1. GEOGRAPHY AND EARLY SETTLEMENTS

1.1 Land forms have considerable bearing on the historical development of a region through their influence on the climate and hence on the means of subsistence. Equally important is their role in defining nuclear areas of human settlement in terms of accessibility and fertility, or conversely, areas of isolation. This relationship is useful in studying the changing needs of communities and the corresponding expansion and shifts in settlements.

The subcontinent of India has been broadly divided into three basic regions: the Deccan peninsula, the Indo-Gangetic plain, and the Himalayan range. The scope of this study is limited to the Deccan peninsula extending south from the Aravalli hills which is geologically one of the oldest regions of the earth. Subsequent physiographic changes have however resulted in the formation of smaller zones within it with generally uniform physical characteristics, the principal ones among these being the lava region of the western Deccan and the granite areas farther south and east.

The western portion of the peninsula was marked by the spread of lavas at the beginning of the Tertiary era. These lava flows occurred in horizontal beds of varying thickness reaching a maximum of 3000 m. near Bombay. The weathering peculiarities of these basaltic formations and their almost horizontal position resulted in the development of the characteristic 'trap' topography. The Deccan lavas extend from the southern flank of the Narmada valley to the banks of the Krishna in the south. In the east their boundary is roughly coterminous with the longitude 76°E while the Arabian sea forms a natural extremity to the west. This basaltic base is covered by a fertile black soil except in
the river valleys, on the terraces and the old flood plains where alluvial deposits occur (Singh, 1971:699). As the Vindhyan hills to the north of the river Narmada form a natural barrier it was found necessary for the purpose of this study to include the Narmada valley within the framework of the western Deccan. Geologically and climatewise the western Deccan forms a unified region within the peninsula and its eastern boundary coincides with the 'climatic transition which shifts the emphasis in agriculture from the kharif\(^1\) cropping season to that of the rabi' (Deshpande, 1948:7).

Though of uniform geological formation, the western Deccan forming a plateau with a gradual slope to the east, can be divided into several relief regions. The high Sahyadri range (or the Western Ghats) runs longitudinally along the western edge of the plateau and separates it from the narrow coastal strip of the Konkan in the west. Lateral offshoots of the Sahyadris traverse the plateau eastwards, prominent among which are the Ajanta hills, the Balaghat range and the Mahadeo range. These form barriers between the Tapti, Godavari, Bhima and Krishna river valleys respectively. In the north the Satpura range separates the river basins of the Narmada and the Tapti. While the last two rivers mentioned flow westward into the Arabian Sea the Godavari and the Bhima-Krishna systems flow eastward into the Bay of Bengal.

1.2 The West Coast: This is comprised of the estuaries of the Narmada and the Tapti and the coastal strip of the Konkan. The coastal plain is a rugged belt about 50 kms.

\(^1\)The kharif cropping season is suited to crops like rice, jowar, bajra, sesamum, cotton and jute which are sown after the onset of the monsoons in June-July and are harvested in autumn. Rabi crops like wheat, barley, gram, linseed, rapeseed and mustard are sown after the rains and harvested in spring (Spate and Learmonth, 1967:229).
in width in the north and tapering off towards the south to about 30 kms. The Thana creek divides the plain into the north and the south Konkan. At the mouth of the Tapti the Sahyadris curve away from the coast to form wider plains. The plains widen out again to the south of this, in the Ulhas river basin which has a line of low hills running longitudinally down the middle.

The rugged nature of the Konkan is due to the outliers of the Sahyadris which in many places extend to the sea as headlands. The plains are further broken by a number of short, fast-flowing rivers such as the Vaitarna, Ulhas, Amba, Savitri and Vashishti. These rise in the Sahyadris and flowing through narrow, deep ravines enter the Arabian Sea after tortuous courses of seldom over 60 kms. (Imperial Gazetteer of India, II, 1909:143-4). Sharp bends in these rivers make them unfit for navigation beyond 30 kms. or so of their mouths. They are also ill-suited for irrigation since they only carry adequate quantities of water during the rainy season and during the rest of the year have a limited flow or even go dry. (Joshi and Bopardikar, 1972:48). Deposition of eroded material in their lower reaches, especially in estuarine tracts, is a common feature of these rivers. Apart from providing fertile tracts, the estuaries also afford safe anchorage for coastal craft. The sea coast is also characterised by tidal inlets and creeks, some of which run inland for 40 to 50 kms. (Imperial Gazetteer of India, II, 1909:110). Historically speaking almost every safe creek and estuary had a port but its importance depended on its hinterland. This prominence has however been far from uniform and the ports of the west coast have had fluctuating fortunes as a result of the opening up of new routes and the silting up of inlets. As late as the seventeenth century the Bassein creek was navigable as far as Kalyan and Bhiwandi and the silted channel on which
Sopara stands today was navigable over a long distance. Similarly the Thana creek was navigable throughout its course and the present marshes and salt pans were much smaller. In the jaw of the Thana bight stood the islands of Hog, Gharapuri (Elephanta) and Karanja or Uran (Apte, 1973:8-10).

Similarly when the Portuguese took possession of Bombay it was a sandy and uncultivated island circumscribed within very narrow limits, traversed by innumerable creeks and partly submerged by the sea at high tide (da Cunha,1874:293). Surat on the mouth of the Tapti was an important port during the medieval period but finds no mention under the Sātavāhanas. The predominance of Bharuch was possibly due to its accessibility both from the north and the south. It was the only outlet on the west coast for the landlocked Gangetic plain with a passage from the peninsula through the Narmada valley. Surat, on the other hand, was shut off from the plateau by the Rajpipla hills and the forests of Dangs and Khandesh (Janaki,1974:3).

Like the rest of the Deccan plateau the Konkan is covered with black soil (often referred to as regur) except in two parts. The north Konkan has an alluvial strip of land separated from the interior by the hill range of Kaldurg running approximately north to south (Deshpande,1948:161), whereas laterite extends over a major area of the south Konkan. Since laterite is not moisture-retentive it can only support scrub growth and is of little value for crop production (Brown and Dey,1955:687). This accounts for the agricultural deficiency of the south Konkan and for the concentration of settlements along the alluvial river valleys (Deshpande,1948:183).

Rainfall along the Konkan coast comes from the south-west
monsoon during the months of June to October and it is dry during the winter months, although farther east some precipitation is brought about by the retreating north-east winds. Rainfall averages between 190 to 250 cms. in the south Konkan but decreases to between 100 and 175 cms. in the northern part (ibid.:159). As a result the sea front is fringed by a belt of coconut and areca nut palms. Behind this strip the flat land is suited to rice cultivation. The foothills of the Sahyadris are covered with monsoon and littoral forests, and trees belonging to the mangrove family abound along the creeks and on the coast (Das, 1969:10).

According to Tamil literature gold used to be extracted near Phondaghat at the foot of the Sahyadris (Imperial Gazetteer of India,II,1909:153). Iron occurs in the lateritic zone of the Konkan, especially in the neighbourhood of the port of Malvan. The coast has been known for pearls; and oil is extracted from sesamum, coconut and groundnut (Das, 1969:169).

The Konkan coast seems to be isolated on account of the Sahyadri range, but its position in history has been far from insular. The passes along the Sahyadris have been profitably used to maintain communications between the coast and the plateau. Until the beginning of this century grain, cotton and sugar were brought down from beyond the Western Ghats to the coast by pack animals and as headloads to be exchanged for coastal produce like coconuts, salt and dried fish.

Dolerite dykes, chert, crypto-crystalline silica and quartzite occur in plenty in the north Konkan. Inspite of this availability of raw materials suitable for the manufacture of tools, archaeological evidence in the Konkan is restricted to relatively isolated surface sites yielding a limited number of artefacts. One of the major factors in
the economic backwardness of the Konkan is the acute scarcity of water during the six months preceding the monsoon. Along the coast the rivulets are virtually dry for half the year, and as the water in the estuaries would be saline it could be concluded that the Malvan coastal Stone Age sites represent only seasonal occupation. On the other hand, at Bombay, human habitation could have been sustained throughout the year because of the perennial springs located in the hills above Kandivli (Guzder, 1975: 218).

In respect of the protohistoric period also, archaeological efforts have drawn a blank and no Chalcolithic or Megalithic sites have so far been discovered along the Konkan. Farther north, on the west coast, however, Harappan and Late Harappan settlements extend from Gujarat up to the mouth of the Tapti. Mehgam and Cavanaeswar lie on the north bank, while Telod lies on the south bank of the Narmada. Bhagatnav is situated on the Kim, a tributary of the Tapti. On a lower estuary of the Tapti is Malvan and Jokha is at a distance of 6 kms. from the present river bed (Sankalia, 1974: 386-8). Stray finds from Bharuch include sherds of red ware and buff ware, said to be similar to the Chalcolithic cultures of western India (Mehta, 1981). Period II at Bharuch dated to the latter half of the first millennium B.C. provides the first archaeological record of Early Historical settlement along the coast (ibid.). Another site which has yielded similar evidence is Sopara where a few lines of the eighth and ninth Aśokan edicts have been found (Chakraborti, 1966: 101; Chakravarti, 1956-57: 107-8).

Aparānta (north Konkan) and its towns find mention in several literary texts. The Mahābhārata refers to Aparānta (Droṇa parva. 9. 40; Sabhā parva. 47. 24) and speaks of the sanctity of Śūrpara (Sopara), the tīrtha (Aranyaka parva. 118. 8). The inhabitants of Bṛgukaccha (Bharuch) are said
to have paid tribute to Yudhishthira (Sabhā parva.307).

The Rāmāyāna is silent about settlements along the west coast, though it describes the Sahya mountain crossed by Rāma's army during its march to Lanka (VI.4.34).

The fifth rock edict of Aśoka mentions the inhabitants of Aparānta (Ka). In the Mahāvamsa (XII.5) and the Dīpavamsa (VIII.7) Aparānta is mentioned as one of the countries to which Aśoka sent missionaries after the Third Council and Vijaya who led the first settlement of Sri Lanka is said to have embarked from Sopara (Mahāvamsa.VI.46,47). Kauṭalya refers to the fine cotton garments of Aparānta (Arthasastra. II.11.90). The Supparaka jātaka narrates the story of the sailor Supparaka who lived in Bharukaccha (Bk.XI,no.463). People from Bharukaccha and Aparānta are again mentioned in the Milindapañha (II:172). It is also stated that in Aparānta a kind of grain called kumudabhandika is reaped and harvested within a month and eaten by slaves and workers, while rice ripens in five or six months (ibid.:121).

Both Bharuch and Sopara continued to flourish in the Satavāhana period. Bharuch lies on the right bank of the Narmada about 50 kms. from its mouth. Its vicinity is a fertile plain of black soil. Hardly any rocks occur within 50 kms. of the coast (Imperial Gazetteer of India, I,1909:318). The Periplus describes in detail the dangerous passage through the narrow gulf to Barygaza/Barugaza (identified with Bharuch):

The bay which (leads) to Barugaza being narrow, it is difficult for those coming in from the sea to enter.... the mouth of the river by Barugaza is difficult to find because the country is low, and nothing can be observed with certainty till one is nearer.... Because of this, the royal fishermen of the entrance go up with fully-
manned long ships called trappaga and kotumba as far as Surastrene to meet (incoming ships) which they pilot to Barugaza (Huntingford, 1980: secs. 43, 44).

The importance of Bharuch lay in its strategic location. Situated at the northern tip of the west coast, it provided an outlet both for the settlements of the Deccan and for the cities of north India such as Ujjain, Vidisha and Mathura (Deshpande, 1981: 38).

South of Barygaza, the Periplus mentions the market towns of Suppara (Sopara) and Kalliena (Kalyan), and at the same time indicates a conflict between the rulers of Barygaza and Kalliena to capture the external trade:

Kalliena (Calliena), which in the time of the elder Saraganes (probably Sātakarṇi I) became a legal mart; but since it came under Sandanes (perhaps a viceroy of Nahapāna) (the trade) has been much hindered, and Greek ships which by chance enter these places are sent under guard to Barugaza (Huntingford, 1980: sec. 52).

Even though donors from Kalyan find frequent mention in the inscriptions of the western Deccan, no excavation has yet been carried out at this site. Surface exploration has, however, yielded sherds of the Early Historical Red Polished Ware (IAR 1957-58: 67). At Sopara, on the other hand, excavations have unearthed the remains of a brick-built stūpa of the second century A.D. (Journal of the Bombay Historical Society, 1939: 187) and other evidence of settlement during the Sātavāhana period (Contractor, 1957: 47).

Further south the Periplus mentions the port of Semylla identified with modern Chaul to the south of Bombay (sec. 53). Chaul lies on the right bank of the river Kundalika and at the head of the Roha creek, thus providing a convenient
harbour for coastal craft (da Cunha, 1876-7:57). In the vicinity of the modern city of Bombay within a radius of 15 kms. from Chaul, there are at least 130 Buddhist caves at Kanheri, Kondivate, Marol, Magathana and Mandapeswar. Of these the largest monastic establishment was at Kanheri with 109 caves, though some of these are as late as the ninth and tenth centuries A.D. (Fergusson & Burgess, 1880:348). It is difficult to precisely date Buddhist remains in this area on account of later conversion and occupation. Another hazard has been the search for relics which has resulted in the demolition of several stūpas. Kondivate, 1.5 km. north of the village of Marol was perhaps the site of the earliest caitya in the western Deccan (Dehejia, 1972:153). Magathana, 6 km. to the south-west of Kanheri is mentioned as Magalathana in one of the Kanheri inscriptions (Lueders, 1912:1024). The ancient remains at the site are a small mound near the Dev tank on the top of which may be seen two small Buddhist stūpas. By the side of another pond in the same village there stands a small temple-like shrine; the temple having been built out of the materials used for the monastery. On the borders of Magathana village are a series of rock cut caves popularly known as the Poinsar caves. In close proximity of these is a small hamlet known as Devi-ka-para where numerous loose pieces of stone with Buddhist symbols have been found. Some of these remains have been dated to the sixth-seventh centuries A.D., though others may undoubtedly be much earlier (Dikshit, 1942:500-4).

We have mentioned earlier that in the Ulhas basin the Konkan coast widens into the Sahyadris to form an arc. Kalyan lies at the centre of this basin. Even more important than the agricultural potential of the region is its strategic control of the communication network. In this area the Sahyadris are broken by three natural passes - the Thal-, Nana- and Bhorghats. Kalyan lies in a favourable position to dominate these
arterial routes between the coast and the plateau (Deshpande, 1948:177).

In view of the agricultural unsuitability of the lateritic soils of the south Konkan, it is not surprising that settlements are limited to fertile tracts along the mouths of the rivers. The Periplus mentions the ports of Mandagora (Bankot at the mouth of the river Savitri), Palaepatme (Dabhol on the north bank of the river Vashishti), Malizigara (Rajapur at the head of a tidal creek), Byzantium (Vijayadurg, one of the best harbours on the west coast) and Turannoboas (Malvan, situated in a bay). In south Konkan, as in the north, Buddhist caves lie in the vicinity of ports, e.g. as at Bankot. Two small groups of caves with inscriptions occur at Kol across the Savitri river (Burgess, 1885:74). Twenty-six caves have been found at Kuda 45 to 60 m. above sea level and looking down on the Rajapur creek (Burgess & Indraji, 1976, reprint: 3). 45 kms. to the south-east of Kuda are twenty-eight more caves at Mhar on the Savitri river (Fergusson & Burgess, 1880:209).

1.3 The Satpura Range, the Sahyadris and the Deccan Plateau: The Satpura range divides the valleys of the Narmada and the Tapti and consists of two blocks separated by the wide water gap of Burhanpur to the east which provides a passage for the Tapti. 20 to 40 kms. in width, the general relief features of the Satpuras bear a close resemblance to those of other hills of the Deccan except that the former have a greater average height and many of their peaks rise above 900 m. Their fractured southern edge makes the Satpuras a formidable barrier from the Tapti side.

The Satpuras contain a number of high plateaus. Significant among these is the long and narrow Toranmal plateau lying within the boundaries of the present day Dhule district.
It has an average height of 1000 m. and a large lake is situated near its south-western corner. West of the Toranmal plateau are the Akhrani uplands with many rich valleys. The hills are believed to contain veins of silver, copper and tin (Maharashtra State Gazetteer, Dhulia district, 1974: 10).

The Sahyadri range or the Western Ghats run north to south along the western edge of the Deccan with a width of 30 to 45 kms. and an average height of 915 to 1220 m. (Spate & Learmonth, 1972:24). Local faulting and erosion have given the range an appearance of a chain of plateau tops girdled by terraces and broken in many places by local weaknesses in the rock which have formed passes. Of these, the Thal, Nana and Bhor passes have already been referred to as major routes of communication between the Konkan coast and the plateau. Some other notable passes include the Kondaibari pass in the north connecting an ancient route between Bharuch and the Deccan, and the Vagji-, Kumbharli-, Amba- and Phondaghats in the south (Imperial Gazetteer of India, 1, 1909:160-1).

From the Sahyadris lateral hill ranges stretch eastwards across the plateau gradually decreasing in height. These form barriers between the river valleys and are crossed by passes which determine the arterial routes. The northernmost of such offshoots of the Sahyadris are the Galna hills and these along with several minor spurs separate the valleys of the different tributaries of the Tapti (Maharashtra State Gazetteer, Dhulia district, 1974:4). Enclosed by the Galna hills to the north and the Ajanta range (also known as the Chandor, Indhyadri or the Satmala
hills) to the south is the Malegaon plateau drained by the Girna, a tributary of the Tapti. In contrast to the fertile Girna valley the plateau is characterised by scrub and grasslands (Deshpande, 1948:152). The Ajanta range forms a barrier between the Tapti and the Godavari basins and stretches across the peninsula in an easterly and south-easterly direction. It has a number of passes through which routes from the Godavari valley proceed northwards. The Buddhist caves of Ajanta are situated at the head of one of these passes (Fergusson & Burgess, 1880:280), while the caves at Pitalkhora are located on both sides of a ravine (Deshpande, 1959:66).

South of the Thalghat runs another line of hills known as the Kalsubai range bordered by the Pravara valley to the south. Separating the Pravara from its tributary, the Mula, is the Baleshwar range. Enclosed by the Baleshwar range to the north and the Harishchandra range to the south is the vast Ahmadnagar plateau with an elevation of over 900 m. in the west and less than 600 m. in the east. The Harishchandra range, known as the Balaghat range in the east, forms a divide between the Godavari and the Bhima basins (Maharashtra State Gazetteer, Ahmadnagar district, 1976:5). The central parts of this range are characterised by scrub and poor grassland, though farther east the vegetation improves owing to the influence of the north-east monsoon (Deshpande, 1948:131).

Forming the south-western boundary of the Bhima basin are the Purandhar and Mahadeo ranges. The north face of the latter falls sharply into the Nira valley (a tributary of the Bhima) while to the south the hills fall more gently to the valley of the Krishna (Maharashtra State Gazetteer, Satara district, 1963:5). Separating the tributaries of the Krishna are several hill ranges which emerge from the Sahyadris and extend eastward and north-eastward. While some of these are as long
as 50 kms. others terminate after a shorter stretch (Maharashtra State Gazetteer, Kolhapur district, 1960:2).

The Deccan Trap underlying the entire region, locally interspersed with intra-trappean beds, weathers into a rich black soil which is fertile and moisture retentive. Its unusual contraction under dry conditions gives rise to its 'self-ploughing' quality. In the dry season cracks form and soil fragments from the surface fall down through these to a depth of one or two metres. This results in a periodic exchange of the topsoil and the subsoil (Spate & Learmonth, 1972:99). However when waterlogged it becomes difficult to traverse even on foot (Brown & Dey, 1955:689). At the same time, the depth of the soil is not uniform over the entire western Deccan. While low-lying valleys develop a mature and fertile soil, the higher zones having a steep gradient are characterised by immature and poor soil types. It follows that agricultural production is limited to the valleys while indifferent dry farming and sheep grazing are typical of the plateau tops.

The black soil with its high lime content is ideal for growing cotton. Wheat, millets, jowar, oilseeds and gram are the other crops cultivated in the valleys, whereas in the uplands millets and pulses are the main crops (Deshpande, 1948:232-7). In certain cases it has been found that a field producing cotton and jowar for two or three generations has now become a pasture land because of continued soil erosion (Mukherjee, 1969:251).

As in the Konkan, the main rainy season in the rest of the western Deccan lasts from June to October, with heavy rainfall at the onset of the south-west monsoon in June and again in September (Singh, 1971:704). The Sahyadris lie in the heavy rainfall zone and receive an annual rainfall approximately
over 380 cms. though there is a gradual decrease from south to north. On the plateau, precipitation varies between 65 and 100 cms. and in the central part lies a narrow belt which gets only about 50 cms. annually (ibid.). Beyond the plateau the region to the east gets rainfall from the north-east monsoon also and this is very important for the rabi crop.

The flat-topped Sahyadris on their higher slopes support a poorer type of forest and occasionally scrub, while their lower slopes are covered by jungles of teak and bamboo (Imperial Gazetteer of India, I, 1909:160-1). In the plateau tracts east of the Sahyadris a dry mixed deciduous forest predominates with a large proportion of grassland, especially on the hill tops. Still farther east scanty rainfall supports only thorn forests (Deshpande, 1948:71-2).

The Deccan Trap forms the chief source of semi-precious stones, prominent among which are agate, carnelian and other forms of chalcedony. In some parts of the Deccan the surface is strewn with chalcedony nodules left after the weathering away of the enclosing rock, and in certain localities extensive beds of gravel and conglomerate exist, made up entirely of water-worn pebbles of agate and chalcedony (Brown & Dey, 1955:621).

The Rāmāyana (III.1.1;19.8) and the Mahābhārata (Aranyaka parva.83.38) mention the great forest tract of Dandakāranya. This has been identified with the western Deccan according to some scholars (Dikshitar, 1934-5:583) though others place it farther east in ancient Andhra (Ghurye, 1977:3).

Settlements during the Palaeolithic period were confined to river valleys, but spread to the plateau in the subsequent Mesolithic period. Natural caves located in the steep escarpments of basaltic hills overlooking the Konkan coast
provide evidence of use. Prominent among these are those at Pachad and Hathkamba (Sankalia, 1974:246-8).

The importance of the passes along the Sahyadris as a means of communication between the Konkan and the interior, seems to have been exploited in the Early Historical period and Buddhist caves are situated at the head of almost every important pass in the region. Thus with one hundred and eighty-four caves, Junnar, at the head of the Nanaghat was the largest monastic establishment (Jadhav, 1981:84). The location of Junnar is ideal for agriculture also. It lies in a broad flat valley on the right bank of the Kukdi, a tributary of the Ghod. To the south-east the valley opens into the wide Deccan plain.

The Thalghat connected the coast with Nasik. The caves of Nanoli, Shelarwadi, Bhamchandra (Johns, 1876:252-3), Kondane, Karle, Bhaja, Ambivale and Bedsa lay near the Bhorghat and those at Nadsur and Karsamble were situated below the Vagjighat (Cousens, 1891:111). The present village of Ambivale is situated on an ancient mound and excavations at the site may prove valuable. Kumbharlichat led to the caves at Karad and Patan. In the medieval period the passes continued to play an important role and forts were built to guard these routes.

1.4 Narmada Valley: The Narmada rises from the plateau of Amarkantak in central India and after traversing a distance of nearly 1300 kms. westward enters the Arabian Sea past the town of Bharuch. Like the Tapti, the Narmada also does not flow in a valley of its own erosion but occupies the fault plane or deep alluvium-filled rifts in the rocks between the Vindhya and the Satpura ranges. Its longitudinal profile

1. Information gratefully received from Shri M.N. Deshpande, ex Director-General, Archaeological Survey of India.
shows the irregular character of its gradient marked by waterfalls, steep gorges, broad valleys filled with thick alluvial deposits in its middle course and wide flood and tidal planes in its lower course.

The Narmada enters the western Deccan just west of the Mandhata gorge after flowing through hills which rise almost straight from the river on both sides and are covered with dense forests, while the bed of the river is crossed by diagonal ridges every few kilometres. On crossing into the western Deccan the river enters its second open alluvial basin nearly 130 kms. in length. Here its valley widens out, the Vindhyas being 26 kms. to the north and the Satpuras about 60 kms. further south and it receives its major tributaries such as the Man, Uri and the Borad. It is in this fertile tract around the fordable part of the river that the ancient sites of Maheshwar and Navdatoli are situated.

Farther west, the Narmada again enters a narrow gorge between0 formations rising to over 1000 m. in the Akhrani hills of the Satpuras. After about 120 kms. it finally emerges from the hills and enters an alluvial plain through which it meanders past Bharuch to the sea (Imperial Gazetteer of India, I, 1909:175-8).

Owing to its rocky course, the Narmada is unsuitable for navigation east of Bharuch, except by country boats during the months between August and February. It is, however, fordable at several points, an important crossing being at Maheshwar. Large flat-bottomed boats still ferry carts and bullocks across the river at this point (Sankalia, 1962:32). Another drawback of the river is its unsuitability for irrigation owing to the height of its banks.

Exploration in the Narmada valley has revealed faunal remains
of the Middle Pleistocene. Fossils include those of the Bubalus Palaeindicus (related to the modern buffalo), Bos Namadicus (the precursor of present day cattle), Cervus Duvauceli (related to the barasinga), Hippopotamus Namadicus, Equus Namadicus (related to the horse), Rhinoceros Unicornis and Elephas Maximus. These represent forerunners of present day species and indicate that the Narmada valley was a vast savannah land with floodplain lakes and swamps in which a varied assemblage of hooved mammals and reptiles flourished (Badam, 1981).

At the sites of Maheshwar and Navdatoli occupation dates from the Palaeolithic period to medieval times with a few breaks in habitation (Sankalia et al, 1958). At Kasrawad about 5 kms. south-south-west of Maheshwar and on the opposite bank of the Narmada, excavations revealed a Buddhist establishment and a stūpa between the third and second centuries B.C. (Report on the Administration of the Holkar State, 1936:76; 1937:86; 1938:135; 1941:137).

Apart from the middle reaches of the Narmada, the remaining part of the valley in the western Deccan does not seem to have been occupied. A few stray microliths have been found in the lower Narmada valley but no sites have been discovered so far (Joshi, 1981). Macdonell and Keith in the Vedic Index suggest a reference to the Reva (identified with the Narmada) in the name Revottara which occurs several times in the Śatapatha Brāhmaṇa (XII.8,1,7;9,3,1). The Mahābhārata mentions the Narmada several times as a tīrtha (Āranyaka parva.87.2;80.71;121.18, etc.). In the Rāmāyana, Sugriva instructs his army regarding the route to the south of the Vindhyas and mentions the river Narmada (IV.40.8). Ptolemy writing in the early centuries of the Christian era refers to the river as Namades (Ptolemy, VII.62-5). Mahīṃmati (identified with Maheshwar) finds a prominent
place in Buddhist literature as the capital of Avanti; the epics refer to its association with the Haihayas (Mahābhārata, Anuśāsana parva. 2.6; 137.3); and both Kātyāyana (on Pāṇini, VI.1.63) and Patañjali (3.1.26) mention this ancient city.

1.5 The Tapti Valley: The Tapti rises in the Satpura plateau and flows westwards, traversing a distance of over 720 kms. to the Arabian Sea. For the first 240 kms. from its source the river is confined to a comparatively narrow valley. A few kilometres above the Burhanpur gap the valley opens out into a basin of fine alluvial soil, but this region has till recently been covered by dense forests. The Tapti enters the western Deccan shortly after its confluence with the Purna and then flows for another 240 kms. through a broad and fertile valley.

Farther west the hills close in and in the Vajpur-Sindkhed tract or the west Tapti valley the river descends through densely forested country after which it flows to the sea through the alluvial plain of the Surat district, becoming tidal for the last 50 kms. (Imperial Gazetteer of India, I,1909:174-5).

A major part of the Tapti valley in the western Deccan is less than 300 m. above sea level. The river is at a lower level because of the deeply entrenched bed which in many places is as deep as 15 m. from the basin level. Erosion along its banks by the tributaries have rendered the region unfit for agriculture. As a result there is little density of population along the banks of the Tapti, the richest area being the crescent-shaped region half-way between the river and the mountains on the black soil region stretching from Nandurbar to Jalgaon (Deshpande, 1948:149).

The west Tapti valley corresponding to the modern district
of Dhule offers a sharp contrast to the east Tapti valley (roughly corresponding to the present district of Jalgaon). Owing to heavy rainfall and the consequent extensive forests, cultivation in the west Tapti valley is limited only to the immediate banks of the river. Rice and rāgi are the major crops, and in certain regions dairying is important because of an abundant fodder supply (ibid.:153). In the eastern tract cotton is the principal crop though medium rainfall crops like millets, oilseeds and pulses are also grown. Like the Narmada the Tapti too is unsuitable for irrigation because of the height of its banks. Since the bed is crossed at several places by rocky ridges the river is navigable for only 30 kms. from the sea.

No Lower Palaeolithic site has so far been found in the Tapti valley though the valleys of its tributaries like those of the Kan–Panjra and the Gang-nala have yielded evidence of prehistoric occupation. The Middle Palaeolithic and Chalcolithic sites in the basin, however, are concentrated in the west Tapti valley. Prominent among the latter are Prakash and Savalda at the confluence of the Tapti and the Gomai, and Bahurupa, Bahal and Tekwada on the Girna.

In the Megalithic period although the concentration of settlements had shifted to the Vidarbha region east of the plateau a sprinkling of typical Megalithic pottery occurs at several sites in the Tapti valley as well. At Tekwada Black-and-Red ware has been found along with Jorwe ware, while stone circles have been found at Ranjala in its vicinity (IAR,1960-61:32). Around 1000 B.C. there is a break in habitation and it is only later in the Early Historical period that most of these sites were re-occupied.

Ptolemy refers to the Tapti as Nanagounas (VII.66), though the identification has several difficulties. In an earlier
section (VII.7). Ptolemy locates the mouth of the Nanagounas at the same latitude as the town of Souppara (Sopara), which is actually farther south. In the same paragraph he also mistakenly locates the source of the river in the eastern part of the Vindhyas (Vogel, 1952: 79).

In the epics there is no mention of the Tapti itself though the river Payosñî mentioned as an important tîrtha (Āranyaka parva. 58. 21; 83. 37) in the Mahābhārata has been identified with a tributary of the Tapti in the Vidarbha region.

1.6 The Godavari Valley: The Godavari rises on the eastern slopes of the Sahyadris near Trimbakeshwar in Nasik district and flows across the Deccan in a south-easterly direction for over 1460 kms. until it enters the Bay of Bengal. Above Nasik it flows along a narrow rocky bed but farther east the banks become lower. The plains of the Godavari are 350 to 550 m. above sea level and its main tributaries, the Pravara, the Sindphana and the Manjra flow more or less parallel to it before joining it. In its upper reaches the Godavari is not navigable (Imperial Gazetteer of India, I, 1909: 178-81).

Geologically the region is classified as the Deccan Trap. Alluvial deposits however occur near the source of the Godavari and in the middle and lower reaches of the Pravara valley. In the latter these extend laterally for about 2 to 3 kms. and are about 20 to 25 m. thick.

Rich fossiliferous deposits of the Upper Pleistocene period on the Godavari and its tributaries, the Pravara and the Manjra, have yielded remains similar to those found in the Narmada valley. These indicate both a heavily vegetated environment and savannah grasslands (Badam, 1981).

Culturally the upper Godavari basin is rich in archaeological
remains ranging from the Palaeolithic age to the Historical period. Prominent sites of the Chalcolithic period are those at Nasik on both banks of the Godavari (Sankalia and Deo, 1955); Paithan (IAR, 1965-66: 54); Jorwe and Daimabad (IAR, 1958-59: 15); and Nevasa (Sankalia et al., 1960) on the Pravara. At the end of the protohistoric period there is a break in habitation at all the sites until the Early Historical period.

At Nasik the settlement of the Early Historical period has been dated from the fifth century B.C. to the third century A.D. After this there is a second break in occupation, the last phase being the Muslim-Maratha period dated between 1400 to 1875 A.D. (Sankalia & Deo, 1955). In literature, Nāsikya (Nasik) is referred to by both Katyāyana in his Vārttika (on Pāṇini, VI.1.63) and by Patañjali in his Mahābhāṣya (6.1.63).

The settlement at Nevasa commenced a little later than that of Nasik and has been dated from the beginning of the second century B.C. to the third century A.D. after which the site remained uninhabited until the Muslim-Maratha period (Sankalia et al., 1960).

There are several references to Paithan in literature. The Periplus calls it Paethana and places it at 20 days' march south of Barygaza (sec. 51). Ptolemy refers to it as the capital of the king Pulumāvi and places it in Ariake (VII.82). However, no systematic excavation has so far been undertaken at the site nor are any detailed reports available of earlier digs. (Deo, 1981).

The Sātavāhana town of Bhogavardhana (present day Bhokardan) also lies in the Godavari basin on the right bank of the now dry bed of the river Kelna (Deo & Gupte, 1974: 1-5).
district Osmanabad on the west bank of the Terna, a stream of the Manjra, has been identified with Tagara by Fleet (1901: 542-3). Earlier writers had identified this market-town mentioned in the Periplus (sec.51) variously with Daulatabad, Junnar, Darur and Tavaragir (Chapekar,1969:2). Ptolemy places Tagara in the region of Ariake (McCrindle,1885: 175).

The Godavari is also prominently mentioned in literature. According to the Rāmāyana and the Mahābhārata (Āranyaka parva, 97.26) the hermitage of Agastya was situated within reach of Pañcavaṭī on the Godavari (Rāmāyana,III.14.12). The Bodhisattva is also said to have lived on the banks of the Godavari (Jātaka,Bk.XVIII:no.522). Identified with the Goaris of Ptolemy (VII.6), the river continues to be regarded as sacred and several towns along its banks like Nasik and Paithan are places of pilgrimage.

1.7 The Bhima Valley: The river Bhima, although a tributary of the Krishna, may be treated as a separate system since within the western Deccan a major area is drained by it together with its tributaries the Ghod, the Sina, the Mutha, the Nira and the Man (Deshpandé,1948:138). The Bhima rises in the Sahyadris and flows south-eastwards for a distance of 800 kms. before joining the Krishna. The first 60 kms. of its course lies in a narrow and rugged valley, but farther east the gradient is less and the banks are low and predominantly alluvial, though broken here and there by dykes of rock (Imperial Gazetteer of India, I,1909:183-4).

The Ghod valley has yielded abundant palaeontological material indicative of the environment during the Upper Pleistocene period. Here too the presence of fossils of
elephants, cattle and deer point to savannah vegetation (Badam, 1981).

Practically the whole of the Bhima basin today is dry with an average rainfall of between 50 and 70 cms. annually, the most arid being the central region. Low lying valley tracts are covered with rich black soil, although the upland areas in the eastern part have poor topsoil. The aridity of this area has been overcome in recent times by canal irrigation and at present the south-western part of the basin comprising the talukas of Pune and Satara is densely populated (Deshpande, 1948: 138-40).

In the protohistoric period the upper Bhima basin formed an important centre as indicated by the conglomeration of Chalcolithic settlements. Inangaon and Chandoli on the Ghod were major sites, together with Theur and Sastevadi on the Mutha (IAR, 1969-70: 27) and Songaon at the confluence of the Nira and the Karha (Sankalia, 1974: 473). After an abandonment of the region owing to famine conditions in the middle of the first millennium B.C., this area again gained prominence with the ascendance of the Sātavāhanas. The Maval or the region comprising the districts of Pune and Satara finds mention in Sātavāhana inscriptions as Māmālāhāra (Lueders, 1912: no. 1105). The Bhorghat provided the much needed line of communication between the hinterland and the coast and had a series of Buddhist caves in its vicinity.

1.8 The Upper Krishna Valley: The upper Krishna basin situated between the Sahyadris and the Mahadeo hills forms a distinct geographical region. Rising in the Mahabaleshwar plateau, the river flows southwards till its confluence with the Panchaganga. It then turns eastwards and after dropping from the tableland of the Deccan meets the Bhima and flows down to the alluvial plains of the Shorapur-
Raichur doab. Near the hills the channel of the river is rocky but it gradually opens out to form an almost plain tract. Owing to its southerly course the Krishna enters a wetter region near Karad at the confluence of the Krishna and the Koyna. South of Karad the plain broadens out still further and the meandering course of the river upto its confluence with the Panchaganga gives the plain its rich alluvial cover. In this region intensive diversified agriculture is typical on account of adequate rainfall and soil fertility. It thus constitutes one of the richest agricultural tracts of the western Deccan (Deshpande, 1948:134-5).

It is therefore unusual that though there is evidence of prehistoric occupation no protohistoric sites have been found so far. The earliest indications of permanent settlement are during the Sātavāhana period. Excavations at Kolhapur, situated on the right bank of the Panchaganga, have yielded a rich hoard of Sātavāhana antiquities (Sankalia & Dikshit, 1952). Literary references to the site are few and still controversial. Karavīrapura on the river Vena across the Sahyadris mentioned in the Harivamśa (Adhyāyas; 39-44) is believed to be the earliest mention of the city. This topographical description, however, is considered too vague to allow any definite identification (Sankalia & Dikshit, 1952:8). Doubts have also been expressed on Bhandarkar's (1975, reprint:34) identification of Hippokoura, the capital of Balaekouros mentioned by Ptolemy (VII.83) with Kolhapur and its ruler Viliyākura (Sankalia & Dikshit, 1952:7).

Fifty-four Buddhist caves approachable through the Kumbharlighat and situated 5 kms. south-south-west of the town of Karad (Burgess, 1885:60), Karakahakta of the Bharhut inscriptions (Lueders, 1912:no.705) have been referred to. Another two are located at Patan, 32 kms. west-north-west of the same site. Eight caves are cut in the soft trap rock
6 kms. north of War on the left bank of the Krishna (Maharashtra State Gazetteer, Satara district, 1963:809).

A possible reason for the occupation of the upper Krishna basin in this period may have been the discovery of gold reserves in its vicinity. Numerous ancient gold mines have been found in various parts of the Raichur Doab south-east of the valley and the Dharwar rocks stretching south of the Krishna till the Tungabhadra are rich in gold-bearing ores (Brown & Dey, 1955:129).

1.9 Early Settlements: This detailed treatment of the various relief regions has shown that these were neither equally endowed with natural resources nor uniformly occupied by human settlers. The location of the settlements is determined both by the needs of the economy as well as those of the society. As a result a study of changes in settlement patterns provides a good indicator of changing needs.

1.9.1 The distribution of Palaeolithic sites shows that early man occupied a variety of ecological niches from heavy rainfall areas to semi-arid regions, though there is a concentration of palaeolithic finds where basalt dykes were available for tool making (Agrawal, 1982:41). Stone tools of the Lower Palaeolithic period dated to the Upper Pleistocene have been extensively found in the river valleys. Some of the major sites are Maheshwar on the Narmada, Bhadane on the Kan (a tributary of the Tapti system), Gangapur near Nasik, Chirki Nala near Nevasa on the right bank of the Pravara and Pune drained by the Mula and the Mutha in the Bhima system (Sankalia, 1974:74). Among these the largest assemblages of tools have been found at Gangapur and Chirki Nala, both the sites being characterised by easy availability of raw material. Fine grained basalt occurs in the form of dykes in the
vicinity of Gangapur (ibid.:135). Studies at Chirki Nala have shown that during the Lower Palaeolithic period the right bank of the Pravara was dominated by a rubble spread which formed the main raw material for the artefacts found there (ibid.:84).

The tool types from these sites include handaxes, choppers, cleavers, scrapers and flakes. A large majority of these could have been used only for cutting and skinning, while the long pointed handaxes may have been used for digging. There is evidence to suggest that some of the cleaver-type tools may have been hafted (ibid.:137). The overall evidence is indicative of a hunting and gathering economy. The primary cause for the abandoning of most of these sites has been attributed to the loss of raw material for artefact making because of the sealing of the boulder horizon by alluvial gravel brought by floods (ibid.:85).

1.9.2 Excavations at Chirki Nala have shown that there is no overlap between the Lower and Middle Palaeolithic cultures though the intervening period may not have been long (ibid.:149). Dated to 30,000 B.P. on the basis of radiocarbon tests (ibid.:146), some of the major Middle Palaeolithic sites include Maheshwar on the Narmada; the valleys of Ranka Nala and the Kan in the Tapti basin; Nevasa on the Pravara; Bel Pandhari, Kalegaon and Nandur-Madhmeshwar on the Godavari; the Ghod and Nira river valleys; Koregaon and Chandoli in the Bhima basin; a few sites in the upper Krishna valley; and Kandivli on the Konkan coast (ibid.:155). The highest concentration of Middle Palaeolithic sites is in the Dhule district in the region bounded by the Tapti in the north and its tributary the Panjra in the south. This region is characterised by Middle Palaeolithic tools which have been found in various stages of manufacture all made of a rare red variety of fine-grained basalt which occurs
locally (ibid.:155). At other sites in the western Deccan tools have been made from nodules of chert and agate, and the sites are in close proximity to the hills bearing veins containing these stones. A majority of the tools are from flakes and among these scrapers of various types form the largest category. Other varieties include points, borers, and occasionally handaxes and choppers (ibid.:149). The tools are comparatively smaller than those of the earlier period and could have been used after hafting for skinning, hunting and wood-working (ibid.:199).

1.9.3 Research on the Upper Palaeolithic culture is still in its early stages in India and only a few sites have so far been explored in the western Deccan. An important site yielding blades and burins is that of Ratna on the left bank of the Ad Método, a feeder stream of one of the tributaries of the Girna in the Tapti basin. Other sites that may be mentioned are those of Nevasa and Kandivli (ibid.:228).

1.9.4 Mesolithic tools, characterised by microliths, are found at several places on the Narmada, especially near its confluence with its tributary, the Orsang, and at a few sites on the Tapti valley. The cliffs along the rivers, the Godavari and the Pravara, from Nasik to Paithan abound in microliths made principally on agate and chalcedony. The natural caves located in the steep escarpments of the basaltic hills overlooking the Konkan coast were used during this period. Prominent among these are the caves at Pachad and Hathkhamba. The Konkan coast has yielded evidence of habitation during the Mesolithic period though a majority of these may have been temporary settlements owing to scarcity of water for a part of the year (Guzder,1975:218). This widespread occurrence of Mesolithic sites in the western Deccan is explained by the abundance of agate, chalcedony and quartz which formed the raw material for the tools.
The microliths might be typologically derived from the blade and burin industries of the Upper Palaeolithic period but it has not been possible to determine their age. It is quite likely that some of the sites may have been contemporary with the Chalcolithic settlements (Allchin & Allchin, 1974: 65). An analysis of the tool types shows that while the points and barbs predominate at Mesolithic sites, blades are in a majority at Neolithic and Chalcolithic settlements. This difference possibly resulted from the different requirements of the two communities. The association of lunates and geometric microliths with hunting is almost universal. Ethnographic parallels show that these were frequently hafted as points or barbs in arrow and harpoon heads. Blades, on the other hand, were probably hafted as knife- and sickle-type cutting edges (ibid.: 56).

1.9.5 The protohistoric period in Indian archaeology continues to be divided into the Neolithic and Chalcolithic periods, the distinction between the two being based on the appearance of copper in the latter and not on any differentiation in the subsistence economy. Similarly the Chalcolithic period in the western Deccan has been further subdivided into a number of phases such as the Savalda culture, the Late Harappa culture, the Malwa culture and the Jorwe culture, the characteristic feature of each being a type of pottery from which it derives its nomenclature.

The evidence of Neolithic sites in the western Deccan is very scanty. A few polished stone axes, sometimes in association with a grey ware, have been reported from Daimabad on the Pravara (IAk, 1958-59: 15), Bhamer (IAR, 1960-61: 26) and Kothali in the district of Dhule (IAR, 1957-58: 24), but these may only indicate contacts with sites farther south. At Songaon in the Bhima basin a Neolithic horizon has been located but the data available
is limited owing to the vertical nature of the excavations (Deo & Mujumdar, 1969: 3-5).

1.9.6 The earliest Chalcolithic settlement in this area thus belongs to the Savalda culture with twenty one sites in the west Tapti valley (Sankalia, 1974: 472) and a few in the upper Godavari and upper Bhima basins (Sali, 1977: 6). At Terdal in Bijapur district the layers yielding the Savalda ware have been dated on the basis of radiocarbon analysis to 1770+120 B.C. and 1935+100 B.C. (Sundara, 1971: 22). Evidence on the nature of the economy is provided by charred grains of barley and lentil.

The next phase marks the spread of the Late Harappa culture from the Kathiawar peninsula in Gujarat to the Tapti valley where about two hundred sites have been explored in the district of Dhule. It is only at Daimabad on the Pravara that excavations have been conducted but the detailed report is awaited.

The subsequent Malwa culture has its origin in the basins of the Chambal and the Narmada, though the Malwa ware also occurs at Prakash in the Tapti valley; at Chandoli and Daimabad on the Pravara; at Inamgaon on the Ghod; and at Songaon at the confluence of the Nira and the Karha. While radiocarbon dates for the Malwa culture at Navdatoli range between c. 2020 and 1660 B.C. (Allchin & Allchin, 1982: 267) those from Inamgaon are later and fall between 1800 to 1500 B.C. (ibid.: 273).

Sites of the Jorwe culture are characterised by a scanty rainfall of 50 to 100 cms. and are concentrated in the west Tapti valley, though the culture extends as far south as the upper Bhima basin. An average settlement varies between one to three hectares, the larger settlements like Daimabad
spanning as much as thirty hectares. Radiocarbon dates from different sites have provided a time bracket between 1500 and 1050 B.C. for the Jorwe culture (ibid.: 273). Around 1050 B.C. occupation ceased at a majority of the sites, but continued in a degenerate form till 800 B.C. at Inamgaon and has been called the Late Jorwe culture. It has been suggested by the excavators that at this time there was a deterioration in climate leading to a greater reliance on varieties of wild grains and also upon animal husbandry (ibid.: 283).

The genesis of these cultures is shrouded in controversy (Agrawal, 1982: 231) and little can be said beyond the fact that the Late Harappa and Malwa cultures showed a dispersion into the western Deccan from the north and north-west. Dhavalikar suggests (1973: 140) that the Jorwe ware was a local development and is a refinement over the Maharashtra fabric of the Malwa pottery. This view seems to be supported by recent evidence from the excavations at Daimabad (Deshpande & Sali, 1981). At the same time, the Andhra-Karnataka region has also given a number of sites with painted pottery and microliths, though the relationship of these with the known Chalcolithic cultures of the Deccan is not yet clear (Deo, 1982: 4).

The distribution of settlements shows a definite increase from the Savalda to the Jorwe periods, with an influx occurring in the Late Harappa period in the Tapti valley. Of the 238 Jorwe sites 137 are located in the west Tapti basin in Dhule district while 59 have been explored in the upper Godavari basin in the district of Ahmadnagar. Though the west Tapti valley has the highest number of sites, those in the Godavari basin are larger size-wise. Daimabad on the Pravara is the largest settlement with an area of approximately thirty hectares (Deshpande & Sali, 1981). Other sites in the Godavari basin are those at Nasik and
Nevasa measuring three hectares each (Sankalia, 1974:477). As compared to this, the Tapti basin has only one large site, that of Prakash which with its 7.5 hectare area is only a quarter of the size of Daimabad (Thapar, 1967:8). Farther north, of the twin sites of Navdatoli and Maheshwar on the Narmada, the settlement at Navdatoli is more extensive and measures four hectares though the whole area is cut into four mounds by floods (Sankalia, et al., 1958:18).

In the Bhima basin, Inamgaon extends over five hectares (Dhavalikar, 1975-6:44). It is however difficult to estimate the original spread of the sites of Chandoli (Deo & Ansari, 1965:3) and Songaon (Deo & Mujumdar, 1969:1) owing to the present disturbed nature of the mounds.

The sites of Navdatoli, Nevasa and Daimabad show four to five structural phases (Sankalia, 1974:477); elsewhere also the occupation strata are fairly thick (ibid.:471). At Inamgaon there is evidence for the construction of an embankment in the Jorwe period (Dhavalikar, 1975-6:47). The houses were generally rectangular on plan with mud walls and probably thatched roofs. These had ovens, pit silos and large storage jars (Sankalia, 1974:481). At Inamgaon and Daimabad (Deshpande & Sali, 1981) pottery kilns have been located in the habitation area. All these factors indicate permanent settlements at the major sites.

Charred grains have been found at almost all the large settlements suggesting the cultivation of barley, wheat, common pea, grass pea, horse gram, lentils and oilseeds during the Malwa period. Crops like rice, bājrā, rāgi, jowār (sorghum) and cotton were introduced during the Jorwe period (Vishnu-Mittre & Savithri, 1975-6:62). No agricultural implements have so far been reported from any of the Chalcolithic sites in the western Deccan. Microwear analysis
of stone blades of chalcedony which occur in profusion at all the settlements shows that these could have been used for harvesting (Pant, 1979:84). It is quite likely that other agricultural tools like the plough, the hoe, etc., may have been made of wood, which would account for their total absence in archaeological finds.

It has already been mentioned that the valleys of the Narmada, the Tapti, the Godavari and the Bhima provide a rich and fertile soil well suited to agriculture. Another factor responsible for the location of early settlements in these river basins may have been the savannah land which probably continued till the Chalcolithic period. This would have facilitated clearance of the land for crops. The predominance of hardy crops like barley and millet explains the location of settlements in low rainfall areas rather than in regions of comparatively higher precipitation like the Konkan or the upper Krishna basin.

Another feature common to the major Chalcolithic settlements is that most of them are situated on high ground and girded by a river - a location comparatively secure from attack. At Maheshwar the habitation was enclosed on the east and part of the north by the Maheshwari river. On the south was the Narmada and on the west a small nala (Sankalia, 1974: 434). At Navdatoli the earliest settlement took place on a terrace 25 m. high. Prakash, situated at the confluence of the Tapti and the Gomai is girded by the latter river (ibid.:471). Daimabad lies on a 10 m. high mound inside a loop of the Pravara (Sali, 1977:22). Similarly at Nevasa the occupation was on a 10 m. high terrace on the southern bank of the Pravara, though there is a local belief that the river once went round the southern periphery of the mound before changing its course (Sankalia, 1974:477). Inamgaon is situated on high ground 15 m. above the surrounding plain.

Thus it seems that the large Chalcolithic sites were primarily agricultural settlements situated at strategic points along the rivers. As contrasted to this, the scatter of microliths and Jorwe sherds at a large number of sites in Dhule district indicates a conglomeration of small habitation areas. There is no information regarding the size of these sites or the thickness of the occupation strata. Artefacts collected include microliths and sherds of pottery. Of the 137 sites, 27 have yielded evidence of burials. A comparison with settlements in the same area during the Middle Palaeolithic period shows that sixty of these had been occupied earlier.

The limited dimensions of the settlements coupled with the fact that the west Tapti valley is not suited to cultivation on account of large forest tracts, rules out agriculture as one of the bases for settlements in the area. One can also discount availability of raw material for tools as a factor as siliceous stones like chert, chalcedony, agate, jasper and quartz used for the manufacture of microliths and blades occur extensively in the western Deccan. The only plausible explanation seems to be that this concentration represents settlements of pastoral groups. The area is largely unsuited to agriculture but owing to an abundance of fodder the west Tapti valley forms an important dairying region (Deshpande, 1948:153). This symbiotic relationship between pastoralists and agriculturists has parallels elsewhere.¹

¹Half a century ago the Gavlis, a pastoral community, inhabited the forested upper plateaus of the Sahyadris. According to available evidence a single family could maintain 60 buffaloes and 20 heads of cattle. The Gavlis lived on the upper terraces and the herds subsisted on free-range grazing requiring little attention. Another
1.9.7 Around 1000 B.C. there is evidence of a famine in the western Deccan (Deo, 1982:5). We have already referred to Inamgaon where occupation continued till 800 B.C., but where the final levels show a degeneration. The transition from the Chalcolithic to the Iron Age in the western Deccan is a perplexing question, further complicated by the absence of radiocarbon dates. At Prakash (Period II) and Bahal (Period II) iron objects appear alongside Black-and-Red ware and this occurs also at Navdatoli where habitation continues into the Early Historical period.

Typical Megalithic sites in the western Deccan are few and include Ranjala (IAR, 1960-61:32) in the west Tapti valley and Pimpalsuti near Inamgaon where fourteen stone circles have been found (Ansari & Dhavalikar, 1976-7:84-8). At Tekwada on the Girna Megalithic Black-and-Red ware occurs in association with Jorwe ware (IAR, 1956-57:18). The concentration of settlements, however, shifts from the western Deccan to the Vidarbha region east of the plateau, the largest number of sites being located in the district of Nagpur. Among the major sites are Takalghat and Khapa situated on the right and left banks of a small river, the Krishna, respectively. While the former is one of the few habitation sites, Khapa has yielded a large cluster of stone circles. West of Khapa is the other burial site of Gangapur (Deo, 1970). Naikund, also in the district of Nagpur, is the second habitation site discovered in Maharashtra (IAR, 1977-78:39). The stone circles at Junapani are situated on the slopes and at the foot of the low trap hills as far south

community - the Kunbis - who are agriculturists inhabit the narrow river valleys of the Sahyadris. While the valleys were under paddy crop, the Kunbis also practised shifting cultivation for millets on the lower slopes of the hills. Within these ecological niches the communities subsisted side by side. Milk was made into butter by the Gavlis to be exchanged at the weekly village markets for paddy, rāgi, oil, clothes and jewellery brought by the Kunbis (Gadgil & Malhotra, 1981:22).

The artefacts from the habitation and burial sites are culturally uniform. The main ceramics are the micaceous red ware and the Black-and-Red ware. Iron objects occur in profusion and include a wide variety of implements such as weapons, carpentry tools, agricultural implements like ploughshares and hoes and objects of daily use (Deo,1973:51). Copper was used for ornaments. Gold jewellery occurs in plenty especially in the burials from Junapani (IAR,1961-62:32-4) and Mahurjhari (Deo,1973:54-6). Another remarkable feature of the Vidarbha megaliths is the practice of burying horses complete with trappings, along with the dead (Deo, 1973:18). Some of the copper-bronze sheet ornaments have a great similarity with the horse ornaments recovered in Scythian burials in Central Asia and contiguous regions and datable earlier than the Vidarbha megaliths (Deo,1982:5).

The Vidarbha megaliths conform in general with the features of the south Indian Megalithic culture, yet they form a distinct regional group within it. On the basis of radiocarbon dates from Naikund and the upper horizon of Takalghat, it has been suggested that a movement of people took place in the region around the eighth-seventh centuries B.C. (Deo,1982:5).

The Nagpur plain with the largest concentration of Megalithic sites lies to the south of the Satpura range. A vast undulating stretch traversed by low ridges, it is formed by basaltic lavas covered with laterite. Rainfall is heavy and the area is classified as the monsoonal deciduous type (Maharashtra State Gazetteer,Nagpur district,1966:1-5).

It may be hypothesized that economic factors led to the
colonisation of the Vidarbha region during the Megalithic period though it is difficult to indicate a direction of the influx. Hard ferrigenous pebbles and iron ores occur south of the Nagpur plain between the valleys of the Godavari and the Wardha (Das, 1969:159) and iron deposits forming beds of haematite occur in Chandrapur district (Brown & Dey, 1955:111). In Maharashtra, Gujarat and parts of Andhra Pradesh, the chief source of iron is the laterite and the magnetite sands. These are largely drawn upon by itinerant lohārs (Wadia, 1975:446). The find of an iron-smelting furnace in the Megalithic context in Vidarbha and an analysis of artefacts shows that local iron ore was used for the manufacture of implements (Deo, 1982:5).

The identification of carbonised grains of wheat, lentil, black gram, common pea and Indian jujube from Naikund (IAR, 1977-78:39) indicates a dependence on rabi crops.

1.9.8 It is difficult to precisely date the Early Historical settlements in the western Deccan, though on the periphery, a continuity of occupation from the Megalithic to the Sātavāhana period is indicated at some sites in the Vidarbha region. Maloney (1968:227) has shown that the gold of the Deccan plateau reached the west coast during the fourth century B.C. File, hexagonally cut beryls have been found in early levels at Taxila and in the pre-Mauryan or early Mauryan levels at Prabhas Patan (ibid.:214). The Arthasastra (II.11.2) refers to pearls from Tamraparni, conch shells from south India (VII.12) and vaidūrya or beryl of various colours (II.11) probably from Padiyur in Coimbatore district.

The early looping trade impinging on the far south is said to have originated in Gujarat and Sindh and along the west coast (Maloney, 1968:286). Remains of a Mauryan stūpa have been found at Banavasi on the west coast (ibid.:40) indicating
a possible route from Bellary district down to the coast and from there to Sopara and Bharuch. On the eastern side, 
C14 dates from Dharanikota provide a range from 475±100 B.C. to 205±100 B.C. for the Northern Black Polished Ware (NBPW) (Sarma,1974:49-56). The nucleus of the stūpa at Amaravati has been dated to the Aśokan period (Ghosh & Sarkar,1964-65:169) and along with Bhattiprolu which would have been practically on the coast when the stūpa was first built, may have been served by crafts cruising all along to Tamluk.

On the basis of recent parallels, Hornell has shown that a significant correlation exists between boat designs and definite regions along the coast, one of these being the Konkan. While boat designs of the north-west coast including the regions of Baluchistan, Sindh, Kutch and Kathiawar closely approximate those of Arabia, boat designs along the Konkan show greater variety and are marked by features indigenous to the region (Hornell,1918-23:139). Does this imply a greater role, historically, in coastal trade by the local populace?

A distribution of Aśokan inscriptions shows that there is a conglomeration in the Raichur and Kurnool districts of Karnataka and Andhra Pradesh respectively. Minor rock edicts have been found at Maski, Gavimath and Palkigunda in Raichur district; three in the vicinity of Siddapura in Chitradurga district; and a rock edict and a minor rock edict at Yerragudi in district Kurnool which has a second minor rock edict at Rajula–Mandagiri (Sircar,1975:32). Apart from these, four more edicts of Aśoka have been discovered, two of them near Nittur and two others near Udegolam, both in the Siraguppa taluka of Bellary district (Gururaja Rao,1978:117-8). These inscriptions mention Suvarnagiri as Aśoka’s southern-most provincial headquarters administered by a royal prince and identified with Kanakagiri, south of Maski (Hultzsch,1969, reprint:xxxviii) or with Jonnagiri near Yerraguddi (Sircar,1975:
32). This cluster of inscriptions stands in marked contrast to other solitary examples in the peninsula scattered at Amaravati, Dhauli and Jaugada on the east coast; at Sopara on the west; and at Rupnath in central India (ibid.). Recently Aśokan inscriptions have been found at Bayan in district Raisen (Deo, 1982:7).

Many of these inscriptions are found in association with or in the immediate neighbourhood of ancient gold mines and diamond workings. Thus the Maski edict is right on the gold-field, while the inscriptions at Yerragudi are in the heart of a region long known for diamond mines. Yerragudi is within 30 km. of Vajra-Karur, a famous diamond mine which has signs of old workings (Wadia, 1975:455). Another striking feature is that Aśokan inscriptions show a close correspondence with Megalithic sites, e.g. as at sites like Maski, Brahmagiri and Amaravati.

This southern province of Aśoka located in Karnataka, maintained contact with the eastern Gangetic valley through several possible routes. One of them cut diagonally across the western Deccan and utilised the more accessible tracts on the leeward side of the Western Ghats. From Amaravati, this route travelled along the Krishna valley then passed through the Nalgonda and Medak districts of Andhra Pradesh to Ter in district Osmanabad and then proceeded to Paithan, Maheshwar, Ujjain, Vidisha, Sanchi, Kausambi, Sravasti and Kapilavastu (Deshpande, 1959:66-93). Evidence for this comes from the Sutta Nipāta (vs.1011-13) which traces the journey of Bāvarī's disciples northwards. Remains of Mauryan settlements have been found at several sites along this route such as Maheshwar, Prakash, Bahal, Nasik and Bhokardan. The popularity of land routes over water routes may be judged from Kauṭalya's statement where he disagrees with his preceptor and praises the advantages of land routes.
In the same text, Kauṭalya refers to the daksināpātha as the southern route known for trade in shells, diamonds and precious stones, pearls and gold and mentions that the route passed through several mines.

1.9.9 In the Sātavāhana period there was an overall increase in the number of settlements both on the coast and on the plateau. The fertile tracts of the upper Godavari and the upper Krishna valleys were extensively settled. The entire region was traversed by routes and the strategic importance of the passes of the Sahyaḍris is evident from the location of Buddhist caves. The Godavari valley with the Sātavāhana capital at Paithan had the largest number of settlements. This is explained by the fact that the Nanaghat connected the fertile Godavari valley to Kalyan on the coast and there is a relatively gentle gradient on the western side of the Sahyaḍris at this point (Kosambi, 1955:50-71). Another route from Kalyan to Nasik went via the Thalghat and continued up to Maheshwar (Moti Chandra, 1977:103). Bharuch was connected via Ajanta to Paithan and to Ter, from where routes went further to the east coast (Yazdani, 1960:138). According to the Periplus the journey from Ter to Paithan took ten days and from there to Bharuch took another twenty days (sec.51). The text refers to another route from Bharuch which went to Ujjain (secs.47-8), while Ptolemy follows the route from Bactria to Bharuch (VII.43-50). Both Bharuch and Sopara were ports of call not only for ships from the Mediterranean and other areas in the west, but also for those from the east. Buddhist literature makes several references to a regular trade between these ports and Suvannabhūmi (identified with Burma by Law, 1932:70).

A majority of the inland routes of the western Deccan in the Historical period were dependant on the volume of trade handled at the ports along the west coast and were governed
by the comparative importance of these ports. The trans-
peninsular route, however, from the east coast across the
peninsula to north-western Deccan or through the Burhanpur
gap to central India seems to have continued in use. In
the Mughal period Masulipatam in the lower Krishna valley
was connected to Hyderabad via Bezwada and Anantagiri. From
Hyderabad the route continued to Bidar and from there either
to Ahmadnagar or to Aurangabad and then through the Burhanpur
gap to central India. At Aurangabad, another route branched
off to the north-west through the Kondaibarighat to Surat
and Bharuch (Habib,1982:14B,15B).

The low rainfall areas of the western Deccan thus formed a
corridor linking the north and the south and this provided
a major means of culture contact between the two regions.
From it subsidiary corridors ran eastwards into the forests
of central India in the north, across the Deccan plateau to
the Andhra coast in the centre and towards the Tamil plain
in the south (Allchin & Allchin,1982:271). The evidence from
Daimabad suggests that the first agricultural settlements
in the western Deccan developed during the second half of
the third millennium B.C. and throughout this early period
the region had close links with a nuclear area to the north
comprising roughly southern Rajasthan, Saurashtra and Malwa
(ibid.352). At the same time a substratum of influences
from the south described as the 'Dravidian element' is also
evident (ibid.). The interplay of the two cultural forces
continued to mould the history of the western Deccan.