Appendix - I.

Resource use - technology - subsistence agriculture
in South East India during the Proto Historic period

This brief study is done with a view to document ethno-
archaeological data related to the material base of/householding

economy during the formative period.

Polished stones tools were recovered from the early Iron
Age levels at Hallur (Nagaraja Rao 1971:136-137) and from the urn
burials at Mottumalai in Pudukottai (Cammiade 1930). The lowest
levels of the Iron Age habitation site at Appukallu yielded stone
celts (Mahalingam 1978:164 Note), while the burial urns at
Sengamedu and Perumbair revealed Neolithic quartzite cels of
polished grey stones (IAR 1961-62:26; Rea 1915:138, Pl. xi, fig.
26). Similarly, other lithifacts such as querns at Perumbair
(ibid.) and hoes from the Iron Age context at Paiyyampalli (IAR
1964-65:22) are similar to the Neolithic implements found at
Nagarjunakonda (Subrahmanyam 1975:159 ff.) or at Palavoy (Reddy

The technique, forms and the raw material utilized in the
bead industry continued into the early Iron Age. The raw material
used in the Neolithic-Chalcolithic according to select sites were:
shell, steatite, agate, cornelian, amethyst, chalcedony, paste,
coral and glass,¹ which were also employed during the Iron Age
(Gururaja Rao 1972:74). Semi precious stones viz. Cornelian,

¹. For example: steatite, shell, cornelian at Sanganakallu (Ansari
et Nagaraja Rao 1969:16), amethyst, cornelian, agate, chalcedony,
coral, shell, glass, paste at Maski (Thepar 1957:12), gold, stone
agate, jasper, garnet, etc., representing various stages of working from the early Iron Age levels of Tirukkampullyur (Mahalingam 1970:31) were most obviously procured from the hills of Coimbatore and Salem. The hunters of the hills who dug for edible roots are said to have discovered gems (Kurup 379:1).

The raw material for the gold objects found within the Neolithic-Chalcolithic and Iron Age sites were obtained from the gold producing areas of southern Deccan. The Neolithic sites in the Raichur and Shorapur Doabs are closely clustered around the gold bearing reefs (Allchin 1962:209; Paddayya 1973:11, 102 - map). The Kolar gold mines even yielded Neolithic grey ware (Maloney 1976:25). The same tradition was continued during the Iron Age where Megalithic sites in southern Deccan continue to coincide with gold bearing zones (Paddayya op. cit.). There are at least 13 gold workings near Maski (Thapar 1957:10). The location of six Asokan edicts near old gold mines in Karnataka is significant (Maloney 1968:225; 1976:25). Nannan (who reigned in southern Karnataka) is much associated with gold in the Sangam texts.


1. Gold objects have been found from the Neolithic-Chalcolithic levels at Tekkalakota (Nagaraja Rao et al. 1965:65), T. Narasipur (Seshadri 1971:70) and also from the Megalithic burials at Nagarjunakonda (Subrahmanyan 1975:175), Kadambapur in Karimnagar (IAR 1974-75:4) and Pallikondai in North Arcot (Congreve 1861). On the whole, gold is higher in Megalithic burials and is relatively rare at Neolithic Levels (Sundara 1975:179).

2. The gold workings of Karnataka '... take the form of shallow depressions, and are strewn with extensive quantities of powdered quartz debris. It is believed that the prospecting was done by circular and vertical shafts, probably involving fire setting'. (Paddayya 1973:11; Allchin 1962:195-211).
Crystal and gold dust are said to have glittered among the black rocks of water courses in the hills of Tamilaham (Vardarajan 1969:102). The hunters of the hills who dug the ground from precious stones and gold (Abham 282). The northern hills that are said to have supplied Kaveripattinam with gems and gold (Pattinap 187), may have been the hills of southern Deccan. A goldsmith's stone mould found from the Megalithic levels at Paiyyampalli (JAR 1967-68), speaks for the specialized nature of this craft during the pre-urban period. The Kuruntokai also describes the touch-stone with glitters with gold dust (192.3-5).

Nearly three decades ago Subbarao correctly assessed the similarity between the Chalcolithic and the Iron Age ceramic ware in terms of the techniques and forms (1958:173-179). Subsequent research confirmed that both, the pre-iron Chalcolithic BRW and the Iron Age Megalithic BRW possess similar pottery forms auxiliary ceramic types and may have even been manufactured by applying the so-called 'inverted firing technique' or even a 'double-firing technique' (Sundara 1975:173; Singh 1979:269-283). It has also been pointed out that the Neolithic-Chalcolithic pottery forms of southern Deccan have their parallel forms in the Iron Age graves of south India (Allchin 1974:299-308). The greatest innovation in the ceramic industry was the introduction of the fast tournette by the Megalithic culture. With this exception, most of the other traits viz. specialized ceramic types (BRW, Russet coated painted ware, white painted BRW), forms (e.g. burial urns) and even the graffiti symbols on ceramic continued from the Neolithic-Chalcolithic to the Iron Age.
The chank/conch shell industry was yet another craft that continued from the Neolithic-Chalcolithic to the Iron Age, and it is curious that archaeologists have paid little attention to this craft and its socio-economic significance in pre-urban societies of India. Hence, we shall discuss it at some length.

The raw material required for chank ornaments (bangles, rings, beads, amulets) was obtained from the chank fisheries around the Gulf of Cambay in western India and the sea extending from Travencore to South Arcot in south India (Hornell 1914:63, 28, 39-40, 66, 79, 88).

During the Neolithic-Chalcolithic, chank remains of the Primary Region are concentrated in a locus covered by the districts of Mysore, Raichur, Bellary, Anantapur and Kurnool. In all probability the primary source of chank for this area in the southern Deccan may have been from the Arabian sea i.e. the area behind the Gulf of Cambay (Sundara 1971a:21), which apparently was the chief repository for the chank factories of the Harappan and post-Harappan Chalcolithic cultures of western Deccan. In the southern Deccan chank ornaments were found within stratified layers belonging to the Neolithic-Chalcolithic context at Tekkalakota (Nagaraja Rao et Malhotra 1965:86, pl. x b 4, ix-c) and

1. Chank factories were found in the Harappan settlement at Lothal (for details see Ratnagar 1981:147-48). Heaps of shell imported from the western coast were piled near a kiln for the purpose of making lime during the late Jorwe period at Chalcolithic Inamgaon (Dhavalikar 1975-76:52-53), a practice continued to this day (Hornell 1911:167).
With the introduction of iron technology along with the southern thrust of the Megalithic culture, sites yielding chank ornaments increase in number in the Primary Region and also cover a wider geographical area during the Proto Historic period. These are often associated with BRW, and iron slag in surface finds are found within Proto Historic habitation layers or within burials.

Chank factory sites apparently existed from the Neolithic-Chalcolithic period in the southern Deccan. For instance, finished and unfinished chank ornaments were found at Ballaguppa, Havaligi Hills, Bastipad and near Maski, essentially in association with neolithic implements and artefacts (Foote 1901: Nos. 1574, 2088, 2258, 2783). Such factory sites continued to operate even during the early Iron Age, and there appears to be an improvement in production in quantitative and qualitative terms during the Proto Historic period. A chank factory existed from the earliest levels at Thirukkampuliyur (Mahalingam 1970:50, 65, 106). Large quantities of worked and unworked chank may be found at Korkai and its adjacent areas (Caldwell 1881; Maloney 1968:9; Nagaswamy 1970:52 ff.).
The intensification of this industry during the Iron Age appears to be due to three reasons. The first is an increase in habitation sites and a relative demographic expansion which may have increased the demand for chank as a personal ornament and perhaps as a prestige item. The second is the spread of Iron Age communities to the south, thus familiarizing them with a vast, repository of chank shell in the sea around Tamilaham (EAMS 1962: 30-33; WI 1962:6.106), especially those in the Gulf of Mannar (Hornell 1914:28, 66, 79, 88), which are famed for their large size and superior quality (Hornell 1914:39). The Paratavar were an ancient community which resided along the eastern littoral of Tamilaham, exploited the marine resources and were particularly concentrated at the estuaries of Tambapanni and Kaveri. In their southward movement the iron using communities, therefore, obtained their requirements from the southern fisheries which supplied even the southern Deccan Iron Age sites.

In addition, the iron technology appears to have provided greater efficiency to this craft. It has been suggested that the highly worked flakes at Havaligi Hills in Anantapur, may have been

1. The Teri sites of Tinnelvelly revealed microliths associated with chank (Zeuner et Alchin 1956:13). The chank shell may have been used for ornamentation and its flesh as food by the Stone Age people here.

2. According to the Sangam texts the poorer sections of Paratavar who lived in small huts in the neydal (littoral), carried out fishing, making salt and diving for pearl oysters and chank (Aham 330, 140, 296, 350).

3. Matti was the chieftain of the Paratavar at Kalār, which was located at the deltaic area of the Kaveri (Aham 226,6, 236). There was a lucrative chank fishery until 1826 at the mouth of Tirumalavasal, one of the northern branches of the Kaveri (Hornell 1914:65). To this day the Adivasis of Kodiakkarai inhabit the southern-most estuary of the Kaveri in south Tanjor. They subsist completely on forest and marine resources of the marsh-littoral ecology (Sarma 1976).
implements used for working patterns on chank shell bangles by the Neolithic craftsman (Foote 1901:No. 2088). Similarly, at Bastipad in Kurnool, it was found that the cut sections of shell did not possess a smooth sawn section. This may have been due to the utilization of a flint saw resulting in a chipping of process of the chank. The discovery of an oblong hone made of diorite at this site in association with chank is significant (Foote 1901:No. 2258). It is obvious that the use of the flint saw was not only laborious but also a time consuming process. The introduction of the iron saw, while replacing the inefficient flint saw, injected efficiency to the process of production. Fragments of such a saw were found at the chank factory site near Maski, in the form of a broken iron blade (Foote 1901:No. 2783a). It looks very much like the small saw used by the present Bengal chank cutters (Hornell 1914:55). With the end of the Proto Historic period we come across a strong tradition of chank ornament industry, the fame of which spread beyond the Vindhyas to north India by the Early Historic period (Artha. vii, 12.24).¹

The new iron technology introduced by the Megalithic culture where tools were entirely different from those of copper or bronze (Forbes 1950:36) is also the chief cultural marker distinguishing

¹. Two furnaces for burning chank to obtain lime were uncovered from the Early Historic levels of Khana Mihirer Dipi mound at Chandraketugarh in Bengal. They are some of the earliest discovered from an Early Historic site in north India (IAR 1964-65:52).
the Megalithic culture from the preceding stone using cultures in the Primary Region. Yet, as there was no appreciable change distinguishing the institutions of the late Neolithic-Chalcolithic from those of the early Iron Age, this new technology necessarily had to operate within the confines of the existing institutional framework during the Proto Historic period. Archaeological and textual evidence corroborated by ethnographic studies on pre-industrial smelting in the Deccan confirm that the iron technology was specialized in character using simple implements operated by the family/extended family in the process of production.

The process of production began with the smelting of the raw material i.e. iron ore. The Biralagondi caves near Chandravalli (which have Neolithic and Megalithic remains), yielded iron ore along with Iron Age artefacts and other implements used in the industry (Krishna 1931:10, 18). Iron ore was found as surface deposits or in the form of magnetic sand from water courses (NDC Salem, 1918:31; APDG Anantapur 1970:23; ICI 1974:xxiii:363; NCD 1898:11,158; Elwin 1942:173; Leuva 1963:147). Until recently iron ore was transported on cattle, at times to a distance of 35 miles, from the source to the smithy (APDG Anantapur op. cit.) Thus use of cattle during the Neolithic-Chalcolithic for heavy transport work has been stated already. The role of cattle as beasts of burden obviously increased during the early Iron Age.

The actual production itself was on a low key. The smithy appears to have been small and implements used equally simple. On the basis of archaeological evidence it appears that smelting was
often done at the habitation itself.\(^1\) The house as well as the smithy was known as *kudam* in the Sangam script. (PPTI 311). In some cases smelting appears to have been done outside the habitation, but in its vicinity.\(^2\) The Agaria smithies in Chotanagpur are located either within the village or outside among the trees or at times even on a hill-side, the smithy being built into the side of the hill (Elwin *op. cit.* 177-79).

The Proto Historic furnace or the kiln was a simple one. Light, crude furnaces were excavated at the Chandarayya field (IAR 1957-58:10). It is suggested that the only primitive furnace that could smelt iron ores was the pottery kiln (Forbes 1950:70). The Iron Age cylindrical furnaces covered over and above by lumps of iron slag at Mudigal are '... made of muram mixed with earth' (Reddy *op. cit.* 19). Until recently such conical or cylindrical furnaces were used by the smelters of Chotanagpur (Elwin *op. cit.* 181), in Salem and Coimbatore (NCD 1898:158).

1. The Biralagondi caves, which have Neolithic and Megalithic remains, had a smithy in its premises (Krishna *op. cit.*). At least twelve Iron Age sites in Karnataka are associated with Iron smelting (Sundare 1975:229). Traces of smelting was found from the Iron Age settlements at Piklithal (Allchin 1960:10), Palavoy (Reddy 1976:25), T. Narasipur (Foot 1916:69-71), Lakshmapur (ibid. 72) and Paiyyampalli (IAR 1964-65:23).

2. Iron smelting was also conducted at the urn burial site at Adamalam, Tirucharapalli (Banerjee 1966:36). An extensive area was covered with iron slag adjoining the dolmenoid cists at the Mangalam station, Coimbatore (Gururaja Rao 1972:98). The excavations at the Chandarayya field near Yalleswaram yielded traces of smelting at that site (IAR 1957-58:10). Similar traces of smelting was obtained near the ash mounds at Mudigal (Reddy *op. cit.* 19).

3. Compare this with Elwin's description of the Agaria smithy, which has no walls, though it becomes almost entirely enclosed with the mounds of waste slag and coal as the work continues (*op. cit.* 177).
NDG Salem 1918: 272-73; Watt 1972: iv 502). On the other hand, it appears that the smelters of southern Deccan may have combined their craft with the existing pastoral economy. In addition to using cattle, perhaps for transporting ore or finished products, recent research indicates that in certain cases the ash mounds were utilized as convenient repositories of fuel for smelting purposes. ¹ At Palavoy, ash mounds I and II showed vitrified ash lumps '... arranged in a row with domed shaped roofs and the vertical columns of burnt cowdung ...' (Reddy op. cit. 25). The heaps of iron slag in association with Iron Age artefacts within the columns indicate that these were kilns or ovens used for smelting (ibid.).²

Auxiliary implements associated with smelting were familiar to the Proto Historic iron-smith. Bellow protectors and crucibles were found in association with ore and slag including heaps of ash in the caves of Biralagondi (Krishna op. cit.). Crucibles used for smelting were found at Adichchanallur during the 1905 exploration made by Rea (Balakrishna Nayar 1977:150). A cist burial at Yellshwaram revealed a pair of iron tongs (Khan 1963:48, pl. xiii, A-c).

1. Wood charcoal is considered best because it gives a more severe blast in the furnace than coke or coal. Charcoal also acts as flux during smelting thus eliminating the impurities of the iron.

2. Yazdani (1935-36:20) and Subbarao (1947:212) had already associated ash mounds with gold workings and iron smelting. It is believed that iron was originally produced as a by-product of gold in the Near East (Forbes op. cit. 403). The same may have occurred in southern Deccan. On the one hand there is coincidence between the Neolithic/Megalithic sites with gold producing areas (Paddeyya 1973:102 Fig. 2). On the other hand, there is also a coincidence between the ash mounds and iron bearing areas in the Krishna valley (Sundara 1971:312-314).
According to the Sangam texts, the falling blossoms of the venkai are compared to the sparks that fly out of the blacksmith's forge (Mnar 13.5-7). Bells made of wax moulds and turned out at the blacksmith's forge are described by another poet (Kurun 155). The forked claws of the crab are compared with the blacksmith's pincers (Perumbāp 206-8). In the course of their work they had to blow hard on their bellows (ibid.) and these were made of hides (Aham 96.6-7). The handles of the iron twindoor leading to the fort are supposed to resemble the holder fixed at the end of the blacksmith's blow-pipe (Puram 345). In another context, the warrior's strength is compared to the anvil of the smithy (Puram 170). It is interesting to note that even during the early 20th Century the native smelters in the Deccan used identical implements. (Forbes op. cit. 36, Fig. 9, 131 fig.; Elwin op. cit.; Leuva op. cit.).

Judging by the evidence above it is clear that in addition to the production of iron, the manufacture of steel was in vogue during the Proto Historic period. The 'wootz' method or the steel manufacturing process is more dominant in the Deccan and south India.


2. In the Chotanagpur area, after continuous heating for 3-4 hours the hot metal is worked on the anvil. One advantage of shaping the iron on a stone anvil is that iron does not easily rust, probably because the stone siliconizes its skin (Leuva op. cit. 148). The bellows in the native smithy are of cow-buffalo hide, goat or sambhar skin. Some bellows are worked by hand (M.N. Salem 1918:273), though foot bellows are considered to be more effective in giving an efficient blast (Elwin op. cit., pl. 26a, 27, fig. 35; Leuva op. cit. 148-49). The crucibles are made of a refractory 'red loam mixed with a large proportion of charred rice husk. The wood used was cassia auriculata and the leaves of asclepius gigantea or if such are not procurable those of the convulvulus (Laurifolia (Watt 1972, IV. 50); Forbes op. cit. 438).
and is locally known as urukku (Tamil) and ukku (Kannada). ¹

The term ekku was generally used for pointed/sharp weapons of steel in the Sangam context (Kurun 312; Puran 308.4-5; TL 1976:i.iii.507). It was this south Indian steel that was in great demand in the western world during the early Christian era (Schoff 1915:224-239).

Ethnographic data on pre-industrial iron smelting becomes therefore invaluable in understanding the iron technology of Proto Historic India.² The study of such groups involved in the pre-industrial smelting industry may prove to be useful in understanding the involvement of the household/extended kin group utilizing simple technology in a specialized craft.³

1. Wootz is produced from black magnetite ore, bamboo-charcoal and the leaves of certain carbonaceous plants sealed in a crucible of native clay. Smelting the contents in a charcoal fire with blast air yields a button or regulus of metal, which is alternately melted and cooled again four or five times until round cakes of 5 ins. diameter and ½ in. thick, weighing about 2 lbs. are obtained. (Forbes op. cit. 410; Watt op. cit. 503). Due to the lower absorption of carbon in the lower temperature of the furnaces, the indigenous furnaces produced wrought iron could be easily transformed into steel through wootz system (Banerjee 1965:187).

2. Chemical analysis of some of the iron objects manufactured by the iron smelting tribes of Chotanagpur closely tally with the pre-Christian iron-objects of north India (Bharadwaj 1979:165, 161 table 45).

3. The extraction of iron ore requires the collective effort of the family or the residential clan group in the hamlet/village. At one single time, groups from three villages may simultaneously dig the same area as there is no private or village ownership in the pits (Elvin op. cit. 176). The ore is extracted from the pit with simple mattock. The group carries it to the furnace in home made reed baskets (ibid. 174-76). They also collectively gather fuel i.e. wood for charcoal (Leuva op. cit. 148). It is again the family group that breaks the iron ore into fragments by pounding (MDG Salem 1918:31; Leuva op. cit. 147). Until the final phase of the product, a minimum of two individuals are always involved in the total process of production. In the case
The evidence above also indicates that the process of production (from the collection of ore to the manufacture of iron/steel) is extremely time and labour consuming. The entire family gets involved in the work at some time or other in the course of production which leaves them little time for subsistence agriculture or pastoral activity. All this means considerable experience and full-time specialization. The smith, as Childe pointed out, was the first expert who became involved in a full-time job during the Proto Historic period (1930;4, 10). It is possible that megalithic xiii (pit circle) at Nagarjunakonda where a lump of iron was deposited (Subrahmaniyam 1975;179), may represent the burial of a specialist in iron working. The relative uniformity of the finished products, spread over a wide geographical area in the subcontinent, speaks for the specialized character of this craft during the Proto Historic period.

This typological uniformity does not, however, spread both in time and space. The types listed here may be considered as a general index assigned to the Megalithic culture as a whole.

Investigations indicate qualitative and quantitative disparities.

Cont'd ... f.n. from p. 638 of the Asur, the head of the family i.e. the father, organizes and delegates production tasks to the family members (ibid. 68).

1. These products take the following forms in the Deccan and south India: axe/arrow/spear head, sword, dagger, nail, chisel spike, bar, rod, bangle/ring, hatchet, trident, lamp, horse bit, adze, hoe, sickle, ploughshare, fish hook.

Sundara considers that the '... simple and few forms and the small numbers of iron objects from the megaliths of early phase in north Karnataka ... might indicate the early stage of iron metallurgy and not a development stage coming from the north' (1975:192). He also points out that while the Hallur (BRW) overlapping phase yielded only spear/arrow heads and knives (Nagaraja Rao 1971:90-92, Fig. 25 Nos. 4-6), the burials at Maksi, Gaudagehi-Unachgeri, Cajendragad-Rajur, Jewargi, Andola, Halingali, predominantly show spear/arrow heads, lances, daggers/knives etc. (Sundara op. cit. 176). On the contrary, the lower alluvial plains of the east, the quantitative and the qualitative character of iron artefacts definitely seems to improve. The Sanur excavation report specifically remarks that '... the profuseness of iron objects and their fairly sharp outlines point to the people's developed skill of forging' (Banerjee et. Soundara Rajan 1959:8).

By adhering to the existing institutional framework of the mobile cum sedentary character of the predominantly pastoral economy, it is possible that the Proto Historic ironsmith may have also been an itinerant craftsman. The utilization of the ash mounds for smelting purposes, the typological uniformity may point to this situation during the Proto Historic period where the

Cont'd ... f.n. from p.639 Addichchanallur and Perumbair (Rea 1915), Rock cut caves of Cochin (Sharma 1956:112). For a tabulation of implements (Banerjee 1965:Table 2; Sundara 1975:176-77).

1. It appears that even between burial types there was a disparity. For instance the pit burial at Brahmagiri had more iron implements than the cist burials (Sahney 1965:33, 36).
Itinerant craftsman provided his services by maintaining a seasonal/periodical cycle of rotation that coincided with the movements of other semi-sedentarized communities, a pattern yet followed by the Gadulia Lohar (Ruhela 1968:147).\(^1\) In the original study made on the Asurs ('Eisenschmiede und Damonen in Indien', Int. Arch. f. Ethnographie, vol. xxxvii 1939), W. Ruben suggests that this tribe was earlier semi-nomadic where movements (between a few months and three years) were determined by the availability of ore and fuel (cited in Forbes op. cit. 70 ff.).\(^2\)

It is apparent that the services of the ironsmith was more regularly required with the growth of an agrarian economy in the alluvial tracts of the east. The Early Historic ironsmith described in the Sangam texts therefore was a settled craftsman who rendered his expertise to one or several adjacent settlements.\(^3\)

Incidentally the age of the Sangam craftsman also coincides with the period when labour and the means of production actually came to be regularized and controlled by a ruling class, hence 'it was the bounden duty of the blacksmith to cast spears for the heroes' (Puram 312.1-6, vide Kailasapathy 1968:262).

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1. In the case of the Gadulia Lohar, the cart is the house of the family unit, the centre of production and the labour pool (Ruhela 1968:44, 157).

2. In this context it is interesting to note that in South Persia, there are tinkers and smiths (gypsy tribes) who attach themselves with the Basseri pastoral nomads during their spring migration to the north. They are familiar with the technique of casting iron and for hardening iron to steel. These craftsmen provide services to the pastoralists as well as the settled agricultural communities (Barth 1961:91-92).

3. Even during the early 20th Century, Rudravanam in Siruvel taluk of Kurnool smelted and produced agricultural implements required for the neighbourhood (IGI 1908:xvi.39). Similar centres existed in the Karimnagar district (IGI 1908:xii.8) and also in Tirunelveli that turned out agricultural implements (Balakrishnan Nayar 1977:150).
Archaeological, textual and ethnographic evidence show that the potters craft was also operated through simple technology by the household group during the Proto Historic period. The large variety of pottery forms and different types of ceramics spread over time and space during the Proto Historic period point to a specialized craft in pottery. It is possible that pottery was based on local specialization and production, which was conditioned by the demand and supply mechanism. In the pre-urban context when commodity production and a regular market economy had not evolved, the quantitative demand for ceramic ware obviously was not high, which in turn determined the intensity of production. On the other hand the undeveloped communication network during the Proto Historic period did not encourage the transportation of fragile cargo such as ceramics to very distant places. It is difficult to imagine the movement of large urns (used for storage and burial purposes) in this manner. It is possible that either each settlement produced its own utilitarian ceramic ware or at least one centre that catered for several neighbouring settlements. Similarly, the Sangam texts describe the local potter who turned out i.e. burial urns (Sirinivasan 1946:13 ff.). The production of ceramics may have

1. To this day, the Urali Kurumber of Wynad supply hand made pottery to the adjacent villages (Aiyappan 1947:54-59; for a similar situation in Assam see Bandopadhyay 1961:25-44). The Todas, Irulas, Badagas and Kurumbars in the Nilgiris depend on the Kota craft tribe for ceramics and other utilitarian items circulated through a barter exchange system (Behura 1964:21).

2. It is suggested that the term veikku (potter) in the Sangam context derived from veikkko (i.e. veikko) (Subrahmanian 1969:3). During the colonization of new areas, pottery has been
been seasonal depending upon climatic conditions and the weather.¹

Pottery's raw material - clay was obtained from the neighbourhood or from outside areas,² and was beaten into a soft fine paste with a wooden pestle.³ Archaeological evidence clearly shows that the Megalithic-BRW culture advanced the ceramic industry by introducing the fast tournette, though hand made pottery carrying beater marks are not unknown. The Sangam texts mention the potters wheel (Sirinivasan op. cit.), and the hand made ceramic tradition of the Neolithic in all probability continued during the Early Historic period and after.⁴ The pottery so fashioned was baked in kilns. A potters kiln came to light in the Proto Historic context at Polkonda in Warangal (IAR 1975-76: 5), and similar kilns are described in the Sangam texts (Sirinivasan op. cit.). A potters dabber found within a burial at Adichchanallur has prompted Leshnik to consider it as a burial belonging to a person who specialized in that particular craft (1974:250). We may also assume that the centre of production

Contd ... f.n. from p.642. mentioned along with cultivation, smithy, weaving, domestication of animals and hospitality, to be followed by the vēlšar (Champakalakshmi 1975-76:119 Note II).

1. The intensive pottery making season for the Orissa potters is from November to May. They engage in agriculture from June to October which is the lean period (Behura 1978:46). Similarly, the Urali Kurumbars do hoe cultivation (Aiyappan op. cit.).

2. While the Urali Kurumbars obtain clay from the nearby fields (Aiyappan op. cit.), the potters of Bodhinayakanur and Karuvalli travel miles at times to procure good clay as quality clay is not available in the neighbourhood (Behura 1964:37).

3. This is yet practiced by the Urali Kurumbar (Aiyappan op.cit.58).

4. Though the Kotas of Nilgiri use the potters wheel (Behura 1964: 28), to this day the Urali Kurumbar (Aiyappan op.cit.) and Hira potters of Assam (Bandhopadhyay. 1961:25) exclusively turn out hand made pottery.
during the Proto Historic period may have been associated with
the place of residence, a situation so evident in Early Historic
north India.\(^1\) As for the labour involved, ethnographic evidence
shows that the family or the residential clan formed the labour
pool.\(^2\)

III

During the Proto Historic period, the terraces associated
with the castellated hills or the nucleated habitation sites located
on narrow alluvium tracts indicate that subsistence agriculture was
conducted in association with the settlement, which in all
probability housed the extended kin group. Speaking of sudden
cultivation in the peripheral areas, the Sangam texts describe the
participation of the family in planting (Ahun 2; Parumān 91-94),
in protecting the crop (Kurum 142.1, 291.1, 346, 357.3) and in
processing the harvest by drying the seeds (ibid. 335.1-2).\(^3\)
Ethnographic studies made on subsistence farmers also show that
all productive tasks could be managed and performed by the family

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1. The Jain texts describe the workshop in this manner: The potters' household had a few apartments viz. kammasāla (place of moulding), kumbakarama/Imāgaradāna (place of baking), Indhanasāla (store room for fuel), bhāndasāla (store room for baked pots), papiyassāla (where pots are kept for sale) (Deo 1952-53:33-34).

2. The household of the Orissa and south Indian potters varies between 4 and 8 individuals (Behura 1978:38). The joint family provides a well organized labour pool, which is essential at every step (ibid. 44 ff.). Amongst Tamil potters who use the wheel, women only decorate the paint pots (Aiyappan op. cit. 59). The Kota, Urali and Hira women, however, are completely involved in the production of pots while the males are involved in other crafts (Behura 1964:28; Aiyappan op. cit. 59; Bandopadhyay op. cit.).

3. In India, the shifting cultivating village acts as an economically cohesive structural unit with a well demarcated area of land under its jurisdiction. The households in the village are mostly fellow
or the extended family which is often housed within the settlement unit (Harris 1972:247).¹ This situation is so apparent in the Proto Historic context according to the evidence we have documented above.

The implements involved in subsistence agriculture were not sophisticated ones but simple and are easily manageable by the household group. Archaeological evidence indicates that a good deal of the simple implements used by the Neolithic farmer were also continued during the early Iron Age. In addition to fire, the ground stone axe (so common in the Neolithic) helped in clearing the sparse vegetation in the semi-arid and pastoral areas. Ring stones found within the Neolithic context were probably used as weights for digging sticks (Reddy 1976:116), while the stone hoe (e.g. Paiyyampalli - IAR 1964-65:22) was used to turn over the soil.² However, certain peripheral pastoral areas such as the

¹ Though swidden cultivation is labour intensive viz. average 500-1000 man hours per year on agriculture alone, it does not require concentrated action by large groups (Harris op. cit.).

² Caldwell derives the Dravidian word mapvetti i.e., a native spade or hoe from map 'the ground' and vettu 'to dig or cut' 1976:555).
Coimbatore region could not be cultivated unless iron implements were used on its hard soil (ICD 1898:158-59). Such peripheral areas have yielded iron sickles from the Megalithic context viz. Jadigenahalli (IAR 1956-57:34-35), Paiyyampalli (IAR 1968-69:2), the Nilgiris (Gururaja Rao 1972:106-08). Similarly, iron hoes have been recovered from the Megalithic context at Jadigenahalli (Seshadri 1960:25 fig. 18 No. 11), from an urn burial at Kilpauk in Madras (Raghavan 1974:2) and at Adichchanallur (Rea 1902-03:136-37, figs. 18-21). The above evidence is well corroborated by the literary descriptions of tools utilized by subsistence farmers in the peripheral areas of Tamilaham. The curved knife, sickle for reaping, iron tipped hoe are such implements used in the montane areas during the Sangam period (Singaravelu 1966:37 ff.), and are yet used by the backward tribes in south India.

Archaeological and literary evidence show that during the Proto Historic period subsistence farming based on plot or swidden cultivation was restricted in scale and in production. Such restraints were: the household consumption level, labour, crop types, the physiography, the associated technology, the causal relationship between distance and economic returns and essentially the productivity of the soil.

1. In this stony district, with its hard sub-soil, implements of ordinary English iron are useless, the mammoti edge curling up like paste-board. Hence most of the implements of this sort are made of native charcoal iron, which appears to be a tough fibrous semi-steel and takes an excellent edge. The usual work of the blacksmiths is the manufacture and repair of agricultural implements (ICD 1898:158-59).

2. Hill cultivators like Malers and Ao Nagas use a very ordinary type of axe to clear forests for swidden cultivation (Vidyarthi et Rai 1977:103). Even at present the Chenchus of Andhra and hill tribes bordering Kerala and Tamilnadu use the digging stick to collect
The Iron Age communities in the peripheral hilly and pastoral areas cultivated millet, sorghum, horse gram, green gram as well as varieties of hill paddy (supra pp.82-85). These crops were associated with terrains such as terraces on castellated hills, the foot hill areas, narrow valleys on the upper reaches of minor rivers or the mid uplands adjoining the lower plains. With the exception of the narrow alluvial tracts on the upper reaches of rivers, the rest of the peripheral areas in the Primary Region do not provide suitable soil conducive for intensive agriculture. For instance, at present none of the crops grown at Palavoy viz. horse gram, cholam, ground nut and even paddy can flourish due to its poor soil fertility (Reddy 1976:10). This area once housed a Pre and Proto Historic habitation complex. These soils are also not suitable for high yielding crops such as paddy which in any case require more suitable terrain for irrigation and deep ploughing (supra Chap. I, for details on soil varieties and the associated crop types).

The basic unit of production during the Proto Historic period was the household group that resided in huts housing 5-10 individuals (supra p.99). The infra-structural basis of this production technique is the household economy (Sahlin's 'Domestic

Cont'd ... f.n. from p.646 roots and tubers (Furer-Haimendorf 1943:59; Krishna Iyer 1968:65, 75). The Kodars who now use the digging stick with an iron tip fixed to its edge, yet recall the use of the digging stick with a stone edge in the past (Ehrenfels 1952:26-27). While the Mullukurumbers use the hoe for turning the soil for cultivation (Misra 1971:27), the cultivators of Palavoy use the pointed tip of the digging stick to make holes to sow seeds (Reddy 1976:116). The Mullukurumbers distinguish between the crescent shaped sickle used for harvesting paddy and the less curved type used on rasi (Misra op. cit. 28).
Here the 'social economy' is fragmented into a thousand petty existences each organized to proceed independently of the others and each dedicated to the household principle of looking out for itself (Sahlins 1978:95). The motivation is production for livelihood rather than for 'profit'. Such 'anarchy in production' (after Sahlins) is primarily responsible for the 'low intensity of production' in the household economy. It is therefore institutionally and functionally not geared to produce a 'surplus' in the agricultural sector that could sustain large communities. Elsewhere swidden maize cultivation did support great civilizations e.g. lowland Maya in Meso America. We are inclined to agree with Harris that, for south Asia, swidden systems generally sustain only 'simple segmentary tribes living as decentralized autonomous communities in small dispersed settlements' (Harris 1972:256; also Clark et Haswell 1970:52).

Ethnographic evidence indicates that according to the equation made between the labour input and the area of (swidden) cultivation, an average family/household consisting of five members may approximately work an area of 5 acres, which is in any case insufficient under this system of agriculture, to yield all their crop requirements. Hence the inability to obtain a constant 'surplus'. Even if the family consists of more than 5 individuals,

1. The framework of a pre-capitalist subsistence agriculture based on the household economy was developed by A.V. Chayanov (1925).
as the division of labour is often based on age and sex, females and children normally do not carry out heavy duty tasks in the field.

Subsistence farming based on swidden cultivation demands a rapid execution of all production tasks to sustain the household as the previous yield may have given only a marginal surplus or no surplus at all. Thus, swidden cultivation is essentially labour intensive. It is calculated that on agriculture alone this system requires an average of 500-1000 man hours per year (Harris op. cit. 247). In other parts of the world, cleared plots of the swidden farmers do not generally exceed 2.47 ac./1 hec. (ibid. 246). This land area holds good for swidden cultivating areas in India too (Banerjee 1972:113). For the hilly forests areas of India, the equation between the labour in-put and cultivated plots is computed as:

\[
\begin{align*}
2 \text{ workers} &= 2.00 \text{ ac.} / 0.81 \text{ hec.} \\
5 \text{ workers} &= 4.75 \text{ ac.} / 1.91 \text{ hec.} \quad (\text{ibid.})
\end{align*}
\]

The cultivated area worked by the same labour units may slightly increase in the dry/arid zone plains where clearance is relatively easy. Studies on dry cultivation areas of central India also show that even under modern farming, a family of 5 needs at least 10 acres (2 acres per head) to obtain minimum annual requirements of jowar (sorghum) and other allied pulses (Leshnik 1967:73-74, cited in Dhavalikar et Possehl 1974:41 Note I). This may indicate that in terms of actual labour in-put, even modern subsistence farmers

1. In the hill tracts (kuriñchi), hill paddy (törai) was sown by clearing even large trees such as sandal wood (Naduraik 286-88).
more often cannot obtain their total food requirements from the plots.

Harris has very correctly pointed out that it is '... this limitation on productivity per unit area rather than a limit to productivity per unit of labour that restricts the capacity of swidden cultivation to support contracted populations' (1972:247). The relationship between the soil, terrain, distance and production is extremely important in this context.

The repeated use of the soil quite naturally leads to a deterioration of its productivity. The fallow period is a device by which the subsistence farmers attempt to overcome this natural drawback. The terms vitayar and mutiyal (Nar., 121) in the Sangam texts are associated with herdsmen who periodically conducted swidden cultivation in south India, (Sivathamby 1966:325). The duration of the fallow period depends on several factors viz. the quality of soil, the availability of land, the demography and the technology, which determine the frequency i.e. long or short fallow periods. In 18th Century south India, a short fallow period in swidden cultivation ranged from 5-10 years (Hurton 1973).

The shortening of the fallow period has two major implications affecting the overall productivity of this agricultural system. First, the soil does not have sufficient time to regenerate, hence a fall in its productivity. The limitation of productivity per unit area by itself undermines the sustaining factor of the household which consumes and thrives on the produce of its plot. Secondly,

1. A general framework on labour and fallow periods is outlined in Boserup 1965 : Chap. 3 'Labour productivity under long-fallow and short-fallow systems'. For certain criticisms of Boserup's hypothesis (vide Rubin et al 1972:35-59).
As Boserup clearly shows, after the initial forest clearing, if the fallow period shortens, what is cleared henceforth is bush rather than forest. Though bush clearance reduces labour requirements per hectare, due to the decline in yields per hectare there is also a decline in output per man-hour (Boserup 1965:30).

In this context we may also note that, with the exception of animal droppings no other soil fertilization is used by subsistence farmers to regenerate soil. This also has its limitations. First, all subsistence farmers do not possess herds or resort to mixed farming. Secondly, unless the herd is very large, animal droppings cannot be spread over a large area of land and is therefore practically applicable only in small plots.

With the exception of a few localized areas in Dharmapuri, western Coimbatore and northern Tirunelveli, most peripheral areas in the Primary Region do not possess the advantage of having the black cotton soil, which is extremely conducive for subsistence farming based on limited metal technology. It has been suggested that at Chalcolithic Inamgaon, an approximate population of about 1000 was sustained by cultivating an area roughly covering a radius of 1.4 miles from the settlement, which is a convenient operational distance for a subsistence farming community (Dhavalikar et Possehl 1974:42-43). The cultivated plant economy of Inamgaon consisted of cereals (such as wheat, barley, sorghum and to a lesser extent rice) and legumes (such as lentil, horse gram, country beans, peas, green gram, kesari or grass pea (Vishnu-Mittra et Savithri 1975-76:55-62) and the black cotton soil may be effectively worked
by a simple hoe (Dhavalikar 1973:141-43; Dhavalikar et Possehl 1974:42-44).  

Productivity per unit of labour is also restricted by the causal relationship between distance and economic returns. In the case of modern subsistence farming it has been pointed out that the economic returns begin to decline beyond 1 km. from the site of occupation and it substantially increases if the distance is around 3-4 km. The practical level of operation is an area covered under an hour's walking distance from the settlement (Chisholm 1967). Even if more labour can be mobilized (e.g. clan/community participation) for relatively extensive land clearance, this does not necessarily enhance production because the time spent on covering the extended distance encroaches on the number of working hours, thus reducing the time necessary for productive tasks. This also has another aspect affecting production and even the settlement pattern. The limitations imposed by the terrain and soil types have an impact on the carrying capacity of the land. Hence, the necessity to cultivate plots further and further away from the settlement. The causal relationship between economic returns and distance may often lead to the 'split-off' of a group from the original settlement (Dhavalikar et Possehl 1974:43). On the narrow alluvial tracts of the upper reaches of small rivers this split-off

1. The black cotton soil does not always possess a uniform thick layer in all areas. The productivity of two adjoining lands may show sharp differentiation due to the alternate occurrence of the lava cap and the regur (black cotton soil). Cultivation activity (especially in jowar and cotton) for about 2-3 generations in a locality where the regur is thin, can lead to soil erosion consequently resulting in the creation of pasture land (Mukherjee 1969:245-253).
may result in a linear pattern of settlement (Chitalwala 1977: 95), which is perhaps seen by the distribution pattern of archaeological sites in the peripheral hills of the Primary Region.

Finally two other aspects related to labour, production and technology may be presented here.

The absence of acute population pressure upon localized factor resources may also be listed as an important/determining the low scale of production. It is interesting to note that during the early Proto Historic period neither the introduction of iron technology around 1000 B.C. nor the relative increase in the number of sites indicate a greater intensification of agricultural production. This is confirmed by the continuation of the crops and agricultural tools of the Neolithic, and by the sporadic occurrence of paddy which apparently did not have a wide proliferation during the early Iron Age. It is possible that a higher surplus yielding crop such as paddy was not appreciated during the early Iron Age because, a large agricultural surplus was not required and not because of the lack of labour or the technology needed to intensify production.

On the one hand it is clear that even without intensifying rice cultivation, the existing multi resource broad spectrum

1. Archaeologists have observed an apparent expansion in the size of the sites and also the density of animal remains from the late Neolithic-Chalcolithic levels in the southern Deccan. Similarly, the greater profusion of occurrence of Megalithic-BRW sites most obviously indicates the relative increase in the number in the Primary Region over that of the Neolithic-Chalcolithic. Yet, it is also observed that a good number of megalithic sites contain only 10-20 burials, which may indicate the existence of small groups and also the itinerant character of such groups (Leshnik 1974:247-48).
subsistence pattern (that was acquired from the Neolithic Age) sufficed for the economic requirements of the early Iron Age communities. The disadvantages of subsistence farming as a production technique to sustain Proto Historic communities were offset by the consumption of dairy products, a variety of meats, mollusc, fish, fruit, edible roots and yams, that supplemented the diet and also provided the minimum calori requirements (Dhavalikar et Possehl 1974:39-46; Chitalwala 1975-76:140; 1979:113-121).

On the other hand the inherent contradictions restricting the scale and the production level of subsistence agriculture may have resulted in a gross underuse of labour and a stagnation of the more advanced technology. In primitive agriculture, the supply of labour i.e. an additional in-put of labour, is important in increasing production per land unit(for a case study see Smith et Young 1972:11). 1 Though swidden cultivation is labour intensive, factors governing the land and scale of cultivation does not permit additional land to be brought under cultivation, even if there is surplus labour within the household/clan settlement. In most primitive societies in fact, labour is not a scarce source (Godelier 1969:32 in Sahlins 1978:56). It is at this juncture that labour becomes underused or unused, hence unproductive. 2 The limited range in crafts and the restricted functional value of iron clearly reflects this underuse of labour and a stagnation of the more advanced technology during the Proto Historic period.

1. For a study on the nature of labour and its functioning in primitive segmentary lineage based societies vide Terray 1972, section on 'Historical materialism and segmentary lineage-based societies'.

2. In all probability, draught animals may have been harnessed for agricultural purposes when land was brought under plough cultivation in the rice growing areas.
Appendix - II

A note on the metropolitan state hegemony

In order to understand the nature of the metropolitan state hegemony, it is useful to ascertain the motivating factors for the Mauryan presence beyond the Gangetic Valley and the consequent operational scales of the metropolitan state in these regions.

The term 'metropolitan state' has been applied to the Maurya state in a recent study. In an effort to sustain the economic base, it was essential to establish a hegemonic control over territories possessing fertile tracts, populated areas, resource-bearing zones, exchange centres and trade routes. The 'routes of expansion' followed by the Nandas, Mauryas and even the Sātavānhasas clearly indicate such economic motivations (Seneviratne 1978:383-384; 1981:324). The Asokan edicts are in fact located along nodal points, important trade routes and areas of raw material (R. Thapar 1961:228-238; 1981:419).

The Deccan and south India supplied particular resources to north India even during the Proto Historic period. The volume of exports in all probability may have increased in the post 4th/3rd

1. The metropolitan state which is the nucleus of a highly developed state ... seeks to spread its political hegemony over adjoining areas, gradually spreading out to more distant parts. The territory over which hegemony is sought to be imposed may be described as the peripheral territory in contradistinction to the metropolitan state. The relationship to be analysed is that between the metropolitan state and a series of political systems, some prior to state formation and others having already acquired identities as states. The extension of power is established through conquest ... it implies motives and controls. However, conquest is rarely so arbitrary and is more often tied to the
Century B.C. in order to sustain an expanding luxury commercial vortex and the craft-guild complex associated with north Indian urban centres. (R. Thapar 1969:109 passim.). Hence, the daksinapatha came to be regarded as the more profitable route precisely because it led to areas producing much pearls, conch shell, rubies, diamonds and also traversed areas having gold mines (Artha VII. 12:24-25). There is evidence to suggest that organized commercial groups involved in long distance trade arrived in the Deccan even prior to an extension of the metropolitan state to peripheral areas. In addition, the expanding agrarian and demographic base including petty exchange centres in the Raichur doab and in the lower Krishna valley including the communication links these areas formed with the east coast sea route, may have made the southern Deccan even more attractive to the Mauryas.

Cont'd ... f.n. from p.655 acquisition of areas of economic potential, either agricultural or commercial, which potential would flow back to the metropolitan state seeking hegemony and provide the foundation for hegemony' (R. Thapar 1981:410).

1. Due to similar factors the Nandas and the Mauryas found the lower Mahanadi (eastern Kalinga) equally attractive (Seneviratne 1981). In addition to the fertile plain, judging by the figures quoted in the XIII RE (Hultzsch 1922:45), a considerable population resided in this region. Kalinga also possessed rich deposits of iron, copper and tin ores in its northern region. Coastal Kalinga, known as Dosarene in Periplus (Schoff 1912:47, 253) or Polùra/Dantapura (Srivastava 1968:94), was famous for its ivory products. Kautilya records that Kalinga produces some of the best elephants (Artha. II.2:15). The Mauryas also realized the significance of the coastal sea-route which linked the Gangetic valley to the exchange centres along the east coast. They seem to have secured this sea route from the Naga pirates in order to provide safe passage to merchants (Przyluski 1967:200; Nookerji 1957:78 ff.). The statement in the Arthasastra (7.12:21) '... the route along the coast is preferable because of the large number of ports' (Kangle 1972:360) may have well been a reference to the east coast of India. Considering such economic potential, it is not surprising that Asoka conducted a destructive campaign to conquer Kalinga in his eighth regnal year.
Secondly, it is also pointed out that "the political economy of the expansion would determine the structure of relations between the metropolitan state and the area sought to be controlled" (R. Thapar 1981:410). In other words, this implies the operational scales of the metropolitan state and consequently the interaction between (two) political systems.

In an effort to reach out to establish its hegemony over far-flung but specific economic zones viz. areas possessing fertile tracts, population centres, raw material, exchange centres and trade routes, the Mauryan state virtually came to cover a larger section of the sub-continent. It is, therefore, unlikely that all ecological zones were equally important to them. Thus, the total physical area covered by the metropolitan state may be divided into two broad categories as primary and secondary zones. The former may be described as areas that were 'organically' linked to the metropolis through politico-administrative and economic channels. The latter possessed areas of isolation/relative isolation located between primary zones, ecologically somewhat inhospitable and housed relatively backward socio-economic groups. In his XIII RE (Girnar and Shahbazgarhi), Asoka clearly mentions the existence of forest areas (atavi) in his domain (Hultsch 1922: 23, 67).

Under these circumstances, what were the qualitative and quantitative degrees of control evolved by the metropolitan state? It is said that the authority of the Mauryan state over its sphere of influence was one of 'power to homage and tribute' and not 'power to organize all the political affairs of a large and in
principle precisely delimitable area' (Mabett 1964:166). The evidence at hand, elaborated below, enables us to modify the above view and draw the following inferences. It is evident that the metropolis could not physically maintain a salaried bureaucracy and a vast standing army to cover the primary regions and the secondary regions as well. As a result of this situation, the metropolis had to be selective and assign priority to areas that proved to be politically and economically more advantageous.

In this context it is possible to locate several primary zones. At the epicentre was the middle Gangetic plain. Judging by the Asokan edicts, the Indica and the Arthasastra, this area was managed by a well organized administrative network under the direct supervision of the metropolis at Pataliputra (vide R. Thapar 1961:Chap. IV). The main provincial centres at Taxila, Ujjain, Tosali and Suvarnagiri and smaller regional areas such as Saurashtra and the lower Krishna, may be considered as the other primary zones. At a level below these centres, but very much within the primary zones, were districts. It is significant that the terms used in the inscriptions are अहाल (अहार) i.e., food (vide Saranath NFE, Rupnath NRE, Cf. Hultzsch 1922:162, 167) and जनपद (iva. PE - Delhi/Topra. Hultzsch 1922:123).

Through what kind of politico-administrative mechanisms was the metropolis organically linked to the other primary zones? At the provincial centres, the metropolis was represented by viceroys i.e. कुमार and अर्यपुत्र, who were the kinsmen of the king at Pataliputra (Sastri 1967:223; R. Thapar 1961:100). It appears that the smaller
regional areas were under the supervision of the Mahāmatra\(^1\) and even under a kumāra\(^2\) or leaders of particular communities i.e. rāja.\(^3\) The above mentioned groups seem to have had vast executive and judicial powers (Thapar 1961: Chap. IV).\(^4\) In fact, in his I SRE, Asoka implores the Mahāmatras at Samapa to use extreme restraint in judicial and other administrative matters (Hultzsch 1922:112-113).

There were also other politico-administrative mechanisms linking the primary zones with the metropolis. It appears that the king had direct access to the provincial/frontier bureaucracy. While the Brahmagiri NRE records the orders from the king to the Mahāmatra at Isila via the viceroy at Suvarṇagiri, the I SRE clearly shows that the king by-passed the viceroy at Tosali to give directives to the Mahāmatra at Samapa in Kalinga. The Rumindel PE is another instance where the king issues direct orders pertaining to tax concessions to a near frontier area (Hultzsch 1922:164). Similarly, by undertaking royal tours even to far-flung provinces in the southern Deccan (vide Brahmagiri NRE), the king ensured that distance was no barrier for his physical presence. The inscriptions engraved on rocks and pillars ensured that the royal decrees were

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1. The I SRE (at Dhauli) clearly states that the Mahāmatra of Samapa are 'occupied with many thousands of men' (Hultzsch 1922:93).
2. A kumāra and a rāju kumāri are mentioned in two inscriptions at Amaravati, which belong to the earliest phase (Gosh 1979:101, No. 2; 103 No. 7). The regional centre of the metropolitan state was most obviously located at Dhānyakatāka. An inscription from Amaravati found on a slab having the 'Mauryan polish' is considered as a dhamma lipi of Asoka (Sircar 1963-64:40-43).
3. Yavanesa rājasa Ṭranga was governor in Saurashtra during Asoka’s reign (Sircar 1965:177).
4. According to the IV PE (Delhi/Topra), even the touring judicial cum revenue officers i.e. rājukas were given a free hand in matters relation to punishment and rewards (Hultzsch 1922:123).
present in a physical form where people assembled and were publicized through readings on prescribed days. All this was in addition to periodic tours conducted by the rājukas and the prādēśikas, who enforced state authority in the rural areas of the primary regions through powers granted by the king himself (vidē III RE – Girnar, IV PE – Delhi-Topra. Hultzsch 1922:5, 123).

The most vital connection between the metropolis and the primary zones was formed through economic linkages. It is our contention that, in the primary zones the Mauryas were successful to a certain extent, firstly, in the direct extraction of raw material and other resources, secondly, in the appropriation of labour for specific tasks and thirdly, in regulating re-distribution at particular levels.

The location of a provincial centre at Suvarṇagiri obviously had a strong economic motivation considering southern Deccan to be a primary gold producer. The direct extraction of this valuable resource seems to have been performed by the metropolitan state. There are at least 13 gold mines in the vicinity of Maski (Thaper 1957:10) and a minimum of 6 Aśoka edicts near ancient gold mines (Maloney 1968:225; 1976:25). It is possible that such resources may have been channelled through revenue officers who toured periodically. Alternatively, long distance trade played a vital role in tapping resources in primary and in secondary zones and subsequently channelling those to the metropolis. At Amaravati,

1. The Aśoka edicts in Karnataka are located near river-crossings or at places that are even at present frequented by pastoral nomads (Hultzsch 1922:xxvii–xxviii; Thaper 1957:18–19).
two of the earliest donative records belong to Maukasa sethi and Culanada seta (Ghosh 1979:101-103 Nos. 3, 30, 33).

Interestingly, these occur along with the records of the kumāra, rāja kumāri and rāja lākhaka, which appear to belong to the same period (ibid.). At another district centre, the governor of Saurāśṭra (during the reign of Chandragupta) was Vaisya Pusyagupta (Sircar 1965:177), who may have been a commercial magnate in this region. Such evidence indicates the close association between commercial magnates involved in long distance trade and the provincial administrative centres and also the crucial role they played in the channelling of resources to the metropolis.2

Secondly, we also have very good examples to show that the metropolis and the primary regions directly appropriated labour for particular tasks. One example comes from Kalinga. In his XIII RE (e.g. Kalsi), Asoka claims that 'one hundred and fifty thousand in number were the men who were deported thence ...' from Kalinga subsequent to the battle (Hultzsch 1922:47). The fate of these prisoners is unknown. In spite of all the misgivings Asoka had over his Kalinga campaign, nowhere does he mention the return of these deported people back to Kalinga. It is obvious that this labour force was utilized in productive tasks, in all probability as slave labour in state-owned mines or farms (vide

1. It is not out of context to mention that Asoka himself married a merchant's daughter (from Vidisa), while he was viceroy at Ujjain (Kr. xiii. 6-11).

2. Kautilya recommends the recruitment of srenivala or guild-forces (Artha. IX.12:16). In the salary scale, he even places the srenimukhya (guild-chief) at par with commandants (of elephants, horses and chariots corps) and magistrates (Arthaša V.3:9-10).
Similarly, R.K. Thapar is inclined to believe that, at Maski, "... gold mining was done under the most appalling conditions and may pre-suppose slave labour" (1957:18-19).

Thirdly, there is also evidence to show that the metropolis had the capacity to re-distribute resources even at particular levels in the provinces. A general survey of the epigraphical sources indicates that, a series of public works (viz. the construction of roads, rest houses, wells, hospitals, religious establishments and planting of trees etc.) was initiated by the state, which consequently implied that "... some of the revenue would be consumed in maintaining the local structures" (R. Thapar 1981:411). Similarly, while the Hatigumpha inscription of Khāravēla records the construction of a canal by the Nandas in Kalinga (Sircar 1965:213), the Junagadh inscription of Rudradaman mentions the construction of the lake Sudarsana by governor Vaiśya Puṣyagupta during the reign of Chandragupta and its reconstruction by Yavanarāja Tuṣāsapa under Asoka (Sircar 1965:177).

Romila Thapar is perhaps justified in grading the provincial centres as 'sub-metropolitan areas' (1981:411). These seats of administration, in a sense, posed as regional capitals of the Mauryan state, where the elements of the more dynamic north Indian urban milieu i.e. metropolitan culture began to radiate from these centres setting the pattern of life-style for the subsequent historical

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1. The Sohgaura copper plate and the Mahasthan stone plaque, which in all probability belong to the Mauryan period (Sircar 1965: 82-83, 79-80), carry instructions to officials on the distribution of food stuff as drought relief from the state food stores during famines.
epoch of south east India (Seneviratne 1981:327 ff.).

The metropolitan state apparently directed less attention to the secondary zones, perhaps due to two main reasons. Firstly, the sheer vastness of the territory imposed limitations on the metropolis in terms of additional manpower and resources available to maintain a constant physical presence in such areas. Secondly, although secondary regions were not without economic potential, perhaps the necessity may not have been that urgent so as to dwell deep into relatively inaccessible areas at the constant risk of confronting tribes who did not take kindly to intruding aliens. This does not mean that the secondary zones were rejected as worthless and then ignored. However, sporadic it was, the metropolis or its provincial centres maintained some form of surveillance over secondary zones.

In this context, direct political/military action may have been one such method used by the metropolitan state. A good example may be quoted from the XIII RE (Shabazgarhi), where Asoka in no uncertain terms informs the forest dwellers that he has the power to punish and even to kill them (Hultzsch 1922:69).

1. Archaeological evidence clearly establishes that there were urban centres or townships at sites such as Taxila/Bhir mound (Marshall 1951), Ujjain/Vidisa (Ghosh 1973). Probably proto urban centres or petty townships existed at Tosali/Dhauli (Lal 1946:65-66), Suvarnapuram/Brahmagiri, Maski (Wheeler 1948; Thapar 1957). Janakapahana also had a township i.e. nagara from the 3rd Century B.C. Asoka also mentions the existence of nagara-vyāghālaka (city judicial officers) at Samapā and Tosali (in Kalinga) (Hultzsch 1922:92-93, II.14), which clearly establishes its status as a town.

2. The Arthaśāstra mentions several channels through which the king could exercise authority over forest dwellers and its resources. It is recommended that forest troops may be recruited for specific predatory tasks (II.33:7; 9.2:7). The king is also advised to establish and maintain forests e.g. elephant
also interesting to question whether the ban on samājas imposed by Aśoka (vide I RE – Girnar) (Hultzsch 1922:1), was exclusively meant for the urban and rural groups. The periodic gatherings of tribes had an important socio-political significance attached to such assemblies. A check on community gatherings could have had an adverse effect on the cohesiveness of the clan-based tribal societies. Conversely, it is equally doubtful whether certain royal decrees pronounced in the inscriptions could be effectively enforced in the secondary zones, especially in the forest tracts.

In addition to these secondary regions, the metropolis apparently had relatively well guarded frontier areas and it was the ānta mahāśtrās that were probably entrusted with the task of maintaining forts, surveillance over frontier tribes, public relations with...

Cont'd ... f.n. from p.663 forests, and make use of such resources (II. 245-6). Aśoka in fact prohibits the wanton destruction of forest land e.g. V PE Delhi-Topra (Hultzsch 1922:126). The same edict also mentions the existence of elephant-forests (nāga-vana).

1. For instance, in his V PE (Delhi-Topra) Aśoka prohibits the killing of certain animals. The areas peripheral to the agrarian tracts and in the forest tracts, swidden cultivation was largely supplemented by a hunting–gathering–fishing economy. The same edict prohibits the burning down of forest tracts (Hultzsch 1922:126) which runs counter to the cultivation pattern of the swidden system.

2. It is significant that the Arthasastra (II.1:5) recommends the location of fortresses and the intervening areas to be guarded by forest tribes, Sābaras, Pulindas and Chāḍālas.

3. The Arthasastra associates the frontier officers with tasks of overlooking the 'use and the control of pasture lands' (II:34; R. Thapar 1981:415). This is quite significant in the case of the frontier areas associated with the Deccan, which had a long tradition of pastoral nomadism, these tribes adhered to their traditional routes that cut across political 'boundaries' of the state. Some of them were itinerant tribes who transported certain items. Some were also warlike groups involved in cattle stealing. The Arthasastra in fact instructs that a check should be maintained on the movements of 'foreign' tribes (II.1:32).
frontier tribes and communities outside the state limits and
also the propagation of the dhamma e.g. I PE Delhi-Topra;
Saranath PE; II SRE Dhauli (Hultsch 1922:119, 162, 98-99). It
is quite evident that Asoka also used the dhamma in the
secondary zones as a convenient social ideology to ease social
tension and sectional antagonisms and as a projection of the state
policy cutting across regional barriers.¹

The installation of provincial and district centres, by the
Mauryan state had strong political and economic motivations.
Through these provincial and district centres, the metropolis had
established some degree of control over resources, labour and
re-distribution. The sources, however, are not too clear about
the mechanism through which the bureaucratic apparatus of the
metropolitan state regulated or controlled resources, labour or
re-distribution. In other words, we have to ascertain whether
there was or was not a vertical extension of the metropolitan state
authority in order to reach down to the resource-bearing centres
and the primary units of production that existed in the form of
clan-based residential communities.

Let us consider certain specific situations. Judging by the
Asokan edicts, the provincial/district administration was largely
composed of an upper bureaucracy that was limited in number and
generally stationed at their administrative centres with the
exception of the Mahamatras, the pradesikas, the rajukas and the
yutakas, who toured their regions every five years (I SRE Dhauli/

¹ "And even (the inhabitants of) the forests ... he pacifies and
converts (XIII RE, Hultsch 1922:69)."
Jaugada; IV,PE Delhi-Topra, vide Hultzsch 1922:94; 113, 123).
Their subordinate officers were mostly scribes/record-keepers/messengers etc., who obviously lacked executive powers (see Chart No. 9 for a list of Mauryan provincial officers, mentioned in the inscriptions).

Even in the case of the prādēśikas, the rājukas and the yuktas there were certain regional limitations and variations.

While in his III RE (Girnar) Asoka claims that the yuktas, rājukas and prādēśikas toured everywhere in his domain, (sarvata vijite) every five years (Hultzsch 1922:5), his V RE (Delhi-Topra) states that the rājukas are occupied with 'many hundred thousands of men', residing in the rural areas i.e. janapada (ibid. 123). It is interesting to question whether the meaning implicit in the term janapada (as a larger socio-economic unit), which was the rural-agrarian base of the north Indian urban centres, was also applicable in south east India. Quite clearly, an urban-rural interaction had not properly evolved in south east India, within which the term

1. Hultzsch believes that the prādēśikas may have been another category falling within the Mahāmātra group (1922:5 Note 3).

2. In the pre-urban context the term janapada (jana + pada) 'the foothold of the people', quite clearly represented the earliest sedentarized units of folk settlements. With the development of more complex nucleated settlements in the 6th Century B.C. the city and the rural tract i.e. paura - janapada stood juxtaposed as two distinct areas of settlements. This situation was recognized in the north by the 4th-3rd Century B.C. where the Arthasastra in no unclear terms states that the janapada and paura are two distinct spheres that go to form the constituent elements of the state (VI.1:1). This distinction is also seen in the Hatigumpha inscription, where Kharvela describes his munificence towards the residents at urban centres and to those in the countryside i.e. 'pura-janapadam' (Sircar 1965).
**Chart No. 9**

The Mauryan Bureaucracy

<table>
<thead>
<tr>
<th>Title</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Åryaputra</td>
<td>viceroy</td>
</tr>
<tr>
<td>Kumāra</td>
<td>- do -</td>
</tr>
<tr>
<td>Kumāra*</td>
<td>district head (?)</td>
</tr>
<tr>
<td>Řāja*</td>
<td>- do -</td>
</tr>
<tr>
<td>Mahāmatra</td>
<td>the Council of the viceroy i.e. pariṣe e.g. Suv, Tosa</td>
</tr>
<tr>
<td></td>
<td>the Council at district head-quarters e.g. Kau, Sam, Isi.</td>
</tr>
<tr>
<td></td>
<td>- nagara vyavahārika</td>
</tr>
<tr>
<td></td>
<td>- anta mahāmatra</td>
</tr>
<tr>
<td></td>
<td>- dharma mahāmatra</td>
</tr>
<tr>
<td></td>
<td>- itūjhaka mahāmatra</td>
</tr>
<tr>
<td>Senagopa*</td>
<td>-</td>
</tr>
<tr>
<td>Senapati*</td>
<td>-</td>
</tr>
<tr>
<td>Prūdesika</td>
<td>district officer who toured every five years.</td>
</tr>
<tr>
<td>Rañuka</td>
<td>judicial/revenue officer who toured every five years, assigned with greater powers (in the 27th regnal year of Asoka) for activities in the janapadas.</td>
</tr>
<tr>
<td>Yukta (Ayukta)</td>
<td>- registrars/accountants</td>
</tr>
<tr>
<td></td>
<td>- sometimes associated with the mahāmatras.</td>
</tr>
<tr>
<td>Řāja</td>
<td>Ṛekhaka</td>
</tr>
<tr>
<td>Lipikāra</td>
<td>- secretary/scribe</td>
</tr>
<tr>
<td>Dūta</td>
<td>- envoy</td>
</tr>
<tr>
<td>Vaça-</td>
<td>bhūmi of cow-pens.</td>
</tr>
<tr>
<td>Paṭivedaka</td>
<td>reporter/spy (?)</td>
</tr>
<tr>
<td>Pulisāmi</td>
<td>- messenger/emissary of king</td>
</tr>
</tbody>
</table>

* Donative and other inscriptions, the authorship of which cannot be attributed to Asoka.

MRE-minor rock edict; PE-pillar edict; RE-rock edict; SRE-separate rock edict; Am-Amaravati; Br-Brahmagiri; Del-Delhi; Dh-Dhauli; Gir-i-(Asokan); Gir-i-ii-(Rudradaman's inscription); Isi-Isila; Jau-Jaugada; Kal-Kalsi; Kau-Kausambi; Sam-Samapā; Sid-Siddhapura; Suv-Suvargāri; Tos-Tosali; Top-Topra.
janapada then carries no meaning at all. In fact it is extremely significant that when Asoka orders his viceroy to direct a Mahamatra on tour every five years to check the subordinate provincial/district officers, he addresses it to all the viceroy viz. Tosali, Taxila, Ujjain, but with the sole exception of the viceroy at Suvarṇagiri. Thus, it is tempting to question whether the metropolitan state authority actually extended beyond the nuclear areas in the southern Deccan. It is interesting to calculate the actual physical area these officers were able to cover within a span of five years while on tour, which may in turn indicate the real authority that could be extended or be established from a provincial/district centre. It is therefore, possible to suggest that the bureaucratic hierarchy representing the metropolis may not have had real authority beyond specific areas associated with provincial/district centres such as Suvarṇagiri, Isila or Dhāṇyakata.kā.

Under such circumstances, the metropolitan state had to resort to alternate measures to ensure political control and the power to regulate resources, labour and re-distribution. On the

1. The 'urban bias' of the megalith-builders has very rightly been questioned (Chow 1973:12). In the southern Deccan, though 'townships' existed at Maksi, Brahmagiri and Dharnikota, during the Maurya period, these do not show a developed stage in urbanisation. The extent or the quality of archaeological remains belonging to the Mauryan period show anything but urban prosperity at these sites. These were military-administrative cum exchange centres that gradually evolved into better developed urban centres more specifically in the Satavahana era and after (e.g., Nagarjunakonda). Similarly, in south India, even during the early Christian era archaeological excavations have not revealed any urban centres that are comparable in their dimension to sites such as Taxila, Sravasti, Rajagṛha or Sisupalgarh in the north.

2. Asoka apparently was aware of this and to remedy this situation, (as late as his 27th regnal year), he gave wide ranging judicial
one hand, the prevalence of unevenly developed communities and regions logically implied an uneven spread of metropolitan state authority over the primary and secondary zones. On the other hand, it is quite apparent that the metropolitan state essentially projected a political structure juxtaposed to the pre-state polity in the southern Deccan and south India. In its overall relationship with other primary and secondary zones, therefore, the metropolis had no alternative but to maintain a variety of flexible relationships where "... the structure of control would differ in accordance with the economy and the ecology of the area and the existing socio-political forms ..." (R. Thapar 1984:411).

The Asokan edicts, western sources and the Arthasastra, clearly indicate the existence of several ethno-cultural groups within the territorial limits of the metropolitan state (see Chart No. 6 for a list of names appearing Asokan edicts). The specific reference to such groups (viz. Yavana, Bhōja, Andhra, etc.) in the primary zones and in the secondary zones (e.g. forest tribes) indicates that their individual identity (as culture groups and territorial groups) was recognized by the metropolitan state.  

Cont’d ... f.n. From p. 668 and executive powers to the reśṭaka group of officials (vide VI PE, Delhi-Topra, Hultzsch 1922:123). This may have been an attempt to establish greater control over regions associated with provincial centres.

1. The location of Kharoṣṭhī and bilingual (Greek-Aramaic) inscriptions in the north-west, is yet another sign of the recognition of this cultural individuality. We are in agreement with R. Thapar (1961:121) that the negama coins do not assign the status of an autonomous city state to Taxila. In addition to negama coins, there are paṇcānakara coins at Taxila (Allan 1936/1975:cxviii) which clearly reflect guild operations in commerce rather than in politico-administrative affairs. In any case, Taxila being the residential seat of a Mauryan viceroy, could not have simultaneously functioned as a free-city.
It is evident that the Mauryas had to come to terms with this situation as they could not always conduct destructive campaigns on resident communities (e.g. Kalinga). Though the metropolis did possess adequate military resources to confront any of these regional ethno-cultural groups (e.g. Asoka's Kalinga war; the warning to the forest tribes), protracted campaigns was not sound economics of good statesmanship. Alternatively, the more practical approach left to the metropolis was to incorporate these communities to the state structure so as to maintain hegemonic control over them. What really is crucial to our study is the quantitative and the qualitative nature of this hegemonic control and its overall impact on the political structure of south east India.

The incorporation of communities to the state structure was most successful when the metropolitan state either absorbed individual members of indigenous groups to the social hierarchy or obtained the services of communities in specific tasks related to the political or the economic sphere. In terms of political stability and in forming vital linkages with the desired spheres in the economy, the above policy was bound to pay rich dividends. The amalgamation of tribal chieftains to the administration at the provincial or at the district level has been viewed as a means that would cause 'less disruption in organization when an area came under Mauryan control, apart from the fact that a foreign administrator might be resented more than a local ruler. In such cases local autonomy may have been retained at a lower level of administration' (Thapar 1961:101). This situation may be called the establishment of 'a chain of command' (Fried 1967:241), where the local chiefs
played a crucial role in forming a vital link to channel resources from the local units to the metropolis via provincial or district centres and also along the long distance trade network (Seneviratne 1981:326).

The following evidence may confirm the above assumption. During the reign of Chandragupta, **vastriya Vaisya Pushyagupta** was governor of Saurashtra. The same region was governed by **Yavanarajasa Tusaspā** under **Asoka** (Sircar 1965:177). It is possible that the term **vastriya** which implied provincial governor during the early Christian era, may have originally derived from the community name **rathika**. The **rathika** are listed as a community in the V RE (Hultsch 1922:9), who were probably located in Saurashtra i.e. Kathiyawar (ibid. XXXVIII, 56 Note 21). There was also a community of **Yavana** (West Asian or Greeks) who seem to have resided in Saurashtra. It appears that the metropolis viewed them as an important group and had a leading personage from amongst the Yavana appointed as the governor of Saurashtra. We also have to bear in mind that Saurashtra formed an important link zone for long

1. '... mauryasa rājasaḥ chaṇḍraguptasya rāṣṭriyena vaisyena pushyaguptena kāritaṃ asokasya mauryasya karite yavanarajena tushaaphena adhishtaya ...' (Sircar 1965:177).

2. Gopalachari has elaborated instances where terms that originally had a geographical or ethnical meaning in the Deccan e.g. bhōjaka, rathika, were transformed as title terms (1976:81-88). However, it is interesting that in the Hatigumpha inscription, the Rathikas and the Bhōjakas are mentioned as specific groups who were subdued by Kharavela viz. '... sava rathika bhojaka paṇḍe vamśāpaṇati.' (Sircar 1965).

3. It is quite possible that from his young days Asoka was no stranger to Greek people or their culture (R. Thaper 1961:20). He also mentions the existence of Yonas in his domain (vide V, XIII RE. cf. Hultsch 1922:9,46). During his reign, a Greek monk named Yona Dhammarakkhita went to the 'west end' (aperanta desa), while Mahārakkhita went to the Yona country for missionary work (MV. XII.34,39). There are several donative records
distance maritime trade in particular with (West Asia, North Africa and the Malabar coast), which may account for the presence of Yavana groups and the existence of powerful Vaisyas such as Pushyagupta at this entrepot.

We also come across more positive evidence from south east India. Due to the lack of documentary evidence, we are unable to ascertain the exact manner in which some of the communities that were located in the gold producing regions were incorporated to the provincial administration. In all probability, at least in this specific instance, the provincial government may have had direct supervision of such communities. In the lower Krishna region it appears that the provincial and district administration did seek the co-operation and the assistance of local chieftains and communities.

Some of the earliest inscriptions from Amaravati reveal the names of resident communities, which strongly suggest a clan situation (vide Ghosh 1979:101, No. I; Sarma 1975:70, pl. xiv). Clan names in fact do continue to occur even during the post-Mauryan period in donative records. It is clear, therefore, that even during the period of the metropolitan state hegemony, the resident community was a clan-based one where kinship ties played a crucial role in economic and political interactions. The functioning of such clan-based villages as units of production in specific specialized economic task(s), was an essential feature associated with the production-distribution system of the pre-state village economy in

Cont'd ... f.n. from p.671 in western India indicating the continued presence of the Yona in this region even during the post-Mauryan period (Dogra 1975-76:185-190).
south-east India.

At the regional or local level of administration, the metropolitan state sought co-operation from such communities or their individual members. We may first take up the case of Senagopa Mudukutala (Burgess 1882:101, pl. 1vi, No. 4; Luders 1976:No. 1266; Sivaramamurti 1977:276 No. 18). Palaeographic and stratigraphic evidence clearly places this record (stating the donation of stambha) along with the group of inscriptions assigned to the 'Mauryan phase' at Amaravati (Ghosh 1979; Sarma 1975:62, 66). It is possible to attribute certain meanings to the personal name and this title in view of ascertaining the incorporation of local elite groups to the metropolitan state bureaucracy.

The personal name Mudukutala (mudu + kutala may be analysed in the following manner: The etymology of mudu (in Dravidian) is 'ancient, old' (TED 4057). Kuntala (→ kutala), in the inscriptions convey the meaning 'the one who wields the spear' (Sircar 1966:167). Mudukutala, therefore, may mean, the 'one who belongs to the ancient community/or the ancient one who wields the spear'. We have indicated instances where such attributes were associated with tribal/clan chieftains e.g. the Vēḷir of Tamilaham (vide Appendix - V). In fact, the earliest known historical ruler in Kalinga had a (Dravidian) personal name called Kharavela i.e. the 'wielder of the dark/terrible spear'. It is

1. The original reading Mudakutala and its derivation Mudakuntala (Burgess 1882:101) was subsequently corrected as Mudukutala (Luders 1978:1266). Luders, however, incorrectly derives Mudukutala from the above name.

2. If the Dravidian term is used as a substitute for Kuntala, this name may be read as (Mudu)vel.
significant that Khāravāla claims his descent from the Chēdi Yama (Sircar 1965:213). The Chēdis, just as much as the Vēlir, are considered to be a primary segment of the Vādavas. The Purānic list mentions that a member of the Andhra family bore the name Kuntala (Pargiter 1913/1975:36, 40, 71).

Anjana Chatterjee also accepts the derivation of Mundakuntala as Mundakuntala and believes it to be of north Indian origin (1976:209 Note II). She does not however present any evidence in support of this assumption. The only possible Indo-Aryan derivations for mudu or munḍa and kuntala are as follows: From

\[
\text{mudu (Sanskrit) > mudu (Pāli) means 'delicate, soft'. This meaning cannot be related to the suffix kuntala i.e. 'the one who wields the spear'. Mundakuntala, however does carry a personal attribute to an individual. In Pāli, while munḍa implies 'close shaved', kuntala also means 'hair', hence 'the short haired one'. There is, however, reason to believe that the term munḍa belongs to the non-Indo Aryan stream of languages and cultures.}
\]

1. In the context of the Dravidian group of languages, munḍa also means 'head' (Sircar 1966:109) and this is not incompatible with an attribute assigned to a leader or chief '... who wields the spear'.

1. The name of the slave woman who bore a child for Mahānāma Sākya was Muṇgamunda. Kosambi is probably correct in assuming that Muṇgamunda signifies the aboriginal birth of this individual (1972:128). It is possible that certain tribes in eastern India who confronted the Sanskrit speaking groups, had short hair or alternately the Kṣatriya\textsuperscript{a} deliberately made the backward groups whom they subjugated keep short hair as a mark of social differentiation. Interestingly, munḍa in the Tulu language means 'small' (DED 4047).

2. Ehuvala and (Maḥā)talavera, which were taken up as personal names, epithets or titles in the subsequent period, also carried meanings indicating 'head, top', which were attributed to eminent or superior persons of rank and associated with persons holding military or political positions.
For a further confirmation of our argument in favour of the incorporation of local elite groups to the metropolitan state bureaucracy, we may take up the title senagopa. It is evident that this term was an introduction made to the southern Deccan by the metropolitan agents. Sena (from sena) means army. Gopa, however, seems to have carried a slightly different connotation. In north India during the Maurya period, gopa was a petty bureaucrat who functioned at the grass-root level as an accountant/census officer-in-charge of 5-10 villages or within the urban administration (Thanar 1961:109, 112-113; Choshal 1973:16-17; Artha II.35). For the reasons given below, it is clear that Mudukutala was not a petty bureaucrat who functioned in the capacity of a village/town accountant or census officer. Firstly, in its actual functional sense, a gopa could not have combined the tasks of a person who commanded a garrison or a contingent i.e. sena. Secondly, if Mudukutala was actually a petty bureaucrat, it is unlikely that he possessed sufficient economic resources or social status to make a donation at a place of worship patronized by the metropolitan political elite. Thirdly, in the southern Deccan, an urban-rural symbiosis had still not evolved and consequently it did not call for a regulated tax procedure necessitating the services of a gopa.

In our opinion, Mudukutala was a local chieftain, who had some prowess in the use of weapons (e.g. vel) or belonged to an ancient lineage group associated with this symbol. He probably held sway over a community and wielded power over several residential clan villages, which may have prompted the metropolitan agents to
bestow upon him the title senagopa, an assignment clearly reflecting the nature of his services to the provincial/district government. In this context it is apparent that gopa (in the southern Deccan under the Mauryas) indicates Mudukutala's sphere of control over clan villages. Sena reflects the nature of services Mudukutala was expected to render in the capacity of a commander. Mudukutala was in all probability a commander of a contingent composed of his clan groups. This clearly shows the manner in which the chieftain formed a link between the clan village (unit of production, source of labour) and the provincial/district centres of the metropolitan state.

To substantiate our view, we propose presenting further evidence from a second donative record that reads 'pakataka senapatino dharakasa' (Ghosh 1979:102, No. 7A, pl. II). In this case the title term senapati has no ambiguity at all. However, what is interesting in this case is that the title was conferred upon a person belonging to a local clan. If the personal name Dharaka is considered as a derivation from (Pali) Dhāraka, then it means 'the one who holds' or 'the one who possesses', perhaps authority. Several donative records mentioning other individuals of this clan i.e. Pakotaka, occur amongst the earliest group of inscriptions at Amaravati (vide Chanda 1919-20:236 No. 8; Sivaramamurti 1977:276, No. 24; Ghosh 1979:102, Nos. 24, 25, 32).

This powerful and affluent clan was most obviously located in the

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1. We may note that in the Dharmasastra, gopa is known as an 'officer-in-charge' of cattle (Sircar 1966:118). In certain inscriptions gopa is also attributed to 'a watchman' (ibid). The Tamil word talaiyên means 'a village watchman' (Vogel 1929-30: 7). This term evolved out of talavara, a title term taken up by the post-Mauryan nobility of Andhra.
lower Krishna, apparently having submitted to the metropolitan state and even served in their provincial hierarchy. A significant point that emerges from these two cases is, both individuals, i.e. Mudukutala and Bharaka, were incorporated in the capacity of military leaders. This essentially raises an interesting question with regard to the nature of the relationship between the metropolitan state (agents) and the local communities. In terms of financial and labour expenditure, it was not easy to conduct sporadic or protracted military expeditions in far-flung regions. Judging by Asoka's own statements on the Kalinga campaign, the mass destruction caused during such expeditions cannot be underestimated (vide III RE). According to the Sangam texts, the Magadhan army apparently had to cut roads across the hills of southern Deccan and move in their wheeled chariots and cavalry to subjugate this region (Aham 251). After the initial campaign, the task of maintaining a salaried bureaucracy and a standing army in the occupied areas, may have been more difficult. Thus to ensure political and military stability, the metropolitan devised an alternate method by enlisting the support of local chieftains and communities in matters related to military affairs. This may explain the functions of titles such as senāpati, senagōva conferred upon the members of local clan groups, who could in turn mobilize the support of the resident communities to serve the metropolitan state.

1. Chanda's attempt to identify the Pākṣa clan as the original group who later came to be known as the Vākṣākṣas, may not be incorrect after all (1919-20:259-60). The southern origins of the Vākṣākṣas has also been pointed out by Mirashi, who located their original home at Vellura (Velur), 30 miles north by east of Hyderabad in the Yelgandal district, which is south of Gulkanda (1951:14-16).
This new strategy of the Mauryas is best demonstrated in the case of another tribe in the southern Deccan, who are referred to as the Kosar in the Sangam texts. They were equipped with chariots and conducted a campaign against the chief of Nokur (Ahám 251). This chieftain belonged to the Atiyamā (mentioned in the Sangam texts) or the Satiyaputa (mentioned in the Asokan edicts), who resided along the mineral rich northern fringes of Tamilaham. The Mauryas probably had designs of gaining some degree of control over this rich and strategically important zone, at least through their local allies. Though Asoka speaks of cordial relationships and his effort to spread the message of the dhamma beyond his southern borders (e.g. II, XIII RE), the shrouded warning he directs at the borderlands is very clear in the II SRE.\(^1\) By releasing the Kosar as an auxiliary force - perhaps to keep the borderlands in check or for further extension of their hegemonic control over a wider physical area - the metropolis did not directly risk its own resources or those of the provincial government. The Arthasastra (II:33.7; IX. 2:7) clearly recommends the value of enlisting forest troops and also hints at the existence of their own commanders (Kangle 1972:412 Note 18). It is also significant that Kautilya recommends the building of frontier fortresses and the appointment of chieftains in command of these strategic centres as well as having the intervening area guarded by the Atavikas, Sabaras, Pulindas and Chandālas (Artha II. 1:5-6). The Saranath Pillar Edict refers to such border fortresses (kota-vishavesu) along the forest tracts.

\(^{1}\) This alone is my wish with reference to the borders ... that they may not be afraid of me, but may have confidence (in me); that they may obtain only happiness from me, not misery; that they may (learn) this, that Devanampriya will forgive them what can be forgiven ...' (Hultzsch 1922:99-100).
Labour and production in Early Historic Andhra: towards a theoretical formulation

The theoretical framework for this process in Macro Zone I, may be seen within the confines of the following premises. First, during the Maurya occupation, there was a circulation of resources i.e. surplus, in the form of finished products or raw material, upward towards the chieftain who ultimately passed it on to the overlord as 'tribute', which reached the metropolis via the provincial headquarters. Secondly, the nature of demands made in the more developed nuclear areas in the north, necessitated a requirement for merchants specializing in long distance trade to seek such resources in the south. These resources were again obtainable only through chieftains or communities controlling such areas of production. It was at this instance that the economic resources controlled by the chieftains could be linked to a larger exchange vortex, the dimension of which was structurally larger than the earlier inter-tribal network. Thirdly, within the southern Deccan itself, the local elite that was absorbed into the power structure of the overlord, sooner or later underwent a process of acculturation where they came to establish a social distinction from the ranks below them. By imitating the life-style of the politically superior group, the nature of consumption of the local elite also was bound to change. This gave a further boost to the production of certain luxury items in which a greater craft specialization and localization of manufacture played a crucial role.
Fifthly, the demographic expansion and the more intensive food production, which saw a durable surplus in circulation, witnessed an increase in the local consumption and utilization of commodities especially in the relatively more developed nuclear areas of the southern Deccan. In addition to the gradual stratification of society, where certain groups were being exempted from the process of production, the surplus was also required to sustain new institutions such as the religious establishments and the resident clergy i.e. the samana/senaga.

It is quite apparent that the ecological zone of the 'solid nucleus' i.e. lower Krishna valley (Subbarao 1947-48:171-73) held certain advantages supplementing a relatively rapid movement towards better defined political formations coinciding with the end of the Proto Historic period and the beginning of the Mauryan occupation. What were the internal structural dynamics that provided certain advantages to the elite groups during this period? In other words, it appears that even prior to the Maurya hegemony over Macro Zone I, a semblance of political formations based on a control over resources and the community was gradually taking place. The socio-economic dynamics of this process became more clear during the Mauryan and the post-Mauryan period where there is a clear integration linking the pre-state elite groups with the units of production through an unequal relationship. It is not incorrect to say that the internal dynamic found greater expression when it actually synthesised with the external dynamic comprising the long distance trade, metropolitan state hegemony and north Indian social ideologies. It was precisely the combination of these factors that on the one hand stabilised the economic base of the chieftains
leading to greater social ranking subsequently giving rise to a stratified class society. On the other hand, it gradually integrated the units of production, operated by the resident communities, as better defined functionally specialized settlements having a more complex character beyond simple clan villages, thus laying the foundation to the subsequent territorial basis of the state.

There were several internal material advantages that augmented political and economic stability of the chieftains in this region. The clustered formation of Megalithic-BRWS sites along the alluvial plain may indicate settlement groups (of clans) that formed 'territorial' units controlled by different chieftains. Further, to this, the main river not only linked the settlements of the lower valley with the raw material producing areas of the southern Deccan, but it ultimately linked the whole valley to the coast. On the Krishna, it is possible to navigate (country boats) upriver (65 k.m. during the monsoon and 35 k.m. during normal seasons) from the coast. In addition, a network of tributaries link a series of settlements in the lower Krishna valley with the main river (vide Chapter I).

The resident population was not only housed and sustained in this fertile valley, it had ample resources to generate a greater surplus to meet an expanding demographic situation. The agricultural surplus obtained within this fertile area, ultimately augmented the economic base of the chieftains, and also provided them with a durable item as a medium of exchange for a protracted interaction with communities in the periphery for a regular supply of raw material. Simultaneously, by enhancing the agricultural production,
the chieftains had the advantage of accumulating a resource capable of maintaining a group of craftsmen within the community for full time production to supply the chieftain with his demands. Chieftain's demands in turn were conditioned by his role as the middle man for the provincial government of the metropolitan state and to the long distance trade operators and also by the necessity to lavish donative gifts to the religious establishments in an attempt to exhibit his social wealth especially in an era of intense competition for status. The evidence from all three Macro Zones in fact indicate that the earliest enterprising indigenous entrepreneurs were the chieftains and groups closely associated with the local political elite. It was they who initiated, internally, a regular exchange process and craft specialization, beyond domestic consumption geared for a regular market. Apparently, this group dominated the scene until the early Christian era, by which time the ruling classes became more broad based and new property relationships developed in land and labour in the Primary Region.

This brings us to discuss the actual mechanism through which the political elite came to control the labour incorporated within the settlement hierarchy during the pre-Sātavāhana period.

Our study indicated that internal social differentiation and differential access to resources had already emerged by the mid-phase of the Proto Historic period. The movement of resources in relation to regions-communities-elite groups can be best described as a process where there is a 'circulation of goods flowing towards the top of the social pyramid and down again' (Sahlins 1968:87;
The political and economic advantage including the consequent status the elite groups enjoyed over the resident community may be seen in the construction of 'specialized burials' and the interment of 'prestige goods', in particular burials in the southern Deccan. It is also interesting to question the method by which labour may have been mobilized to construct some of the intricate megalithic burials, the fortifications and the navigation channel at Dhāyakadaka during the end phase of the Proto Historic period. Apparently, the agents of long distance trade and subsequently the metropolitan state intruded into this situation in search of luxury items and particular raw materials, enabling them to forge political and economic links with the political elite. It is, therefore, not surprising to find that clan chieftains who incorporated into the provincial administrative hierarchy and some of their clan members reaped the benefits of this lucrative long distance trade nexus. The endowments made by senapati Dharaka and other members of the Pakotaka clan is a case in point. It is also interesting to note that the donative records mentioning the endowments made by both, Mudukutala and Dharaka, occur at Amaravati, which is located adjacent to the Mauryan political cum commercial centre at Dhānyakaḍaka.

It is possible to infer that during the Mauryan state hegemony and the period after that there was a growing demand, both internally and externally for luxury items and materials. Internally, such a demand may have been generated by a demographic expansion, an increase in affluent groups enjoying the luxuries of a developing exchange economy and due to a growth in centres of production housing full-time specialists. Externally, in addition to the heavy demands
of maintaining the functional apparatus of the metropolitan state, the more developed urban centres in the north and the craft and commercial guilds that expanded rapidly in the post 3rd/2nd Century B.C. period (R. Thapar 1969; 109 passim.) have created an equally big demand for resources obtainable from the south. All this implied a need to increase the supply of raw materials and to intensify the production of finished goods, and also the necessity to induct a more efficient distribution system.

To meet this situation there was a vital necessity to intensify labour and production including the authority to do so. The mechanism through which this could be achieved is by ‘getting people to work more or more people to work’ (Sahlins 1972:82), which is a clear shift away from tribal egalitarianism. Such a process had to be initiated and executed either by the existing local political elite or by the metropolitan state itself. The very absorption of the local political elite to the provincial administrative hierarchy by the Mauryas, may suggest the prevalence of some such authority in the hands of this group to mobilize labour and intensify production. Perhaps the presence of the Mauryas may have also given a greater impetus to mobilize labour and intensify production, especially to sectors and areas where they sought to reach the primary producer direct.

It is believed that the Mauryas may have used slave labour in the gold mines of southern Karnataka (Thapar 1957:18–19). The existence of slave labour elsewhere in the Maurya state is mentioned in the Asokan edicts, e.g. IX R.E. – Dauli (Hultzsch 1922/1969:90). If we accept the suggestion on use of slave labour by the Mauryas
in the southern Deccan, we may be able to speak of two new aspects associated with labour and production. The first is the definite introduction of 'coercive' power as a means of mobilizing labour and even making it more efficient for enhanced productivity. The second element is the introduction of an entirely new concept of production relations to this region, an element totally alien to the pre-existing household economy of the kingroup where the division of labour was based on altogether different principles. Judging by the concentration of Asoka's edicts and the location of a provincial administrative centre in the primary gold producing area (and significantly not at Dhanyakataka), it is clear that the Mauryas considered this area in the southern Deccan to be an extremely important economic zone.

There is every likelihood that the metropolitan state may have forced some of the agricultural and pastoral nomads in this region to work in the gold mines. It is interesting to question the impact such a policy had in disrupting the pre-existing household socio-economic fabric which prevailed in the particular eco-system. To that extent, the Mauryas may have been successful in executing 'real authority' in society. In any case, judging by the beginnings of monumental constructions e.g. Mahastupa at Amaravati, stone masonry work, remains of luxury items, indicate that specialized labour was mobilized for particular tasks by some controlling authority.

Within the above context, participation in the lucrative commercial enterprises would not have been missed by the chieftains and their associated kin groups, who may have attempted to establish a more regular control over labour and the means of production as
well as distribution, rather than only on acquisition of the surplus. The absorption of the elite groups from particular clans to the power structure of the metropolitan state, provided the former not only with a basis for a new social differentiation, but also a politico-administrative 'sanction' and legitimation to 'rule over' the community and the 'right' to control resources within the territory occupied by the segmentary groups under the chieftainships. It is possible that the element of 'coercion' and 'compulsion' may have entered as a new feature to the production relations, where the original voluntary tribute to the chieftain was transformed into 'services' in an attempt to organize labour so as to intensify and regularize production. The significance of the titles held by certain individuals e.g. senāpati of the Pakōtakas, should be seen as a power over subordinate groups by virtue of their status associated with military ranks.

In such a situation, the chieftain who had come to derive the 'surplus' within the territory composed by the segmentary tribe, did not find it difficult to move a step ahead and control labour, the means of production and distribution. This economic consolidation of the political elite over the resident community becomes far more apparent in the post 3rd/2nd Century B.C. period in Andhra. This new division of labour, totally juxtaposed to the kin-based household economy, but conclusively established itself in the nuclear areas where the primary producer was now allocated functional tasks in society. However, even in the event of the emergence of a rudimentary class society, one must take note of the fluid situation that prevailed with regard to socio-economic
mobility in a vertical direction. We also have to bear in mind that the hegemonic control exercised by the political elite over these communities, even at this stage, was not sanctioned through varna or jāti scheme assigning a hierarchized social and ritual status.
Appendix - IV

The structure of the Ikṣvāku army: its composition and hierarchy

A larger portion of the soldiers may have been the subjects of the Ikṣvākus, residing in the lower Krishna valley. We come across a rāthika by the name Haraka and a chhāya stāmbha was raised at Vijayapuri in his memory as he died in battle (IAR 1956-57:38; Sarkar 1974:96). In another inscription from Kesana.palle, we come across the title Mahārathika (Khan 1969:4), which would mean that a rāthika was subordinate to the Mahārathika within the administrative unit. Since no other military title is associated with this rāthika, we may assume that such officials were vassals of the king and they not only supplied a contingent of soldiers to their overlord but also offered their personal service to the overlord in the battle field. It is quite likely that the Mahātalavara group performed similar services to the Sātavahanas and Ikṣvākus respectively.

In addition, the army also recruited soldiers from western Deccan and southern India. A chhāya stāmbha panel from Nagarjunakonda depicts a Sāka soldier in a hunting scene (Sarkar 1974:96). The arrival of Sāka soldiers and their deployment in the Ikṣvāku army may have been a result of the close matrimonial linkage between these two royal houses. This form of recruitment was not uncommon during this period as the Sangam texts mention the yavana bodyguards of the Pāṇḍyan king (Silap xiv. 66-67).
Several south Indian war chiefs also seem to have served under the Ikṣvakus. It is quite likely that Anikki may have arrived from Tamilāham. He bears a Dravidian sounding personal name (Chhabra 1959-60:148).\(^1\) Two other chhāya stambha inscriptions record the title peramādi/paramāda (Sircar 1961-62: 207-210, I-II). It is suggested that peramādi derives from the Tamil component perumāndi \(^2\) (to the compound expression) perumāndi > peramādi > pramādi (Sircar 1953-54:93).\(^3\) If this is acceptable, the peramādīs originally may have been minor chieftains, who had a clan basis for their following, and subsequently offered their services (as commanders of contingents) to more powerful chieftains or kings. One of these chhāya stambha inscriptions clearly states that the said pillar was raised in memory of a soldier named Sisaba and it is also recorded that he is the son of a kulaputa named Dhammasamaka belonging to the Rājamisiri family of the Nārāba viz. '... kulaputasa marabāna rajamisiri kulasa ...' (Sircar 1961-62:210, II). Nārāba may have derived from māravar > (marabar > marāba). The Māravar, in the Sangam context, was a community, originally identified with highway robbery. Subsequently, they supplied warriors to royal armies.

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1. The name of Anikki's son is given as Gāndi, which is also a Dravidian sounding personal name (Chhabra op. cit.).

2. Perumāndi derives from perumakkan (supra pp.21-3).

3. Inscriptions datable to the 10th-12th Century A.D. in the southern and eastern Deccan associate the terms permāndi (Hyderabad), peramāndigal (Alladurgam/Hedak), permādi (Nekkonda/Mahaboobanagar), permādi (Vankaramundram/Gulbarga), pramādi (Bhubaneswar) always with feudatories (Gai 1965:33, 81, 81, 126; Sircar 1953-54:90-94).
and it is also described that they conducted ceremonies associated with hero stones (Aharn 35; PTTI 657; Pillay 1975; 218-219; Singaravelu 1966:131-132). It may be speculated that one peramaddi may have been a Maravar/Maraaba, and enlisted the services of his community on behalf of the overlord. 1

The existence of such diverse elements within the standing army naturally called for organization and a hierarchized command. It is apparent that Mahasenapati i.e. commander-in-chief, was at the helm of this military hierarchy. It is also significant that during the time span covered by the Ikṣavāku dynasty (which is less than a century), at least nine individuals held this important title. In view of this, the following possibilities may be considered. A rapid succession of Mahasenapatis may have been due to such individuals who regularly lost their lives in the battle field. Alternatively, the Ikṣavākus did not permit one single individual to hold this important title for too long in case of political ambitions harboured by the Mahasenapati. A third possibility is that, at least in certain cases, this title may have had a limited application or it was purely ceremonial and honorific. To elaborate the last point, one may notice (vide Table No. 6) that out of the nine individuals who held this title, six belonged to the Mahātalavara group. It is likely that even Cāntapula of the kulahaka family, the Hatigahaka, may have also been a Mahātalavara. 2 The remaining two were members of the

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1. The inscription of the kulaputa as well as the one mentioning kumāra karadaru (ṣenāpati), Raṭputa (senāpati) and Haraka (rāṭhika) give their place of residence as Magalarana. It is not known whether this was a settlement of the Maraba/Maravar.

2. In another inscription we come across a Mahāsenapatini Cūla Cātāsirinika of the Kulahaka family who married Mahāsenapati-Mahātalavara khaṃdačalikivemmanaka of the Hiramaaka family (Vogel 1929-30:18-19, B-4).
royal house. It is, therefore, possible that the Mahātalavara chieftains who held the additional title Mahāsenapati may have performed tasks associated with this title in their own area i.e. rāgra administered by them. They may have commanded a series of other contingent commanders below them within their own rāgra and were, therefore, assigned with the title Mahāsenapati. The terms of this situation prevailed from the Satavahana period. We have already stated that during the reign of Pulamāvi III, Mahāsenapati Khamdanāga was in-charge of the Satavahānihāra janapada and below him, at the village level, was a gaulmika, another military officer (vide Sukthankar 1917-18:153-155).

It is perhaps the continuation of sub-regional hegemony related to this function that may have resulted in the hereditary character of such titles. The titles Mahāsenapati-Mahātalavara associated with Vasīṭhiputa Mahākhamdasiri of the Pukiya family, were in turn held by his son Viṃusiri as well (Vogel 1929-30: 20-21, 6-5). Our suggestion about regional leaders holding this title within a limited geographical zone is substantiated by more evidence. As we pointed out earlier on, if kumēra Eli was also a governor, then it is quite logical that he, too, like the Mahātalavara, held the title Mahāsenapati and commanded the lesser contingent chiefs in that particular region. We may also note that, some of these Mahāsenapatīs actually participated in the battles. For example, both kumēra Eli and Cāntapula of the Kulahaka family (Sircar 1963:10, 13-14) had memorial pillars raised in their name, after having lost their lives in battle.
Below the level of Mahāsenāpati there were a series of contingent commanders such as senāpati, peramāḍi, rathika. The occurrence of rathika as an individual involved in battles (Sarkar 1974:96; IAR 1956-57:38), may further substantiate our assumption about regional contingents that were under the overall command of Mahāsenāpati, who ultimately linked these to the king. The very occurrence of Mahāsenāpati and senāpati clearly indicates the gradation that prevailed in the hierarchy. The contingent commanders may have had a vertical relationship with the soldiers fighting under them, based on different aspects. For instance, if it is possible to suggest that the peramāḍi commanded troops belonging to the ṇāravar/ṇāraba, then the chain of command was a community or kin based one. In any case, the affiliation of these troops to the contingent commander is very clear. In the ohhāya stambha which mentions one peramāḍi, the term 'peramāḍi-bhadasa' is clearly stated (Sircar 1961-62:209, I). This literally means 'the soldiers of the peramāḍi'.

Another important aspect about the organization of the standing army was the existence of specialized fighting corps. In this context, we may recount the claim made by Khāravēla about different regiments in his standing army viz. cavalry, elephant-infantry (haya-gaja-nara) (supra pp.159-60) and the reference made by Pliny to the strong cavalry, infantry and elephant regiments of the Andhras (Pliny Book VI. c.22/ McCrindle 1901). The sources indicate that the Ikṣvākus continued this tradition. In fact skandhāvāras (garrison camps) are mentioned in the Ikṣvāku inscriptions (Sircar 1963:13 No. 6-A).
The above mentioned peramadis may have had infantry men under their command. The term bhada (bhaṭa) mentioned in these particular inscriptions means soldier and it refers to infantry men. A chhāya stambha from site 113 at Nagarjunakonda portrays four warriors with swords/spears and shield in their hands (Sarkar et Misra 1972:50). A panel on another chhāya stambha at site 37 shows two foot-soldiers engaged in a battle with a cavalier (ibid.).

It is interesting that the said panel carries the portrait of a warrior on a prancing horse with a drawn spear (ibid.). The earlier mentioned chhāya stambha at site 113 also portrays a horsman approaching a fortress (ibid.). Further, more excavations in the citadel revealed a structure that seems to have functioned as a stable (ibid. 19). In addition, another chhāya stambha depicts a Saka soldier on a chariot (Sarkar 1974:96). All this evidence may establish that the Ikṣvākus possessed a regiment of cavaliers and also that chariots were used in warfare and in hunting expeditions. The chhāya stambha from site 36 portrays an elephant with a rider and interestingly the inscription on this pillar mentions the title hati-ghaka in association with Mahāseśrapati Cāntapula of the Kulahaka (Sarkar 1974:96). It is interesting that, excavations yielded heaps of scattered elephants bones very close to this memorial pillar (Sarkar et Misra 1972:16), which may probably indicate the remains of elephants that were killed at war.

1. Several sculptured panels at Nagarjunakonda represent wrestling scenes (Sarkar et Misra 1972:22-23). While this was a popular sport, it is not altogether impossible that those who specialized in wrestling may have also participated in battles. Interestingly, the Sangam texts refer to the Malavar and the Mallar as warrior communities who specialized in wrestling (PPTI 655-56; Pillay 1975: 218-19). They also seems to have had clan leadership. For example, Malavar perumakana Ori of the kolli hills was one such clan chieftain (Puram 152-53, 158.5; Kurun 100, 199; Abam 208-9).
Appendix - V
A Note on the Velir

The historical antiquity of the Velir extends to the pre-Sangam period. Their original home was also apparently located outside Tamilakam. On the basis of the research conducted recently, it has been suggested that the Velir, along with the Andaka, may be identified as descendants of the Yādavas of western India (for a collation of earlier work and recent research vide R. Thapar 1975-76:86-98; Champakalakshmi 1975-76:110-112).1

In her study, Thapar raises an important cultural connection between the migratory tradition of the Yādava clans into peninsula India and the emergence of the iron using Megalithic Black and Red Ware culture in these regions (ibid.). If the suggested association between the earliest Yādava lineages and the Chalcolithic context is acceptable, then in addition to the Chalcolithic b-r-w, the Yādavas can be connected with the pre-Iron Age burials without megalithic appendage, namely urn and pit burials, cairn and stone circles, which are found within the Marappan Chalcolithic context.2 In Karnataka, these burial types (especially pit burials and stone circles having urns), move into localities having Neolithic/Neolithic-Chalcolithic sites and carry a greater

1. Thapar in fact points out to some interesting cultural features associated with the Yādavas. Their early zones of distribution, worked out on the basis of the Purānic texts, are in western and central India, with areas having Chalcolithic b-r-w and Iron Age BRW. The Yādavas are associated with pastoral wealth (probably with the bull cult) and the horse. They represented segmentary lineage groups and seem to have had a matrilineal structure (Thapar op. cit.).

2. With the solitary case at Pimpalgaon (a dolmen site), there is a high occurrence of cairn circles in Vidarbha (Deo 1982:30).
proportion of the BRW and graffiti bearing pottery than the pure megalithic types. Burials having no megalithic appendage which intruded far south, apparently have a greater chronology than the typical megalithic burials and they even contain white painted BRW and the russet-coated painted ware, the antiquity of which extends to the Deccan Chalcolithic and even to late Marappen context. The study made by R. Champakalakshmi is important because it demonstrates a coincidence between the sites associated with the Vēḷir in Tamilaham, as described in the Sangam texts, and the Megalithic-BRW sites (mostly urn burial, pit burial, cairn circle) in Tamilnadu (1975-76:121). We may note that the jar symbol is featured rather prominently amongst the Marappen pictograms (vide Mahadevan 1977). One of the meanings attributed to the Marappan symbol is 'jar bearer' viz. (sata (jar) + vahana (bearer) Sātavāhana (Mahadevan 1979:266). The Sātavāhanas are identified as the Āndhras or Andahaka, who are in turn considered to be a segment of the Yādavas. The sacrificial pot i.e. taḍavu in fact plays a prominent role in the traditions associated with the sage Agasti and the Vēḷir.

In addition to its primary meaning chief and petty ruler (DED 4562), the words (Vēḷ) Vēḷir carry several other meanings which may indicate particular characteristics associated with this community. The etymological attributes of the terms Vēḷ are, white, pure, shining, bright, clear (DED 4524; Vide Dorai Rangaswamy 1968:153 ff.) The Vēḷir were an intrusive and also a new techno-cultural group to the Primary Region. Does it mean that the Vēḷir believed themselves to be 'superior' culturally and
technologically, and maintained some degree of social purity avoiding inter-mixture with other communities? In fact, two other etymological derivations of Vel are 'illustrious man and great man' (DED 4562). It is possible that in the process of their migratory intrusions, the Velir may have used force or armed might to subdue or control stone using groups.

In the eyes of the new socio-economic groups that emerged during the Early Historic period, the Velir were an "ancient warrior clan, families (or 'house')," viz. mudukudi (Tol. Pura 79; Puram 166), Ton Mudir Velir (Ahám 372.3; Nar 280.8), Nudil (Puram 289.5), Vel mudu makkal (Ahám 372.4). They traced their lineage back to many generations (e.g. 49 preceding generations of Irunkövel, or Pulikadamal) and their ancient ancestral 'home' to Tuvarai, which is identified as Dwāraka or Dvarasamudra (Puram 201.10; PPTI 445; Champakalakhshmi 1975-76: 121). Their elitism and exclusiveness is so apparent even in the Early Historic period when they proudly defended lineage purity (even staking their lives) and scorned the Vental ('the crowned kings') of Tamilaham as Vampa i.e. 'upstarts, strangers or aliens' (Kailasapathy 1968:251-52).

1. It is interesting to note that an early Brahmi inscription from Tonigala, in western Sri Lanka, which records the donation of a parumaka, mentions a Tavirikiya-nagara in that area (Paranavitana 1970: Nos. 1051 to 1055). Tavirikiya may derive from Tuvarai or Dvaraka. It's location in western Sri Lanka is significant. The Mahavamsa mentions a place called Dwaramandalaya east of Anuradhapura (xxiii.33; x.1). The Tonigala inscriptions contain the symbols ▲. At Mullegama, which is a nearby site, a parumaka inscription carries the symbols ॐ, ॐ (Paranavitana op.cit. No. 1074). The combination of symbols number 1 and 2 or 1 and 3 give the following i.e. 'the jar-bearer' for ▲ or 'the lance-bearer'. All these symbols occur as graffiti marks on BRW at the urn burial site of Pomparippu, which is located only a few miles west of the Brahmi inscription bearing sites (Vide Seneviratne 1984:296-298).
The term Vel has the etymological derivations 'to offer, sacrifices, marry' (DED 4561). Could these meanings be associated with two important 'rites of passage' which are crucial to perpetuate the lineage or the descent group? As we have elaborated, the lineage or the descent group is an important factor legitimizing unequal status in a pre-class society. For instance, 49 preceding generations of Irunkōvel (Puram 201.10) or the ancestors of Adigaman may be mentioned here (Puram 99.2). Makan > mān may also reflect lineage or descent and has been used as perumakan Pēkan, Velāvikōman, Adigaman, etc. The Velir for example had branched into several groups and called themselves Āy (>Āvi > Aviyar), Adigaman, Āymān, etc., or directly as Vēmnān (e.g. Nannan Vēmnā) or as Vel (e.g. Vel Pāri). This, in all probability indicates the existence of segmentary lineage groups. It is also said that the power of authority passed through mother-right amongst the Velir (Puram 73.3). If this is so, the woman could not be permitted to move out of the affinal group as it tends to weaken the political and the economic basis of the segment. Hence, cross cousin marriage had to be perpetuated in order to maintain the economic and the power structure of the lineage group. Marriage (Vel) therefore carried an important self-sustaining meaning to this group.

Another aspect of 'rites or passage' may have been equally important to the Velir. This is the belief in a life after death.

1. It is possible that the confederation of 14 Velir who attacked Kāmpūr of chief Kaluvul (Aham 135.12), may have had some kinship ties binding them to each other.
and ancestor worship, both of which were symbolically represented in the burials. Ancestor worship is also another crucial factor that gives solidarity and continuity to the lineage groups. That the Vēḷir are associated with burials and offerings made to the departed kinsmen or ancestors, may have seen the identification of the meaning 'to offer' with the word Vēḷ (DED 4561). Emanating from this is the meaning 'sacrifices', which is another etymological derivation of Vēḷ (ibid.). There is positive evidence to show that the cattle and the horse were two animals that had been sacrificed as a part of the burial ritual. These sacrifices are different from the ritual animal sacrifices made by those following the Vedic religion. It is very correctly pointed out that '... no Vēḷir chieftain is known to have performed Vedic sacrifices' (Champakalakshmi 1975-76:120).

The term Vēḷ is also explained as earth (or mud) or land (cf. Sambasivan cited in Champakalakshmi 1975-76:119 Note 9). In Chapters I and II we have elaborated archaeological evidence indicating firstly, burials without megalithic appendage which occur along narrow alluvial tracts in the peripheral hills. Secondly, there is a profuse occurrence of urn burials in association with the lower alluvial plains in the nuclear areas. Thirdly, in the lower alluvial tracts, the burials quite often coincide with

1. Vide reference made by R. Thapar to Yadavas and their association with cattle (probably with the bull cult) and the horse. Elini, the Vēḷir chieftain, is also known as the 'lord of Erumai', i.e. Erumaiyūran (Aham 36). Erumai is female buffalo (DED 699).
irrigation tanks. There is every possibility that the Vēḷir may have introduced wet cultivation. Extensive cultivation based on a high yielding crop such as paddy, advance methods of agriculture such as the plough, the use of tank irrigation etc. The Sangam texts corroborate the above assumptions to a considerable extent. In one very interesting passage, the texts credit the ancestors of Adigmāṇ (of Tagadūr) for having introduced sugar-cane to northern Tamilaham (Puram 99.2). In all probability this implies the introduction of agriculture. In another case, Āy Aṇḍiran is praised as a giver of much rice (Aham 150.20). Manjilnādu, the land controlled by Āy Porunāṇ, a Vēḷir (Puram 137-140), may have acquired its name due to the use of the 'plough' (nāṇjil) in that area from an early period. There are other reference to Vēḷ chieftains such as Pārī, Evvi, Oymāṇ Nalliyakkōdan and several other Vēḷir residing along the Kāveri valley who possessed extremely rich agricultural tracts (see Vēḷ, No. 8 ). It is therefore ‘not incorrect to term the Vēḷir as the earliest agrarian elite in South India’ (Seneviratne 1981:322). In fact, the burials having no megalithic appendage are not only associated with land conducive for pastoral and agricultural activity but are also richer in grave goods, remains of cattle and the horse than the pure megalithic burials. Within this context, it is not difficult to identify the term Vēḷ in association with earth (or mud) or land and hence with a particular community thriving on it.

Another meaning given to the term Vēḷ is, 'he that is loveable', which is an attribute for Murukan (PPTI 799), who is
also known as *velan* i.e. spearman. While the Vēlir are known as members of 'ancient warrior families', Murukan is considered as the god of war. The occurrence of trident and spears as offerings of weapons in burials and as graffiti marks on pottery gives a definite pre-Sangam context to this symbolism. While the Harappan symbol ‡ is supposed to mean 'lance bearer' (Mahadevan 1979:266), the earliest coins of the Yādavas in Early Historic India, who are called 'members of the warrior clan' i.e. Ayudhajīvi saṅgha, depict the spear/trident wielding god of war or Kārttikeya (vide Allan 1936/1975; Sharan 1972). In fact the valour and heroism of Vēlir chieftains such as Vēl Pārī, Nequvel Āvi is compared to that of Murukan in the Sangam texts (Aham 1; cf. Kailasapathy 1968:179), which fits another etymological derivation of Vēl, which is 'hero' (DED 4562). This is a clear overlap between the deity, cult symbol and the leadership or community. Hence, the term Vēl > Vēlir.
Appendix - VI

Some terms related to movement-interaction-place location in Early Historic Tamilaham

We may first take up certain Sangam terms which indicated place/location/region though these terms never came to imply large territorial units.

*ita* - 'place; room, spot, opportunity'. (DED 368).

*itai* - 'wide space'. (ibid.).

*itai* - 'place, space'. (ibid.).

- 'to make room'. (ibid. 379).

*itaiya* - 'wide, extensive, spacious'. (ibid. 368).

*itaiyar* - 'the herdsman caste inhabiting mullai country (ibid. 382).

- 'shepherds/cowherds' (synonymous with Poduvar) (PPTI 103).

*idaikali* - 'entrance, pathway'. (ibid. 102).

*itukku* - 'narrow lane'. (DED 378).

*Itam/i tam and itai* for instance, means 'place, room, spot, wide space' (DED 368, 379), and *idaikali* means 'entrance or pathway' (DED 102). It is significant that a co-relation is suggested between Yadu and *Idai* (Mahadevan 1973:63). While the Velir are considered as a segment of the Yadava (Yadu), the Idaiyar are described as the 'herdsman caste inhabiting the mullai country' (DED 382; PPTI 103).

Interestingly, the region south west of Madras is known as *Idai kkalina-du*, which literally means 'the land of entrance to the Tamil country' (PPTI 102). It is not known whether this name evolved due to the existence of a traditional migratory route of the pastoral nomads or because this region was an entry-point to Tamilaham from the Vaṭukar country.
pali - 'hamlet, herdsman's village, hermitage, temple (esp. Buddhist/Jaina), palace, workshop, sleeping place, school room'. (DED 3309).
- 'study halls and rest places of Ājivaka and Buddhist ascetics; the cowherd colony; school; work place'. (PPTI 539).

The term pali during the Early Historic period, was commonly applied to the rest place of the Buddhist/Jaina/Ājivaka ascetics, school, and it also had parallel meanings such as hamlet, herdsman's village and cowherd colony (DED 3309; PPTI 539; Mahadevan 1966). It is suggested that the term pali may have derived from pal which means 'hollow' (Caldwell 1976:601), thus the application of pali to the original habitat of the ascetics represented by caves. Yet, the connection between the 'original' settlement and the pastoral tradition is too obvious to be overlooked.

paṇḍu - 'to settle down; to sink'. (Caldwell 1976:574).

paṇḍi (paṇḍu) - 'a place; a settlement'. (Caldwell 1976:574).
- 'spot; place; region'. (Joshi 1952:43).
- 'town', city, hamlet, pastoral village' (DED 3347).

paṇḍā (Marathi) - 'hamlet. Cluster of houses of agriculturists'. (ibid.)

paṭṭi - 'a fold for cattle, a pound, a small village'. (Caldwell 1976:574).
- 'cow stall, sheepfold, hamlet, village' (DED 3199).

1. Vide Note 1 in paṭṭinam, for change in pa > ha in Kannada.
pattī (Cont'd) — 'a place for lying down, an abode, a hamlet, a pen or fold, cow stall, sheep fold, a measure of land sufficient for sheep-fold, cattle pound, a place' (Joshi 1952:48)

hattī (Kannada) — 'cattle pen or fold, hut, a small village' (ibid.).

hatti/hatti — 'a market place'. (Caldwell 1976:580).

hatti-habba — The festival where cattle/sheep are worshipped (Joshi 1952:48).

pattu — 'village'. (DED 3199)

pattam — 'sleeping place for animals. (ibid.)

pattana > pattinam

pattinam — 'a city, town, village'. (Caldwell 1976: 574).

— 'maritime town, small town'. (DED 3199).

It is significant that the term pattinam which carries general meanings such as 'city, town, maritime town' (Caldwell 1976: 574; DED 3199), also has a series of meanings which evolved from a pre-existing techno-cultural context mostly related to pastoralism.

1. Pa > ha in Kannada is not due to Sanskrit influence, as suggested by Joshi (1952:46). It is a natural development in Kannada. Proto South Dravidian, pa is realised as ha in Kannada e.g. (Tamil) pāl = (Kannada) hāl (Pers. Com. K. Meenakshi).

2. Many coastal towns in Tamilaham during the Sangam period had the suffix pattinam added on to their place names e.g. Viraipattinam, Kāviripattinam, Eyirapattinam, Marungūrpattinam (perhaps a part of Puhār).
It is suggested that the ultimate root of this term may be found in *padu* which means 'to settle down; to sink, lie down' (Caldwell 1974:574; also see *pal* in *palli*). Apparently, *pādī*/*padu* and *patti* seem to have derived from the above root. *Pādi* and *padu* means 'a place, settlement, spot, place, region, hamlet, pastoral, village, town, city' (Caldwell 1976:574; Joshi 1952:43; *DED* 3347). Interestingly, during the early Christian era *pādi* also implied a 'military camp' (*PPTI* 546). Similarly, *patti* also means a fold for cattle, a pound, hamlet/village, a measure of land sufficient for a sheepfold (*ibid.*).  

*podu* - 'a common, general, public, neutrality, likeness, equality' (*DED* 3684).  
- 'a common meeting place in villages' (*PPTI* 610).  
- 'swidden plot cultivated by the Koyas of Andhra' (*Tyler* 1974).  

*poru* - 'to join, unite, combine, reach, extend' (*DED* 3684)  

*ρωκ* - 'common property of undivided family' (*ibid.*)  

*Poduvar* - 'shepherds/cowherds' (Synonymous with *Idaiyar*) (*PPTI* 611).  

*podu* + *il*  

*il* - 'in this place, here, house (e.g. ko-(v)-il, God's house)' (Caldwell 1976:281-86).  

- *il* - house, home, place, wife (*DED* 420).  

1. Interestingly, the noun *padu* (see Chart on *pattinam*), is described as a place (hollow or hole) of refuge (for wild animals) between stones or rocks (Joshi 1952:47).
illam - 'house', home'. (ibid.)

illālan

(يلة) - 'householder'. (DED 420).

ila. - 'the son who resides there', (Joshi 1952:53).

poduyil/podiyil - 'a common meeting place of village elders. A public place like Manram'. (PPTI 609).

- 'structure built around a banyan tree' (ibid.)
- 'built around the Marudam tree'. (ibid. 610).
- (textual references poduyil/podiyil).

1. Prior to their attack on Mōkūr, the Kōsār
gathered at Podiyil. (Aham 251).

2. The Kōsār of four villages assembled beneath
   the ancient banyan tree. (KU;Un 15.2).

3. A hill in Pāṇḍya country. (KU;Un 376),
   controlled by Āy (Puruṣam 128.5). Also called
   Āvinankudi. (PPTI 610).

4. Poduke of Ptolemy and the Periplus, may
derive from Podikai. (Champakalakshmi 1975-76:117).

The second series of terms came to signify small settlement units in the course of the Early Historic period. We may first take up podu/poduyil. While a parallel term of podu, which is
poru, means 'to join, unite, combine, reach and extend'. (DED.3684) podu itself means 'common, general, public, equality (ibid.).'¹

¹ The term Pu-f in Toda is 'common property of undivided family' (DED 3684).
This idea of interaction is conveyed during the Sangam period, when podu also meant 'a common meeting place in the villages' (PPTI 610). Derivative terms indicate a strong tradition of interaction and pastoralism associated during the podu of the Sangam period. Poduyil (podu + il; il meaning house) within the Sangam context implied a common place (a structure built under a tree) where village meetings took place; a place where communities met; an area controlled by a chieftain (vide PPTI 609-10; Aham 251; Kupun 15.2). At least two areas associated with the term poduyil during the Sangam period (the northern hills of Tamilaham where the Közär gathered before attacking Mokür and the present Palani hills which was controlled by Ay chieftains during the Sangam period) have a strong pastoral tradition, the occurrence of various megalithic types as well as entry-points to the lower valley. Interestingly, Poduvar is another derivation denoting shepherd/cowherd and is synonymous with Idaiyar (PPTI 611).

— 'curved, bent, crooked'. (DED 1709).

Kōḍ — 'a line, a line of circumvalation' (Caldwell 1976:572).
— 'crooked sticks, branches (?)' (PPTI 335).

Kōḍ-ū — 'a walled town, fortification' (in Malayalam).
(Caldwell 1976:572).
— 'Stronghold' (in Tamil) (DED 1831).

1. The terms manru and manram found in the Sangam texts also mean a common meeting place in the village usually built around a tree and a hall in which cattle were tied (PPTI 600-01).
kōṭṭu - 'granary'. (PPTI 335)

kōttāram - 'granary; place where grains are husked'.

Also 'elephant stall, palace'. (Emeneau et Burrow 1962:26, No.115).

kottati - 'store room, cattle shed'. (ibid.)

kōṭṭai - 'fort'. (PPTI 336).

- 'fort, castle'. (DED 1831).

kōṭṭam - 'temple' (PPTI 336).

It is not altogether impossible that kōṭṭai 'fort, castle' (PPTI 336; DED 1831) probably had its origins in a more humble settlement unit and only subsequently had extended meanings from fort, castle and even to administrative and military centres (e.g. kōṭṭam of the Pallavas, vide Minakshi 1977:46). Kōṭṭai may have derived from kōṭu/kōṭu 'crooked, curved, bent' > kōṭu 'a line of circumvalation, crooked sticks' > kōṭu 'a walled town, stronghold' (Caldwell 1976:572; DED 1709, 1831; PPTI 335) kōṭṭu 'granary' (PPTI 335) (supra chap. I) for archaeological evidence on settlements such as kōṭṭur in the Kodaikanal hills which are associated with early agriculturists in the narrow valleys). It may be inferred that the pastoralists may have had settlements fortified by planted sticks.