chandrapur, Gopakapattana situated on the banks of the Zuari river and Ella situated on the banks of the river Mandovi constitute the special focus of the present study during the period from 4th to 15th centuries. (ch.2, Map I) The geographical, historical and environmental advantage of the ports attracted the rulers of several dynasties right from the Bhojas to the rajas of Vijayanagara, Bahamani and Adilshah who made these ports the capital cities of their Goa kingdom and encouraged maritime trade and also settlement of foreign traders.

Research in this area is very much relevant and important in recent years to solve some of the problems that have been faced in the reconstruction and interpretation of the ancient history of Goa. The present research tries to integrate archaeology in the broad framework of history in order to fill gaps that exist at the present. Scholars have been using material traces of the past for narrating history since time immemorial. For example, Herodotus based his history on events and monuments and Thucydides has been described as the first archaeologist since he used objects in a critical way in his historiography.

The very fact that historians have broadened their interest from political events to social, economic and technological matter such as the study of demography, agriculture, craft production and trade (for example, the Annales historian, March Bloch, who studied agricultural tools in order to write the history of French farming) opened up new avenues for research to adopt new methods of writing history in the form of historical archaeology where socio-economic conditions were viewed not just as important questions, but also as suitable objects for archaeological study that would solve problems arising in history more scientifically rather than being descriptive.

Mention may be made of the pioneering studies in this regard by earlier researchers such as George Moraes whose monumental work, Kadamba Kula, deals with all the branches of the Kadamba dynasty. In this work, he gives an
outline of the pre-Kadamba history of Kuntala, early Kadambas of Banavasi, Hangal Kadambas, Goa Kadambas and other minor dynasties as well as their internal history. However, the chapter devoted to Goa Kadambas deals with the political aspects of the Kadambas right from their origin to the decline of the dynasty. Besides this, in the chapter devoted to internal history, the author speaks of the society and the culture of the Kadambas, but the references to Goa Kadambas are meagre and there are no special chapters devoted to maritime activities or the urban trade contacts of the Kadambas of Goa.

Other than this work, we have yet another interesting work of V. R. Mitragotri entitled *Socio-Cultural History of Goa from Bhojas to Vijayanagara*. The author gives importance to the socio-cultural dimension of the ancient history of Goa from the 4th to 5th century where he deals with different aspects such as communities, custom, traditions, education, local deities, sculpture and status of women. The author has dealt with the entire period in general and no extensive work has been done on each period in detail, neither has he dealt with any economic, commercial aspect. Therefore, I decided to fill the gap and work on the economic, social and cultural patterns of the Goa Kadambas in detail.

Besides this, there are other secondary publications such as *An Outline of the Pre-Portuguese History of Goa* by Gerald Pereira, *The Discovery of Goa* by Alfred Braganza, *Goa from Pre-Historic Times* by Antonio Mascarenhas, *An Historical and Archaeological Sketch of the City of Goa* by José Nicolau Fonseca, *The Kadambas of Uttara Kannada* by Sadanand G. Kadamb and *Govapuri* by Cosme José Costa who documents and interprets all the exhibits housed in the museum at Pilar belonging to the period from the early times to the present day.

Yet another monumental work is an article entitled, “Pre-Portuguese Remains in Portuguese India” by Rev. Henry Heras S.J., published in the *Journal of the Bombay Branch of Royal Asiatic Society*. This article opened up new avenues for the historian as it unearthed the 11th-century Shiva temple, Nandi Bull, Saptamatrikas, Gajalakshimi, gold coins of the Kadamba period, sati stone, devantoloi, the horse tank, and other antiquities like pottery which are presently
sheltered in the Heras Institute of Ancient Indian History and Culture, Mumbai. All these studies have contributed to the history of Goa but surprisingly, in the context of Goan history, no systematic study of this kind has been made about pre-Portuguese history, although there are archaeological ruins in Goa related to this topic that merit greater academic attention. It is a novel contribution to study the history of ancient Goa that is yet largely shrouded in darkness.

Aims and Objectives:

The present study is an attempt to deal with the following aspects of the research problem:

- To reconstruct the ancient urban maritime history of Goa that has been largely neglected to date.
- To highlight the role-played by the three ports of Chandrapur, Gopakapattana and Ella in the history of Goa.
- To concentrate in particular on the port capitals of Chandrapur, Gopakapattana and Ella. In this regard an attempt has been made to reconstruct the geographical extent of these port capitals through a study of stratigraphy, sea level changes, in consultation with literary, epigraphical and archaeological sources available.
- To study in depth the politico-administrative changes that these port capitals experienced through the ages.
- To analyse the social systems and cultural forms that existed in Chandrapur, Gopakapattana and Ella.
- To delineate the trade patterns that emerged at these ports.
- To look beyond the waterfront, hinterland and the coastal area and understand the extent to which urbanisation took place at the ports.
- To critically examine the historical events with a distinct maritime perspective.
- To reconstruct the element of urban planning in their construction of streets, temples, palaces, warehouses for storing goods, canals and their
spatial separation in terms of the urban population and the local population.

- To study the rural-urban interaction involved in the process of trade.
- To trace the beginning of urbanisation in Goa during the ancient period.
- To understand the extent to which urbanisation took place.
- To answer questions like: Were these ports centres of active trade or were they just meeting places for exchanging goods? Which were the communities involved? What was the role of the local population such as the Khols, Kharwis, and Mhars who settled along the coastal area?
- To understand the nature of port administration.
- To interpret the public amenities provided at these port cities.

Review of Sources

Three categories of source material is utilised for the purpose of inquiring into the geo-physical, politico-administrative, economic, maritime and socio-cultural patterns of the area under study. The first category is derived from archaeological records consisting of inscriptions, coins, monuments, sculptures and other antiquities. The second category is derived from the literary evidences and the third in the form of oral traditions.

Archaeological Sources:
Archaeology refers to the study of the material remains of the past. It is very useful to the present study to seek answers to the questions of “how” and “why” of the past in addition to “what” and “when” of the past, in order to understand the inner meaning of an artefacts and how the mind of its maker was functioning. Thus all material remains existing on the site as well as those collected from the site through explorations and excavations are distributed, analysed and interpreted in all the chapters depending upon their relevance to the subject.
Material remains concerning palaces of kings, fortification walls, remains of engineering works which include irrigation tanks and drainage systems, carried under the direction of the rulers, have been analysed in chapter four.

Material remains concerning production and economy, tools, implements, quarries, storehouses, workshops, mines, trade, ports and evidence relating to agriculture and industries have been interpreted in chapter five.

Material remains that provide information on food, clothing, pottery, utensils, social organisation, cultural, spiritual, aesthetic and religious motifs of the people like funeral customs, cult representation and symbols, places of worship, items of prestige or rank, decorated pottery, swords, objects made of material imported from distant lands or precious metals is included in chapter six.

Thus all these material remains, both artefacts and eco-facts, have been decoded and interpreted scientifically by using various archaeological techniques and those of its supporting disciplines mentioned below.

The Archaeological Survey of India enriched the archaeological literature of the world by providing researchers, both archaeologists and historians, many monographs and periodic publications in the form of The Annual Reports of the Archaeological Survey of India 1911; Memoirs of the Archaeological Survey of India 1919; The New Imperial Series by James Burgess 1874; Ancient India by Wheeler 1946; Bulletin of the A.S.I consisting of general and research articles on different aspects of archaeology of India; Indian Archaeology - A Review concentrating on the activities of the year; Epigraphica Indica 1892; Corpus Inscriptionum Indicarum series which contain inscriptions classified according to dynasties are an invaluable source of information for historical research.
Testimony of Epigraphy
While historians have written texts, the texts of archaeologists are artefacts and therefore we should understand them and interpret them to unravel the past.

Inscriptions: Inscriptions are useful ancient written records, which are inscribed on non-perishable material such as stone and metals. They serve as repositories of valuable historical information about political geography, politico-administrative, economic and socio-cultural aspects to fill missing links in history. Published inscriptions and new inscriptions found in the field belonging to the Mauryas of Pataliputra, Bhojas, Konkan Mauryas, Chalukyas, Rashtrakutas, Shilaharas, Kadambas, Yadavas, Vijayanagara, Bahamani and Adilshah rulers have been translated, interpreted and minutely analysed for the present research.

During the 18th and 19th centuries India witnessed a revolution in the field of epigraphy. The first successful effort at interpretation was made by Charles Wilkins (Badal Pillar inscription), P.R. Sharma (Delhi Topra Inscription), A. Troyer (Allahabad Prashasthi), W.H. Mill (Inscription of Skanda Gupta) followed by the decipherment of the Brahmi and Kharosthi script during the 19th century by James Princep, Alexander Cunningham (Corpus Inscriptionum Indicarum) Larzen, Norrocco, Buhler, Mackenzie, Fleet, Hultzsch and others who contributed tremendously to provide a good source for a critical reappraisal of the ancient and medieval periods of the history of India.

As early as 1837, James Princep is credited with putting Indian Archaeology on a sound and critical footing and for arranging epigraphic records systematically for the reconstruction of ancient history of India. Many inscriptions appeared in periodicals like the Journal of the Asiatic Society established in 1784, Journal of the Bombay Branch of Royal Asiatic Society, the Indian Antiquary and others. Besides V.A. Smith published his celebrated work entitled Early History of India, where an attempt was made to sort and arrange the accumulated store of knowledge on political and cultural history of ancient India. Indian epigraphers aver a great debt to many European scholars such as G. Buhler, E. Senart, F.
Kielhorn, L. Rice, W. E. Elliot and J.F. Fleet as well as Indian scholars such as Bhagwanlal Indraji, Rajendralal Mitra, R.G. Bhandarkar, H.P. Sastri, H. Krishna Sastri and others who strove hard in collecting information and interpreting the same.

Inscriptions provide useful information to study the past flora and fauna, the political-administrative aspects of a region; by its definite dates of events, persons, historical accounts of dynasties, chronological representation of events, village administration, administrative system, contemporary accounts and foreign contacts. Besides the economic prosperity of the region can be derived through the records of donations made to religious and secular establishments, land grants, taxes, fees, perquisites, privileges, duties and trade contacts. It also provides information on the propagation of religion and morality, caste system, family, position of women and cultural activities.

Since the present study has concentrated on a period where literary sources are meagre, the study of epigraphy will definitely prove to be a milestone to explore and interpret the evidences spread throughout Goa and its neighbouring region.

Inscriptions are of two types, stone and metal, consisting of one word or expression indicating the name of an individual or long inscriptions running from a few to a number of lines, narrating an event or some act.

Stone inscriptions are documents inscribed on walls, pillars and the floor.

- Inscriptions on walls are found on forts, temples, which are votive in nature and donated by private individuals.
- Pillar inscriptions are found on pillars in fronted porches and subsidiary porch of temples. They are usually donations made by kings and queens and other regnal associates. It records an event of victory, great contribution to society and state by ruling figure and is regnal in nature.
- Floor inscriptions are inscriptions on the floor of the *mandapas* and temples. They record donations and services by private individuals. Stone inscriptions are, thus, public intimation made by kings, feudatories, provincial governor and other high officials.

- Metal inscriptions are actual title deeds or certificates. They represent donations made by kings, queens and different royal personnel. (ch.2, Plate I)

Inscriptions are broadly classified as royal edicts, royal proclamations commemorating political achievements, donative inscriptions including grants made to Brahmans, officials, religious and educational institutions and votive inscriptions recording construction of temples, installation of images and miscellaneous records of temporal and spiritual nature. Inscriptions analysed and interpreted for the present research has been provided in (Appendix I a,b,c,d,e,f)

**Numismatic Studies**

**Coins:** The study of coins forms an important branch of study to supplement the historical value of a particular period. Coins provide us invaluable information on the politico-administrative aspects such as names of kings, queens, dates of execution, regnal years, boundaries of the kingdom, and fixation of chronology. It tells us about the economic prosperity of a state, commercial guild, presence of a royal mint house, occupation, economic activities of the regions, brisk trade between India and the West, its technical skills. It also depicts arts and crafts of the ruler, portraits of kings and queens shown in different positions. Coins related to different dynasties of rulers such as Shatavahana, Chalukya, Shilahara, Kadamba, Bahamani and Vijayanagara have been interpreted and analysed for the present study.

The Bombay Branch of the Royal Asiatic Society, Rev Henry Heras collection and the museums in Goa provide researchers with invaluable information on the different dynasties that ruled over Goa, specially the Kadamba dynasty. Coinage is attributed to the Banavasi Kadambas, which developed during
the rule of Jayakeshi I, Jayakeshi II, Jayakeshi III, Shivachitta and Soideva, reflecting the prosperity of the Kadambas. The Kadamba coins are identified with the symbol of the lion punched marked on it. They are mostly found in gold and few silver coins are also been found. Besides coins belonging to the Vijayanagara kings, Bahamani, Adilshah, Persian, Roman and Arab coins are found throughout Goa and its neighbouring states. (ch.2, Plate II). Details pertaining to the coins described below are mentioned in the (Appendix II).

I Shilahara silver coins: Hundred silver coins of 1.8 gms were found in Harmal, Pernem by Shri Vasudey Dattaram Gaude in 1976.³

- **Obverse:** *Trisula* without handle, sun, moon and two alphabets D R
- **Reverse:** *Sri Dara*

According to V.R. Mitragotri in the Kharepattana plate of Shilahara Anantadeva there is reference to Sridar pandita who acquired the title of *Pashimasamudra adhipita* and claimed to be the ruler of entire Konkan and extended his rule to south Konkan to establish his supremacy. He was the door keeper of the fort and guarded the fort of Anantadeva against his enemies and these coins were issued for this event.⁴

II Kadamba gold coins; Rev Henry Heras in his article “*Pre-Portuguese remains in Portuguese India,*” published in the *Journal of the Bombay Historical Society,* (1932) records a number of coins found in the period under study.

A) Senhor Ferrao hailing from Mapusa has in his possession a small Kadamba gold coin, which bears similarity to the Vijayanagara *varaha.*

- **Obverse:** symbol of a lion facing towards the left, in front of a pillar to which the lion is tied up.
- **Reverse:** there is an oblong type of *Nagari* character legend which belongs to the later Kadambas. It reads as “*Sri malavaramari*” means ‘the destroyer of the *malavara.*’ This title was taken by Jayakeshi II and his successor.
B) Another specimen of the same coin found in Pernem also belongs to Jayakeshi II but belongs to the old Kadamba type of coins.

- **Obverse:** lion to the left with a ball in the mouth within a circle of dots with the word *Kiaka*
- **Reverse:** Sivachitta *vira-devesvara malavaramari*

C) Gold coins of the Kadamba kings are also found at the port-capitals of Chandrapur and Gopakapattana.

Two very small gold coins of half *pana* were unearthed at Chandor in 1930.

- **Obverse:** symbol of a lion
- **Reverse:** a *trishul* of Shiva

Three gold coins were found in the vicinity of the church of Goa Velha by Rama Orives belonging to Jayakeshi II. The other two were not in a good state to be interpreted. These are presently housed at the Indian Historical Research Institute, Mumbai. It also has a collection of 2 small gold coins with a Kadamba lion and Shiva’s trident.

- **Obverse:** symbol of a lion to the left, *swastika* on the top and the name of the year Palava.
- **Reverse:** Sivachitta is repeated three times in Kannada and in *Nagari* script

D) The Journal of the Bombay Branch of the Royal Asiatic Society provides information on the coins of Jayakeshi II written in *Nagari* bearing a lion symbol and a legend.

- **Obverse:** lion looking to the front with an inscription before his mouth Pramodha.
- **Reverse:** “Sri Saptakotisa-labdha-vara-vira Jayakeshideva Malavaramari. Jayakeshideva is regarded as the destroyer of Malavaramari or Malavas through the help of Lord Saptakoteshwara, their family deity.”

E) The Indian museum at Calcutta has a silver coin of Vishnuchitta/Shivachitta?

- **Obverse:** a lion, sun and moon is visible
The fact that the Kadamba rulers issued silver coins shows that probably during the time of Vishnuchitta there was a gradual decline in their prosperity as during the time of Jayakeshi I and III gold coins were issued.

F) 2 Elliot coins of Soyideva

- **Obverse:** Lion to the left having a ball in his mouth with the word Bahudhanya
- **Reverse:** Sri Saptakotisvara-Charana-abdha-vara-vira-Soyideva

- **Obverse:** lion to the left having a ball in his mouth
- **Reverse:** the legend could not be read clearly but seems to be Charana-devashastha-Sovadeva.

Here it seems that Shastha and Sovadeva could be ruling around the same time jointly.9

G) Dr H.R. Raghunath Bhat gives a description of the Kadamba gold coin belonging to the Kadamba king Shivachitta Permadideva.

- **Obverse:** figure of a lion facing to the front with his legs raised, the sun and the moon and *Nagari* legend *Jaya* is depicted all within the circle of dots.
- **Reverse:** a single lined *Nagari* legend which reads, Sri Saptakotisa labdha varavira Hemmadideva Malavaramari, is engraved within the circle of dots.

H) Yet in another gold coin the name of the king is written as Shivachitta vira Hemmadideva

The most unique gold coin of the Goa Kadambas was discovered in Goa. It is dated to the 12th century AD that is during the rule of Shivachitta at Goa Velha. It belongs to the Kadamba king Jayakeshi III, which is presently housed at the Indian Historical Research Institute at the St Xavier's college, Mumbai.
- **Obverse**: a lion with an upraised frontal leg is seen, in front of the figure is a symbol swastika and mention of a cyclic year *plava* in nagari within the two circles.

- **Reverse**: legend within the two circles the king's name Shivachitta is written both in nagari and Halle Kannada.


- **Obverse**: motif of *simha* means a lion and cyclic year *Angira* in Kannada script

- **Reverse**: five lined nagari legend of Sri Saptakotisa labdha viravira Jayakeshideva *malvaharamari*.

Jayakeshi was the first to issue gold coins and there are coins with the *gajasimha* motif and a legend Sri Malega Bharaiva along with a *trishul* on the top all within a circle of dots and radiating lines. It is a *gadyana* also called as *niksha* or *svarna* or *pon gadyana* or *gaddunnaponnu* as mentioned in the Panjim plate. There are other coins of smaller denomination with the symbol of a lion and flag staff or *chatra* or temple *shikara* or the title *malavaramari* and belongs to Jayakeshi I.

J) George Moares speaks of a coin with title Shivachitta *viradshwara malvaramari* on the reverse and a lion with a ball in his mouth to the left on the obverse engraved within the circle of dots.

K) Shashikant Ghopte mentions some Kadamba gold coins

- **Obverse**: Lion with legs upraised and curled tail facing left, *swastika* symbol, sun and moon, border of line and dots.

- **Reverse**: Shivachitta in *Nagari* and Kannada and in Nagari Subha Krita.

It gives a new cyclic year that is 60 years cyclic year dated to 1147 to 1187

- **Obverse**: Standing lion facing right but looking back, curly tail having a floral design within the circle, a *Brahmi* letter just before the front leg around the border. There is also a beautiful floral design just above the border design and a three letter Kannada legend Gu-Va-Ha
• Reverse: A floral design similar to that Hanuman type nakara coin of Hangal Kadamba
It probably belongs to Guhalladeva III 1080-1100 A.D.

• Obverse: Trident
• Reverse: A floral design

L) 57 gold coins
• Obverse: Variant trident figures and some dots
• Reverse: blank with a hemispherical shape.

Gold coins or pratapa, belonging to the Vijayanagara period, have also been found. Persian silver coins of Kushru II were found at Chimbel, Raibandar. Two Roman coins of Constantine the Great dated from the period 309-377 AD were found at the Pilar tank. Besides coins belonging to the Tughlaq dynasty and coins of Ibrahim I and Ismael Adil Shah are also found at the Pilar tank.

Archaeological site
A site is any area on the landscape that shows evidences of past human occupation or other activities. Sites are often formed because a particular area offers potential for some activity a group wants to pursue.

Sites are of two types:
• General purpose sites are places where people lived in the past and have left traces of a wide variety of their activities
• Special purpose sites are those which perform specific functions, for e.g., trading sites, pilgrimage sites, burial sites, ceremonial sites, administrative and commercial sites.

Sites contain the following evidences:
Structural evidences: Various socio-religious, man-made structural remains in the form of temples, masjid, monasteries, brahmapuris, agraharas, mijigai, caves, roads, fortifications, residential places, marine structures like wells,
embankments, sluice gates, tanks, ports, dockyard and other earthworks, have been documented and analysed. It provides a lot of information on the utilitarian aspects, patterns, designs, art and architecture, maritime activities, religious and artistic edifices of the cultural progress of the people.

Some of the evidences that are available for the period under study are spread throughout Goa and also at the ancient port-capitals of Chandrapur Gopakapattana and Ella, in particular, include the following: (ch.2, Plate III)

- The ancient earthen fortification wall also known as Chandor Cotta built around the 4th and 5th belonging to the Bhoja dynasty is bordered by the river Kushavati towards the east. This fortification wall was used for the purpose of defence of the capital city.
- The Shiva temple at Chandor which houses the Nandi bull was excavated first by Rev. Henry Heras and recently excavated by the A.S.I team has revealed a lot of information of the site useful for the present study.
- The Chandranath temple at Paroda
- Tanks such as Guhalatoloi, Chamatoloi, Godeamtoloi and Devantaoloi at Chandor
- Kuzmorayachem tallem or Kadambaryachem tallem built by the Kadamba kings at Gopakapattana.
- Gandagopal tank at Gopakapattana built by Gandagopal Kelina, the administrator of the Kadamba king, Tribhuvanamalla or Guhalladeva II.
- The sacred tank of the ancient Siva temple of Goveshwar at Pilar which bears resemblances to the Gomanteshwar temple at Brahmapuri Old Goa.
- The Chamunda tank of the deity Chamundeshwari (presently near Pilgao, Bicholim) at Goa Velha,
- The Brahmapuri – the seat of learning-built by the Kadamba royal family and later re-established by Madhava Mantri of the Vijayanagara dynasty.
- The five kilometre long port wall extending from the locality called Kharrosai up to Agasaim that is visible during low tide.
• The Rajvithi or the royal highway, that extends right from the port of Gopakapattana to Old Goa, which must have been used by traders to transport goods from one place to another.

• The palace site of the Kadamba kings. At this site huge grinders, which could have been used for extracting oil, and pillars, most probably of the palace, are found.

• The Brahma Karmali or Carambolim or Kadambahalli, the village of the Kadamba dynasty, situated in the Tiswadi taluka close to Corlim, Old Goa, is famous for its Karmallen tallem visited by migratory birds from all over the world. It was a temple dedicated to Brahma that was later taken by the devotees in 1541 to Sattari taluka. This image of Brahma is considered to be one the best examples of Kadamba sculptural art.

• The Kadamba Kot or fortification wall of the city of Gopakapattana. This was said to have been built by Jayakeshi in the 11th century when he shifted his capital from Chandrapur to Gopakapattana.

• The Gomanteshwar temple dedicated to Shiva is located at Brahmapuri, Old Goa. This temple was rebuilt twice by Madhava Mantri of the Vijayanagara Dynasty along with the Madhava tirth arched gateway built of laterite stone.

• Saptakoteshwar temple of Narve is situated amidst the natural beauty of the Divar Island and constructed by the Kadambas. Saptakoteshwar was the family deity of the Kadamba royal family whose evidences are also seen on coins and inscriptions of the Kadambas. In the vicinity of this temple there is a tank which is still in existence known as koti tirth or Madavachem tallem. This deity was later shifted to Narve, Bicholim which was rebuilt by Shivaji when he visited Bardez and which is evident on the inscriptions erected at the entrance of the temple.

• Mahadeva temple situated at the Curdi village in Sanguem taluka is yet another example of Kadamba temple architecture. Presently this temple has been transplanted at Xelpem Selaulim and is dated to around 10th to 11th century. This temple has certain common resemblances to the Mahadeva temple of Tamdi Surla with typical Kadamba motifs. It is said
that this temple must have been built when the Kadambas had their capital at Chandor.

- Temple at Opa Khandepar.
- Mahadeva temple at Tamdi Surla having the Kadamba-Yadava architecture built by the Kadamba family.
- The remains of the port wall at Ella, Old Goa
- Fortification wall of the Adilshah’s city
- Buddhist caves and Jain basti located along trade routes.
- Safa masjid at Ponda and the mosque at Ella.
- Adil shah’s palace or Kadamba temple at Old Goa?

These are some of the monumental evidences of utmost importance which will provide a lot of information on political administration, maritime activities, town planning, urban morphology, religious patronage and art and architecture.

**Sculptural Evidences:** The present study has interpreted sculptural remains of folk and brahmanical gods and goddesses, hero stones, sati stones, semi-divine human and animal figurines, floral and geometrical motifs, architectural objects and designs. (ch.2, Plate IV) (Appendix III)

**Hero Stones**

**Hero Stone A.S.I. no. 26:** There are three panels. Each panel is separated by a decorative design. In the lowest panel on the left hand side are seen two persons standing on a high stool with drums in their hands and to the right two persons and a chariot pulled by an elephant is visible. In the second panel, the hero is greeted by three apsaras who are holding musical instruments and the hero is shown in the centre with a sword in his hand mostly adorned for his victory. In the third panel, a shivlinga is worshipped along with three persons in heaven.

**Hero stone A.S.I. no. 27:** There are two panels. The lowest panel depicts a battle scene. Some people are seen crushed under the legs of two people who are fighting on horse back with swords and shields in their hands. In the second panel, the hero who is seating on a memorial is greeted in heaven. The upper portion is
slightly damaged. It shows two people holding their mouth. And above this panel there is an inscription.

**Hero stone A.S.I. no. 234:** There are three panels. In the lower panel, two persons are seen meditating on a high stool. To the left and right two people are seen fighting. In the second panel, the hero is shown probably killed in battle. In the third panel the hero is lifted up by two people. The upper portion is triangular in shape.

**Hero stone A.S.I. no. 4:** There are four panels. The lower panel shows a war scene where five people are fighting with swords and shields and two persons are seen fighting on horse back. In the second panel six people are seen with swords and shields. In the third panel two persons are seen fighting with one another on horse back and two people are seen one on the left and the other on the right. In the top most panel Shiva is worshipped and in the fourth panel to the right a cow is seated and on the left a person is seen offering prayers and worshiping god.

**Hero stone A.S.I. no. 24:** There are four panels. In the lowest panel three persons are seen playing the drums. At the centre of this, there is a ladder which leads to the second panel. In the second panel a war scene is shown. The hero is shown large and is killing another person with a dagger. To the right of this panel is a ship sailing on a river and a person is seen on this boat. In the third panel the hero is worshipped and he is in the centre and people are seen joining hands.

**Hero stone A.S.I. no 22:** It has three panels. The lowest panel shows a naval battle. There is a large ship and one small ship seen operated by a number of people. In the second panel the hero is seen seated in the middle and people are seen carrying umbrella, a sword and Shiva is being worshipped. There are five persons in the third panel. The hero is depicted large and people are seen sitting next to his feet. Above each panel there is an inscription in Kannada.
**Hero stone A.S.I. no. 239:** There are three panels. The lower most panel depicts a naval battle. There are three small ships and people are seen on these ships with swords and shields in their hands. Below the ships, at the lowest most part are seen figures lying down probably they could have been killed in the battle. In the second panel three ladies are seen rejoicing and dancing with arms around their neck and at the top most panel Shiva is being worshipped along with two persons.

**Hero stone A.S.I. no. 213:** There are three panels. In the lowest panel to the left two persons are seen beating drums. At the centre is the hero as he is always depicted large to the right on a high stool a person is seen sitting down and below the legs of the hero a head is seen fallen down. In the second panel war scene is shown, the hero is seen seated on a elephant with a dagger in his hand and spade. In the third panel Shiva and the hero are worshipped and adorned by three people who are seen rejoicing.

**Hero stone A.S.I no. 23:** This is a two panel viragal. The lowest portion has a floral design and pillars. To the right a lady is seen standing and beating the drum. Above this is a huge ship with four oars with wheels. In this ship a person is seen with a spade. The ship has a deck on the right side through which a person is seen looking from a window. On the left side of the panel there is a person who is depicted large with a bearded face and is seen killing his enemy on the ship with a dagger. Next to the hero are two persons with a spear in hand and one touching the hero’s elbows.

In the second panel there are two person who are carrying umbrellas, two persons are seen with fans one is kneeling down with hands joined and one person is seen making offering to the hero. The upper portion has a shape of a temple with sun and moon. This viragal depicts naval battle as well as other details such as physical features, shape of boats and other minor aspects.

**Hero stone A.S.I. no 21:** This is a three panel viragal. It is one of the biggest viragal in Goa. The scenes are very prominently depicted. In the lowest panel to the left the hero is seen with a sword and shield seen fighting with another person
who is depicted small and three persons are also seen along. Above them a huge ship is seen and ten persons are on the ship shooting arrows. The right side of the ship is seen missing. In the second panel the hero is sitting on a high stool, a lion is depicted and eight persons mostly the heavenly beings are seen on the right side of this panel. He is given a high position as he is sitting on a decorated stool with his right leg up and left down below the stool. There are flowers and the lady is seen standing besides him. Two ladies are seen fanning him, and two men carrying umbrellas. There is a pillar in the third panel and structure of a temple.

**Hero stone G.S.M:** This is a three panel viragal. In the lowest panel two persons are seen with swords and to the right a person is blowing an instrument. In the second the hero is depicted large and three persons are seen worshipping and playing musical instruments. In the top panel, the hero is worshipped and a buffalo is seen to the left.

**Hero stone G.S.M:** It has three panels. In the lowest panel, four persons are seen with swords and shields. The hero is depicted large. In the second panel four apsaras are seen rejoicing. Above the second panel there is an inscription. In the third panel Shiva is worshipped, a priest is seen standing on a high stool with a bell and a dumbbell in hand. There are three persons and a shivling is in the centre. The stone has a temple structure of a shikhara on top.

**Significance**
The study of hero stones or viragals gives information on the reason behind the death of the hero whether a naval battles or battle on land. Besides structures of boats and honouring of the hero who fought and died, information on clothing, hairstyle, musical instrument, religion, war instruments, temple structures, Shaivism and other useful symbols are seen in viragals which is interpreted for the present study.
**Sati Stones**

**Sati stones A.S.I. no. 235:** There are three panels. In the lowest panel a lady is seen offering *sati* on the funeral pyre. In the second panel two ladies are seen standing with musical instruments and the third panel the lady and man is seen meeting in heaven.

**Sati stone A.S.I. no. 3:** There are three panels. In the lowest one, three persons are seen beating drums and a woman is seen offering *sati* to her dead husband and to the right a man is seen standing with folded hands. In the second panel five ladies are seen dancing. In the third panel the hero is depicted on a horse back with a spear in hand and on the left killing a person with a sword and shield. On the right side a person is seen carrying a kind of umbrella.

**Sati stone A.S.I. no. 207:** There are two panels. In the lowest one, three ladies are seen beating drums and to the right a fire is set. Above this there are three ladies standing with their hands joined and one person is seen jumping in the fire. The second panel shows meeting of the husband and wife. Here the male is depicted large and the female is sitting on a smaller stool and depicted small. The male is shown carrying a *trishul* in hand and two persons are seen standing with hands joined and two ladies are seen carrying an umbrella.

**Sati stone A.S.I. no. 37:** On the right side there is a person with sword and shield as well as a shield pierced in his stomach. A woman is seen offering *sati*. At the centre there is a *shivling* and above it symbol of half moon and sun.

**Sati stone G.S.M:** A woman is clearly seen standing and offering *sati* on the pyre.

**Sati stone G.S.M:** It is a single hand *sati* memorial. To the right just below the hand a male and female is shown. Above it, there is a *shivling* and other symbols like the eight petal flower. This memorial is important as it shows the dress and jewellery worn by people during the 11th century.
**Sati stone G.S.M:** It is a single hand memorial. On the vertical portion of the stone at the lower end a large fish is seen. To the right, an elephant and above it a floral design. To the left, a man and women and on the left side a cow above which a priest is worshipping Shiva. On both the sides, there are two flowers with 12 petals. This memorial is important for food, dress and jewellery.

**Significance**

The above sati stones provide information on the different symbols used to show the practice of sati and how religion forced women to jump in fire by creating an emotional seen by beating drums. It provides information of the dress, jewellery, musical instruments, honour and status of women

**Gajalakshimi - Goddess of wealth and prosperity**

**Gajalakshimi A.S.L:** At the lowest portion twenty people are shown. Above this two persons are on horse back and above this two persons on ships on either sides and two persons with fans and in the centre the deity and two *gaja* are seen sprinkling water on her. She symbolizes prosperity on land as well as sea.

**Gajalakshimi G.S.M:** There are three sections. At the lowest there are 14 people. To the left, there are four musicians and one dancing lady. To the right two musicians and four *ladiq*s, all of them have foreign features as seen in their facial and dressing style. Above this Gajalakshimi is seen on a high pedestal. To the left two persons are seen on horse back with a sword and spear and also to the right above the panel two persons are sitting on the elephant both with sword and shield. Also on top a symbol of a moon and sun is seen in the centre are two elephants sprinkling water on the deity who has a lotus in hand. This panel gives a lot of information in terms of prosperity, art and architecture, folk dances, musical instrument, emergence of foreigners, warrior class, animals, vegetation cavalry and infantry.
Gaja-lakshimi A.S.I: This panel is found at Carambolim dated to the 9th Century A.D. On both sides of the panel are seen two elephants standing on a raised platform and sprinkling water on the goddess who is seen seated with folded legs in the centre. She has four hands. In her rear hands she is carrying lotus buds but front hands are missing. The top portion of the panel is missing and only bits of some figures can be seen who too have dressed in a peculiar manner like people from west Asia. This is one single panel and no divisions are made. More stress is given to the elephants who are depicted large but the dancing scene which was below as in earlier period is placed upwards.

Gajalakshimi of Zarme in Sattari taluka. There are two sections, in the lowest panel, there are 10 persons to the left and right with folded hands and in the centre there is a step like structure. Above this on the prabhavalo two persons are seen sitting on horseback and two persons are seen on small ships, above which two persons are standing with fans. In the centre, Gajalakshimi is sitting with folded legs. She is shown with four hands and in her rear hands she is carrying a lotus and her front hands are missing. She is also seen wearing a lot of ornaments around her neck, hands, legs and head. Besides there are two attendants one on each side and also two gajas, one on each side are sprinkling water on her from the pitcher. This panel is important from the point of view of maritime shipping depicted on the panel.

Significance: A study of these panels helps in reconstructing the urban maritime history of Goa since ancient times. It plays an important role in providing information of maritime contacts with the depiction of persons belonging to different cultures. She was worshipped to gain strength, prosperity and wealth. It provides information on cavalry and infantry during those days. References to dancers and musical instruments could be that probably these were invited to the court of kings to entertain them. The sprinkling of water on the goddess would mean to keep her alive in the minds of people till eternity as water is a life giving entity. She is also regarded as one of the 14 jewels churned out of the ocean by gods and demons.
Nagadevta or Snake god: is a common form of idolatry since ancient times. He is often regarded as the protector of the land and stays in an anthill which is the most fertile area. There are sculptural evidences of naga worship prevalent in Goa. One such panel is found displayed at the GSM in gallery no 1. This sculpture shows a combination of an animal and a human. It has a mukut of snake hoods and the lower part is a coiled snake. It is placed on a rectangular platform which has a hole in the centre. The stone of the slab and the figures is different. This sculpture is important from the view of religion specially naga worship prevalent among the Bhojas and Kadamba rulers and is associated with the protection of land. Similar sculptures are also found in Karnataka.

Other Antiquities: Antiquarian remains in wood, stone, clay and metal such as structural remains, household decorative objects, grinders, pillars, medicinal grinders, pottery, agricultural tools, ornaments, musical instruments and other objects, have also been studied.

Literary evidences
Sacred and secular literature:

- *Gada Parva* a section of *Mahabharata* which dwells on the origin of the Saraswat Brahmins
- *Sahayadri Khand* of the *Skanda Purana* refers to the immigration of Gaud Saraswat Brahmins into the Konkan
- *Konkanakhyana* a historical poem in Marathi written in 1721 narrates the establishment of the second colony of Gaud Saraswat Brahmins in Cortalim and Quelossim
- *Manguesh Mahatmaya* deals with the immigration of the second wave of Saraswat Brahmins from Kanauj into Goa.

Besides, *Saura Purana, Brahmanda Purana, Kalika Purana, Vetal Sahastranama, Manu Smriti*, Kautilya's *Arthashastra* have been referred to in order get insights and references to various topics on the present study.
**Travel Accounts:** Arab, Persian, Indian and European travellers have left various accounts while exploring new lands and, in course of time, provided indirect references about what they had seen and experienced and heard, thus providing geographical details of the ancient place names, geography, location of various ports, products, trade relations and maritime activities.

The following sources have been consulted, reviewed and interpreted

- *Periplus of Erythean* Sea gives a comprehensive account of the ports, harbours, trade and merchandise of India especially of south India in the 1st century AD.
- Ptolemy, a Greek geographer who outlines the geography of India
- Fa-Hein a famous Chinese who travelled to the Buddhist centres in India during the Mauryas.
- Cosma, IndiKopleustas a Greek merchant who provides information on the economy of India in the 6th century.
- *Suma Oriental* of Tome Pires
- *Travels of Duarte Barbosa*
- *India* by Al-Biruni
- Abu Abdullah Muhammad Ibn Battuta travels in Asia and Africa throws light on Muhammed-bin-Tuglaq and the geographical and social conditions in India in his travel memoir *Rehla.*
- Voyage of John Huyghen van Linschoten

**Oral sources:**

**Oral traditions:** The oral folk tradition of Goa and the surrounding regions has been tapped in the form of folk songs, folkdances, folklife, folktales, proverbs, legends and myths which depicts the hopes and yearnings of the people. These sources corroborate existing evidences and provide a mine of information on various aspects of history.
Personal interviews: Field interviews and discussion with archaeologists at Dharwad, Pune and Goa, marine archaeologists at the N.I.O, historians, geologists, environmentalists, senior citizens and other local people.

Review of Methods and Techniques

The challenges faced by historians in recent years brought about a revolution in theory and methodology of history, that broadened their field of research from a mere descriptive approach of narrating events to a more scientific, analytical and theoretical approach of reconstructing the past. The very fact that historians have widened their scope of study from political events to socio-cultural, economic, maritime and technological aspects made them to rely on a number of related disciplines such as archaeology and its supporting disciplines. These studies have gained a lot of importance in India, especially in Goa.

What is Archaeology? Archaeology has come from the Greek word *Archaios* means Ancient and *Logos* is science or theory. Archaeology is a scientific method used by historians to systematically investigate the material vestiges of the unknown past by using scientific tools of observation, collection, experimentation and interpretation of the data against more supporting reliable information.

No doubt the task of archaeology sounds same to that of history as far as the reconstruction of past is concerned, but it widely differs from each other as far as the methodology is concerned. Historians mostly study the lives of people through written documents, but archaeology studies the lives of early people through its material remains such as built structures, tools, bones, pottery, broad patterns of human change and early cultures.

Archaeological sites are storehouses of information for most of the natural and social sciences. Chemistry and physics have made great contribution to the study of the past by developing such approaches as the radio carbon dating and
spectrographic analysis for the study of the past. Besides there are other disciplines such as Geology-Palaeoenvironment, Zoology-palaeontology and osteoarchaeology, Botany-palynology and archaeobotany, Anthropology, both physical and cultural, studies human beings biological evolution and the analysis of human social life both of the past and the present.

Experimental archaeology deals with controlled experiments with the dynamics of material culture. Underwater archaeology deals with the study of sites and ancient shipwreck on the seafloor and lake bottom. Ethno-archaeology concentrates on the study of living societies for a better understanding and interpretation of the past.

During the 20th century, archaeology has also undergone a change with new developments in its methods and thoughts. It has moved through the four phases of development from an antiquarian stage to an ideational stage of studying the past human mind.

Phase I:- The study of sites in a descriptive manner
Phase II:- Theoretical formation of the past with new concepts
Phase III:- Study culture processes and culture change/New Archaeology/Processual Archaeology
Phase IV:- Post New Archaeology/Ideational Archaeology

'New History' has broadened the field of historians during the 20th century by bringing about a comprehensive overhauling of the contents and methodology of historical writing and thinking. This school has made radical attempt to shift from political consideration of events to a more scientific consideration of various aspects of history by relying on statistical data, oral interviews, psychoanalytical, ethnic groups, social problems, family, sex, birth, death, culture, population, notion of time, demography etc. Indian historiography has also moved ahead with this notion of writing history as is seen in the writings of historians such as D.D.Kosambi, R.S.Sharma, Irfan Habib who made a shift from political history to a socio-economic history strictly moulded by classical Marxist analysis. It has
also gone through another transition of interacting with methods and insights offered by other social sciences bringing about a methodological cross-fertilization thereby providing suitable answers to questions such as “why” and “how”.

Thus with the revolution of methodology in history and archaeology the present research has concentrated on one aspect of study that is the urban maritime aspect of history by adopting an interdisciplinary approach to the problem under consideration by using various tools of historical and archaeological analysis. 15

Archaeological techniques:
Archaeological data about a site is found through the assessment of the site under study. Once a site is located, various techniques can be used to learn more about the site and its characteristics. It provides basic information about the size, depth and stratigraphic setting in order to identify the site boundary, degree of preservation of the site, age of the site and its contents in terms of artefacts and features preserved that will provide information of the length of occupation, range of activities performed at the site or layout and its environmental data.

The following archaeological techniques can be used to fill gaps in history and bring to light new evidences for the study of urban maritime history.

Techniques of Exploration

Ground survey or Pedestrian survey: This survey is used in order to locate surface remains of archaeological sites, ranging from architectural remains to ceramic and lithic artefacts.

Recording of site data: Recording of the exploration data is done by taking notes on site description, environmental, historical and ethnographical details in order to collect and analyse data systematically. The format of data recording for any site is placed in (Appendix IV)
Site mapping: preparation of simple sketch map of the site boundaries to detailed recording of topography and vegetation as well as the location of artefacts, features and structures.

Remote sensing techniques: are used to rediscover a site, re-create its plan and provide evidence for some of the ancient activities that took place within it. For example, a city could leave behind and still preserve its original plan of the building even though the stones of building above the ground are used by robbing the site.

Aerial photography: is used to locate sites. It provides valuable information during site assessment. It reveals crop marks, soil pattern and structures on a site, which can be correlated with the site map. On large urban sites, aerial photographs provide a quick way to develop a site plan to locate surface collections and test units.

Soil resistivity survey: involves establishing a grid over the site and inserting electrodes to measure electrical resistance. This technique can locate sub-surface features including walls, pits and fired areas that increase or decrease electrical resistance in the soil.

Magnetometer survey: It involves establishing a grid over the site and measuring the strength of the earth's magnetic field at each grid intersection. Small variations in the magnetic field strength can indicate buried features such as fired areas, areas containing ferrous metal objects or structures.

Magnetic survey proton magnetometer: is useful in detecting buried iron kiln sites and certain kinds of soil defects, small iron objects and rocks with high content, since it has high sensitivity. This is done by setting up of electrodes a few inches into the ground at the interval of 30 cms and anomalies between the electrodes can be plotted. Thermo remnant magnetic survey can detect existence of burnt clay artefacts, burnt bricks structure and sites.
Ground penetrating radar survey- involves establishing a series of transects across the site. This is done by dragging a sensor along the ground to generate a sub-surface profile which will help to identify buried walls, pits or other features which vary in density from the surrounding sediments.

Electromagnetic conductivity survey: involves establishing a series of transects across the site and then using a device, which induces an electromagnetic field into the earth without requiring the insertion of the electrodes required in resistivity survey. Variation in conductivity can help to locate buried pits, structures or conductive metals.

Metal Detector Survey: involves establishing a series of transects or a grid across the site and then recording the response of a metal detector at each location. They can yield important information about the distribution of metal artefacts buried within 50 cms of the surface. (ch.2, Plate V) & (ch.2, Plate VI a,b,c,d)

Technique of Excavation

Test Pits: these are trial pits that are excavated to find out the site value in terms of its stratigraphy, degree of preservation, evidence of sub-surface structures and the exact location of habitation sites.

Mechanical trenches: involves the use of a backhole or other machines to excavate trenches of various lengths and expose profiles, which provide the best evidence of the site stratigraphy and the presence of buried occupations. Back dirt from the trenches can be screened and artefacts also may be found while scraping the walls of trenches to observe the stratigraphy. It is very disruptive to the site and is useful in places where structures and features are not present or are very difficult to find by any other means and where the geological setting of the site suggest the potential for buried occupations.

Coring technique: This is useful for deeply buried strata. They provide very small samples of sediments or move beneath the surface. The sediments samples
can be analysed for colour, organic content, phosphorous, and other characteristics that may indicate a buried soil horizon.

**Posthole and shovel testing:** are used to provide information about the artefacts just below the surface of the site. Posthole tests involve the use of a posthole digger or a power auger to investigate the site to a depth of 3 to 6 feet. Shovel test are about 12 to 20 inches on a side and are excavated to depths of 1.6 to 3 feet. They provide information on site stratigraphy, artefacts and ecofacts, to trace boundaries of shallowly buried sites and to provide evidence of buried features or structures.¹⁶ (ch.2, Plate VII)

**XRD analysis of Pottery:** Ceramics are non-perishable objects of trade. They are available in large quantities and survive for a longer duration in different climates. Ceramics are of special significance for the study of ancient maritime routes and cultural contacts between nations involved in coastal trade.

The identification of the mineral present in the pottery is done using the Rigakud Max II VC XRD system. It provides a method of classifying a given set of pottery and assigning a distinct fingerprint pattern of minerals to ceramic from a particular geological region. It is based on the following principle.

In pottery production the basic raw material is clay. Clays are heterogeneous mixture of a variety of minerals which can be broadly classified into two groups.

- The basic clay minerals such as montmovolitrite, iollite, chlorite and kaolinite.
- The associated clay minerals such as quartzite, feldspar, augite, mica and biotite

Minerals are derived from the parent rock of the region therefore the source of clays from widely separated regions are unlikely to be the same. There are always some differences in the mineral suite or the relative abundance of
minerals. Each pottery type can be seen as distinct and has its unique fingerprint pattern of minerals. (Appendix V)

During the firing of pottery, clays reach temperature ranging from 500-900 degrees c. The crystal structures of clay minerals such as montmovilohite and kaolinite are greatly affected due to either the loss of water of crystallization or the decomposition of minerals. This change can easily be observed from their X-ray diffraction patterns. Some minerals such as quartz, albite, anorthite and diopside retain their structures even at the firing temperatures of pottery making. Though the clays are modified at high temperatures, they can be identified from their residual structures in pottery.17

Theories for the Study of Urbanisation

Cyclical Evolutionary Theories: Oswald Spengler and Arnold Toynbee

According to this perspective, there is no straight line evolution but there are stages or cycles which a society may go through more than once or even repeatedly. Each society is compared to the stages present in the life of an individual, such as birth, adolescence, youth, maturity, decline and decay. This theory is used to understand the cyclic nature of the process of evolution, growth and decline of ancient urban port cities in Goa in particular the port cities of Chandrapur, Gopakapattana and Ella.

Multi-linear Evolutionary Theory: This theory highlights how important factors in each given type of situation shaped the development of a particular type of society.

- Technology- Change from simple to complex
- Agriculture - the evolution of subsistence to commercial production for the purpose of trade.
- Industry- Transition from folk technology in production to the use of advanced technology in urban areas

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Ecological arrangements- the movement from the villages, hinterlands to urban centres.

**Great Tradition and Little Traditions: Robert Redfield.**

He identifies two types of societies using the concept of ‘Great Tradition’ that includes cities or civilizations and ‘Little Traditions’ that deals with the countryside is used to interpret urbanization. This transition from the folk to classical involved growth in size, complexity of social organisation, greater functional specialisation, improved technology and contractual relationships.

**Emile Durkheim:** He proposed the concept of segmented society and compared society to the segments of an earthworm. According to him a segmented society is a homogenous society and not a heterogeneous one. He considers society to have been composed of structures and identical kinship units. If some of the units are removed they can be replaced immediately by the production of new and identical parts. A segmented society differs with respect to specialisation and removal of some of these segments would leave the society without certain vital functions. This evolutionary theory is a powerful tool for the analysis of the process and patterns of change.

**Economic base theory /Trade theory:** stems from the premise that economic growth is based on the amount of goods and services produced within a geographical area that can be exported out of the region.

**The core-periphery ideology: John Friedmann.** This theory discusses that the core would not necessarily mean the urban areas but urban areas can occur in the periphery and rural settlement in the core.

**Site catchments analysis or Land use pattern or Subsistence theory:** The catchment area is the area immediately around a site that would have been exploited by the site's occupants or what is termed as the "exploited territory". Site catchment area is, therefore, largely the function of zones, relation between technique and natural resources lying within the economic range of individual
sites. This can be done by walking outward from the site and identifying various ecofacts and artefacts present which will enable us to get an idea of the size, shape, location and function of the site.

**Ideational Theory/ Cognitive theory:** This theory is used in archaeology to study past cultures. It stresses on human thoughts and reflections as inferred from material remains in capturing the past human life ways.

**Contextual archaeology of Ian Hodder:** The word ‘context’ comes from the Latin, ‘contexere’, means to weave or to join together or connect. It means interweaving or connecting of things in their historical particularities in a particular situation or group of situation. In order to understand the context, it is necessary to assign a symbolic meaning to the objects or artefacts and its functioning in relation to its economic and social structures.

**Structural-Functional analysis:** This approach has been adopted from anthropology, sociology, political science and archaeology. Structures are observable activities, which make up a system. Every system has a structure or a combination of structures. A structure cannot exist without a purpose or function. Here urbanisation will be analysed as a system consisting of the total political, economic, social, cultural and maritime subsystem, consisting of structures having its own functions and each subsystem having its sub structures and its functions.

**Methodology**
The present thesis has used the triple methodology of integrating literary, archaeological and oral evidences in order to acquire an analytical inquiry into our multi-faceted past which is indeed a desideratum.

**Archaeological method**
Archaeology is the study of the material remains of the past. While history studies lives of people through written documents, archaeology studies the lives of people through the material remains such as monuments, sculptures, coins, pottery and
other remains. It is a scientific method used by historians to systematically investigate and find clues to piece together the big jigsaw puzzle of the unknown past by using various archaeological techniques mentioned below.

The present research has adopted the non-destructive archaeological technique of exploration and ground survey technique or pedestrian survey. Village by village survey method is adopted in order to understand factors like ecological conditions, extent of the settlement, to locate surface remains, archaeological remains, structural remains, pottery and other antiquities. This has been done by preparing a site history record form which consists of geo-physical data, historical data, ethnographical data, dating and documentation for ready and systematic recording and surveying of the sites. This has been adopted while studying the three port capitals of Goa under study.

**Excavation:** The present research was unable to conduct an excavation on my own due to lack of institutional support and financial constraints, but an attempt was made to participate in the excavation held at Chandor during the 2003 season, interact with the archaeologist in order to understand the site besides referring to the reports on the excavation at Chandor and Gopakapattana prepared by the A.S.I and N.I.O.

**XRD Analysis:** The present study has used scientific method of XRD Analysis for the study of ancient pottery by testing the mineral contents and comparing them with pottery of other regions to find out trade contacts. It has identified local and non-local pottery by comparing the mineral pattern of local clays with those of pottery from the site. Samples of soil from different parts of the site were analysed as unfired clay along with a fired brick and potsherds collected from the site were analysed, the results of which are given in the conclusion.

**Analyzing Monsoon Variability:** The scientific method of determining the past climatic conditions during the period of study based on the planktonic foraminifera and angular-asymmetrical morpho-group of benthic foraminifera is
undertaken to understand the periods of dry and wet climatic conditions of the past which gave a boost to the urban economy and maritime activity.

**Documentation:** An extensive documentation of inscriptions, coins, sculptures, monuments and other antiquities in the form of photographs and sketches has been undertaken.

**Mapping:** Extensive preparation of maps based on toposheets, village maps, state maps, of Goa, Karnataka and Maharashtra and old maps available in Archives have been interpreted to prepare maps of the sites under consideration, maps to show changes in territorial boundaries, dynastic maps, maps showing find spots of archaeological and literary evidences, trade routes, etc.

**Ethno archaeology:** Many ancient practices and cultural artefacts are found in the present day folk societies in the form of technology, economy, material culture and settlement patterns which is used to understand the past socio-cultural aspects.

**Oral method:** The present study had to depend on oral traditions and personal communications by using the interview technique in order to understand some aspects of the site and clarification of certain concepts.

**Inter-Disciplinary Approach:** History is a mystery and this mystery can be revealed only with the help of natural and social sciences such as philosophy, sociology, political science as also geology, chemistry, botany, zoology, marine archaeology, archaeology and folk studies which is reflected in the present thesis.

**Comparative Approach:** The urban maritime aspects of Goa and the port-capitals are studied in comparison with other similar developments and functions taking place especially in Uttar Kannada and North Konkan. Goa is geographically part of India and the world. Hence, various aspects such as sea-
level changes, ports, culture and feudalism had to be studied keeping in mind the other regions as Goa is said to have contacts with a number of regions.

In addition to the above, the present research has identified place names from written sources, travel accounts, oral traditions as well as interpreted them in order to understand site typology and function. The technique of historical dating and preparation of genealogical tables based on epigraphical, numismatic evidences and its comparison with other regions, has also been used.

Frame of the thesis

Introduction
➢ Brief statement of the physical and historical setting
➢ Urbanisation
➢ Urbanisation in India
➢ Historiographical review
➢ Maritime History
➢ Maritime History of India
➢ Historiographical review

Statement of the Problem and Methodology
➢ Introducing the Research Problem
➢ Aims and Objectives
➢ Review of Sources
➢ Review of Methods and Techniques
➢ Methodology used
➢ Frame of the thesis
Geo-Physical Setting
➢ Location
➢ Size
➢ Geology: site typology, stratigraphy
➢ Topography
➢ Drainage
➢ Climate
➢ Flora
➢ Fauna

Politico-Administrative Aspects
➢ Political Geography of Goa
➢ Theory of Kingship
➢ Statecraft
➢ Gaunkaris

Urban Economy and Maritime Trade
➢ Port-City-hinterland linkages
➢ Urban maritime crafts and industries
➢ Technology (khazans, industry, shipbuilding, navigation)
➢ Intra-regional and overseas commercial contacts
➢ Routes
➢ Commercial centres
➢ Ports
➢ Articles of trade
➢ Currency
➢ Weights and measures
➢ Transport and communication
➢ Role of Guilds
➢ Communities
Socio-Cultural Dynamics

➢ Social Stratification
➢ Social Institutions
➢ Social life
➢ Religion
➢ Education
➢ Language and Literature
➢ Art and Architecture

Conclusion/ Main Findings

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Map I: Location of Study Area: Chandrapur, Gopakapattana and Ella
Plate I: Epigraphical Evidences
Plate II: Numismatic Evidences
Plate III: Structural Evidence
Plate IV: Sculptural Evidences
Plate V: Sketch showing underwater techniques
Plate VI: a) underwater scooter b) underwater measurements c) underwater plotting  d) underwater excavation
Plate VII: Excavation at Chandrapur and Gopakapattana